



# Native Plantings as a Strategy for Local Governments

Submission to:  
The Elisabeth Haub School of Law Environmental Law and Policy Hack (2020)

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Avery Newell  
Tess Romanski



## Introduction

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Local governments across the United States are developing policies and plans to react and adapt to climate change.<sup>1</sup> As local governments begin to address climate change through law and policy, one strategy that may be effective at achieving both mitigation and adaptation is increasing vegetative landscapes in underutilized urban, suburban, and rural areas that are controlled by the local government. Municipalities have increased vegetation through a variety of means, but one that has not been widely used in the United States is using native plantings in medians. While there are challenges to implementing such a policy, there are also many benefits that may arise from using this strategy as a mitigation tool.

This paper proposes that Hartford, Vermont use native planting species on medians, green belts and shoulders to enhance its stormwater management and flood mitigation. Using native planting will enhance the aesthetic and natural beauty of Vermont whilst also encouraging sustainable landscapes that will last for many generations. Hartford, Vermont is used as an example to describe the potential challenges, benefits, and policy structure that may be used to implement such a mitigation technique. However, this proposal can apply to any municipality or state-owned highway system in Vermont and across the United States.

This paper will discuss challenges that local governments face in managing stormwater and flood mitigation and the benefits of native planting in reducing the impacts of those issues. This paper will discuss the implementation process and considerations each local government must make in undertaking a native planting project. Finally, this paper will use examples from other local governments with successful native planting procedures and projects.

## Challenges faced by local governments in managing stormwater

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Local governments face many barriers in implementing climate policies to address adaptation and mitigation, from rising administrative costs to decreased revenue streams and competing public interests in project funding. The U.S. Environmental Protection Agency (EPA) has predicted that by 2020 over 45% of U.S. water infrastructure will be in “‘poor,’ ‘very poor,’ or ‘life elapsed’ (older than its predicted life span) condition,”<sup>2</sup> and as extreme storms and severe weather changes begin to put increased stress on cities’ water infrastructure, local governments will have to make difficult decisions on how to adapt to these changes in weather patterns while dealing with aging and inadequate infrastructure.<sup>3</sup> This section will discuss the budgetary restraints facing local governments, the difficulty in maintaining or improving aging stormwater infrastructure, and the potential for higher risk of flooding due to increased water runoff.

### ***a. Increasing costs, decreasing revenue for stormwater infrastructure maintenance***

One of the biggest barriers to increasing community resilience through local policy is cost. Through decreases in local tax revenues, increased service demands, and cost of infrastructure, local governments often struggle to balance local budgets and find funding for these types of projects.<sup>4</sup> As local governments experience decreases in sale, income and real estate tax revenue, local services and programs are selected based on need and constituent interest in order to best utilize what funds are available.<sup>5</sup> While adaptation and mitigation measures may be desired by the local government or citizens, when dealing with a variety of other municipal costs and a limited budget, local governments may prioritize other programs and services first.

With many programs and services vying for the same funding, local governments may struggle with adequately supporting stormwater management and flood mitigation practices or lack flexibility to respond when issues arise. As cities and towns become more developed and there is an increase in the area of impervious surfaces (such as paved surfaces, rooftops, buildings, roads), rather than being absorbed into the ground, stormwater runs off the land and requires municipal intervention.<sup>6</sup>

Most municipalities collect and discharge their stormwater runoff through municipal separate storm sewer systems into local water bodies.<sup>7</sup> However, as stormwater loads increase, municipalities are struggling to adequately maintain their storm sewer infrastructure to deal with a higher volume of runoff, leading to an overload of the system and increased flooding and pollution runoff into nearby waterways.<sup>8</sup> And as federal and state funding to help pay for improvements and upkeep is cut, local governments increasingly must decide between providing necessary services, like paying teachers’ salaries, with funding stormwater maintenance, which often garners less public support.<sup>9</sup> Indeed, a 2019 program proposal by Vermont’s governor cut by almost 10% state funding for municipal stormwater upgrades, putting pressure on local governments to maintain infrastructure without fiscal support from the state.<sup>10</sup>

### ***b. Risk of flooding***

Decreased effectiveness of stormwater management, in addition to other environmental factors and increased vulnerability of water systems through climate change, also makes flooding a serious issue that many local governments are beginning to be forced to address. Changes in waterways, increased runoff, and extreme storm events that are projected to get worse over time<sup>11</sup> all contribute to flooding events that cost communities billions of dollars of damage annually.<sup>12</sup> Floods have been shown to have the highest cost of any natural disaster in the United States in terms of lives and property lost,<sup>13</sup> with the impacts falling disproportionately on the most vulnerable populations in a community.<sup>14</sup> And as climate change exacerbates weather events, floods are projected to continue to increase in frequency and severity, putting pressure on governments to protect their communities from loss of life and property,<sup>15</sup> as well as protecting waterways and wildlife habitats.<sup>16</sup> In a state like Vermont, which is prone to flooding events that create millions of dollars of damage in infrastructure, contaminate waterways and soil, damage communities, and cause huge agricultural losses, municipalities need to have mitigation policies in place to create resilient communities.<sup>17</sup> The challenge lies in creating a mitigation solution that does not exacerbate the budgetary struggles many local governments already face.

## Our Proposal

Our proposal is for the town of Hartford, Vermont. However, this ordinance should be able to apply to any municipality in Vermont and beyond. The main goal of our proposal is to provide recommendations for moving forward with a native planting project or improving upon existing areas with native planting. The primary areas include medians on highways and large roads, road shoulders, and green belts. However, this recommendation may also apply to green belts and sidewalks owned privately, either residentially or commercially. The recommendations do differ for private and public lands.

First, the town of Hartford, Vermont, should use Act 250 language in their town and regional plans. Using Act 250 will help incentivize and promulgate more native planting projects. The projects will have a greater chance of receiving permit approval from the Vermont Department of Transportation and will have quicker and more efficient planning process because the project will have already gone through the permit phase.

Second, the town of Hartford should create mandatory native planting for new zoning, regional planning, roadway improvement or building for publicly owned land. Native plantings should be required on the shoulders of the roadways as well as on the green belts at issue. The town should use the resources available to them already in their code for distance and spacing between native plantings. Some further research on height, utilities, and ice/snow maintenance may be needed for the plantings. The town should also include a persuasive recommendation for private, commercial properties. All new buildings that are on a roadway should have the option to plant native plants. Similarly, the town should provide new residential buildings the option of native plantings as well.

The town of Hartford already has many sections of their ordinances that discuss plantings, landscaping, and other improvement categories. Using the language already created will help the town define the native planting requirements for each property type. Further, the ordinance itself should either amended to include language on native planting. The details on native planting should be included in the town and regional plans. The town already has a Zoning Board, Conservation Commission, and Planning Commission. To avoid frustration,

one committee should be in charge of the process of native planting and should provide access to information about native planting for interested private owners.

This proposal reflects a policy towards using native planting to benefit the town and the owners of the property through stormwater management, flood mitigation, carbon emissions, and more. The proposal highlights a policy geared toward mitigating current environmental conditions in Vermont. Whilst our policy has been geared primarily towards how the town may apply native plantings, it is also geared towards the changing climate in Vermont. Native plants will help mitigate the large-scale changes to stormwater runoff and flood mitigation as the temperature changes in Vermont. Further, native plants work towards mitigating these issues for future generations. Using the plantings today as a new project will help improve and clean the landscape for the future generations.

### *a. Local Policies as a Framework: Hartford, VT*

Hartford has many policies that already encourage planting and landscaping of trees and other plants in its code and ordinances. In all the ordinances listed, Hartford allows that in some instances planting might either be required or encouraged. Plantings and landscaping come up in the following sections of the Hartford code and ordinances.

First, under Hartford Code Ch. 200: Subdivision Regulations, Art. IV. §200-<sup>21</sup>(B), Hartford provides that shade trees may be required during site preservation and improvements in subdivisions.<sup>18</sup> Hartford's code relays that the Commission "may require suitable hardwood shade trees [...] to be planted along streets where trees do not exist."<sup>19</sup> The code determines the size of the tree and the distance it must be from the street.<sup>20</sup> This section of the code creates a permissive authority to allow tree plantings in places where they might not be planted otherwise.<sup>21</sup> Further, the code specifies the distance from the road, the size of the tree, and the type of the tree (here maple, ash or oak) that may be planted.

Second, under Chapter 260: Zoning, Art. III. §§ 260-<sup>24</sup> and 260-<sup>27</sup>, the code outlines landscaping in terms of access and

parking and under a general landscaping heading. Both of these sections highlight the fact that the plant should not be invasive to Vermont and selected for the special conditions of the lot (which may include snow treatment, plowing, or other issues specific to the area).<sup>22</sup> Section 260–27 provides more specificity and highlights that the plants may be trees, shrubs, lawns, flowers, crops, pasture, meadow, wetlands and forests.<sup>23</sup> Further, Section 260–27 requires proper maintenance of the plants after they are planted.<sup>24</sup>

These three sections of the Hartford code portray a strong starting place to create native planting on medians, shoulders and green belts along roadways. Hartford has already determined the proper distance to reduce collisions and maintain proper lighting. Further, Hartford has indicated what type of plantings may be used, and that once planted the plants must be properly maintained.

An ordinance like the ones Hartford has already scribed would be suitable for native plants on medians. The ordinance should include distance, lighting, special circumstances (snow, plowing, etc.), what type, and that it should be properly maintained. Further, the ordinance should follow Hartford in that it should be permissive, but not required.

### ***b. Vermont: Act 250***

Vermont's Act 250 is a strong starting place for a local authority to begin using median strips, shoulders and green belts as a place to plant native species. Vermont's Act 250 provides permits for local authorities to improve portions of the land under ten criteria.<sup>25</sup> Act 250's procedure involves a hearing with the District Environmental Commission.<sup>26</sup> The Commission consists of three members and evaluates the permit application under the ten criteria.<sup>27</sup> After the hearing, the Commission determines whether to approve the application or to have a recess to a later date for more information.<sup>28</sup> The Commission approves most permit applications if the application satisfies the ten criteria.

The ten criteria are: 1) Air and water pollution; 2) water supply; 3) impact on water supply; 4) erosion and capacity of soil to hold water; 5) transportation; 6) educational services;

7) municipal services; 8) aesthetics, scenic and natural beauty; 9) impact of growth and; <sup>10</sup>) local and regional plans.<sup>29</sup> A plan to incorporate native planting on the medians of major roadways, on the shoulders or on the green belts would absolutely satisfy the criteria under Act 250 to get a permit. The criteria that native plants will impact the strongest are 1) air and water pollution; 4) erosion and capacity of soil to hold water and; 8) aesthetic, scenic and natural beauty.

First, the native plants will aid air and water pollution. Native plants act as flood deterrents and could absorb carbon.<sup>30</sup> Not only will the native plants help prevent floodwater runoff, but the native plants will also help with air pollution as well. Due to the plants' location on roadways, a major source of pollution, the plants will act as a deterrent to air and water pollution.

Second, native plants will have a positive impact on erosion and the capacity of soil to hold water.<sup>31</sup> Native plants will occupy a space commonly mowed down and instead incorporate a strong root system that takes in water and carbon to reduce its impact. A median or shoulder will have more strength against erosion with native planting in place than without.<sup>32</sup> Native planting absorbs more water and reduces the ability of runoff and erosion through building the soil's capacity.<sup>33</sup>

Third, native planting will have a positive effect on aesthetics. Medians are infrequently seen as places for aesthetics. Incorporating native plants, such as flowers among other shrubs and grasses, will increase the appeal of medians and shoulders along the roadways.





## Benefits of native planting

Native plantings, or plant material that originates in and is native to a specific geographic region,<sup>34</sup> can help local governments mitigate some of the difficulties faced. Traditional landscaping tends to favor the same plants across a variety of sites to create an identical look regardless of location, while native plantings emphasize plants grown naturally at each location.<sup>35</sup> And encouraging these native plantings in medians can help mitigate some of the issues inherent in traditional median landscaping, such as drainage issues leading to increased need for road work,<sup>36</sup> as well as the challenges discussed above that local governments may face. This section discusses the economic benefits, stormwater management improvements, and flood adaptation capabilities of incorporating native plantings in medians, as well as touches on additional aesthetic and ecological benefits of this proposal.

### *a. Efficient and economical landscaping*

For local governments that struggle to balance their budgets, promoting native plantings may be a more cost-effective strategy than traditional landscaping. The EPA has found that “the combined costs of installation and maintenance for natural landscape over a ten year period may be one fifth of the costs for conventional landscape maintenance,” as native plantings require almost none of the maintenance inputs necessary for traditional landscaping.<sup>37</sup> The cost of traditional landscaping maintenance often include labor- mowing, trimming, mulching- as well as water

upfront cost of installing native plants on a plot can be higher than re-seeding existing traditional landscaping, the long-term cost of native planting has been shown to be lower than upkeep on traditional plantings.<sup>39</sup> Even with native prairie expenses including “seeding, planting plugs, mulching, and maintenance costs” of installing the new system, the EPA has found that native prairie costs 56% less than turf to install in a new area and can provide significant savings on maintenance costs over a period of five years.<sup>40</sup> Furthermore, simply paving the median could be more costly than either traditional or native planting, with one estimate stating that a median “20 feet wide and one mile long costs \$200,000 to asphalt,” while seeding native species would be about 5% of the cost.<sup>41</sup> And green infrastructure

such as native plantings can also help slow deterioration of existing pavement, saving money on street maintenance and reducing upkeep cost of city streets by anywhere from 15-60%, depending on the type of planting used.<sup>42</sup> Long-term reduction in maintenance costs may be an effective tool for local governments to reduce expenditures and balance budgets.

### *b. Effective stormwater management*

Native plantings provide other financial and environmental benefits besides reduction in maintenance costs. For local communities that are struggling to maintain their stormwater management systems, natural landscaping can help accommodate storm and flood waters as the deeper root systems of native plants increase the capacity of the soil to store water.<sup>43</sup> An EPA study found that native plants infiltrate stormwater at a rate of 7.5 inches per hour, compared to an infiltration rate of 0.29 inches per hour for traditional sidewalk grass.<sup>44</sup> Using native plants to absorb stormwater can be an effective technique to reduce the load on aging storm sewer infrastructure, as these plants increase the water storage capacity and absorption rates where they are planted.<sup>45</sup> Natural drainage through native plantings can not only reduce runoff and increase water retention but also can be more cost efficient to install when compared with updating or replacing storm sewer systems.<sup>46</sup> As local governments look to manage the increased volume of water running off impervious surfaces, native landscaping may be a more efficient and cost-effective alternative to replacing sewers.<sup>47</sup>

### *c. Flood mitigation*

For local governments and communities in states like Vermont that experience flooding in part due to changes in floodplains and waterways, native vegetation can provide assistance in mitigating the challenges inherent in flooding. As discussed above, native plants have a higher absorption capacity than do traditional plantings, providing valuable infiltration services. Additionally, native landscaping is often designed to mimic natural hydrology to slow water flows, spread water over a larger area, and sink the water into the soil rather than move it elsewhere.<sup>48</sup> This increased absorptive capacity significantly

helps reduce water runoff, which can lead to fewer flooding incidents as well as assist in managing water if a flood were to occur, mitigating potential damage.<sup>49</sup> As climate change is projected to worsen flooding incidents and extreme weather in the future,<sup>50</sup> native vegetation can be a valuable asset for local governments to use as an adaptation tool to a changing ecosystem.

#### ***d. Additional benefits***

Choosing plants that are adapted to the local climate and soil conditions can also be beneficial in that they provide shelter and food for wildlife, promote biodiversity and require less water.<sup>51</sup> Native vegetation has also been shown to provide water quality enhancements, recreation, air purification, and carbon sequestration, improving the environment in a myriad of ways besides reducing runoff and managing water.<sup>52</sup>

Native plantings can act as a carbon sequestration tool, absorbing carbon dioxide from the air and storing it in vegetation and soil, acting as a strategy to offset carbon emissions and mitigate climate change.<sup>53</sup> Additionally, while turf grass requires about one inch of water per week in the summer, native plants conserve water once planted and require little to no watering in summer months, allowing local governments to reduce water consumption<sup>54</sup> as well as greenhouse gas emissions through reductions in energy use for water treatment and pumping.<sup>55</sup> Likewise, no need for mowing can improve the environment through a reduction in noise and carbon pollution as fewer mowers and lawn care equipment emit into the air.<sup>56</sup> The lower maintenance and energy costs, as well as the ecological benefits of absorbing greenhouse gasses, allows native vegetation to act as a powerful climate mitigation tool.

Additionally, native plants provide vital habitat and food for birds and important pollinators, including “hummingbirds, native bees, butterflies, moths, and bats,”<sup>57</sup> mitigating the impact of urban structures on wildlife and providing a higher level of biodiversity to the area than where non-native plants are used.<sup>58</sup> Furthermore, runoff has been shown to carry contaminants, such as toxic, manmade chemicals, into bodies of water- native plant root systems help “hold harmful or

toxic substances in place,” reducing water pollution in nearby bodies of water and watersheds.<sup>59</sup> The additional environmental benefits to native planting, while potentially difficult to quantify financially, can help cities improve urban spaces and mitigate the challenges of a changing climate.



## Potential costs with native planting on medians

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### *a. Public vs. Private Land Ownership*

Any project that changes the landscape or includes a new landscaping guideline will need to adhere to the ownership of the property. A privately-owned property and a publicly owned property will have different requirements and may change the status of the recommendation. The state can require publicly owned land to use native planting.<sup>60</sup> The state may only be able to recommend or incentivize native planting on private or commercially owned land.<sup>61</sup>

First, if the land is publicly owned, meaning the state has ownership and title over the property, it is the state's own persuasive authority to build new or improve upon existing highways and medians.<sup>62</sup> The title of the land is to the state and it would be the state's own choice to require itself to improve or build new medians on the land.<sup>63</sup> Further, if the land is in public trust, then the state may have further requirements or duties to improve upon the land for current and future generations.<sup>64</sup> The state has greater leeway with requiring publicly owned land, such as highways, shoulders, and green belts to be improved upon.

Second, if land is privately owned the state has less authority on whether they can require owners to improve the land or put in new native plantings.<sup>65</sup> For residential property, the state should use recommendations and persuade the owner to use native planting.<sup>66</sup> Further, the state should educate the private owners on native planting and its benefits as well as provide tools for the owners to build on their own accord.<sup>67</sup> Tools may include databases, recommendations, and providing other information on costs and benefits. For commercial properties, the state also may be unable to require the owners to use native planting.<sup>68</sup> However, a commercial property owner may be more likely to follow a recommendation if there are incentives to use native planting. Incentives may include providing information on improved quality of the land which may in the long run reduce maintenance costs.

### *b. Economic Considerations*

The cost of native planting is significantly lower than asphaltting a new median or maintaining turf. Typically, a 20-foot-wide, 1-mile long median costs the state around \$200,000 to prep, asphalt, and does not include the price of maintenance of the area.<sup>69</sup> In contrast, native planting is significantly cheaper, yet it is not without costs. A median with native planting is typically around \$10,000.<sup>70</sup> The price includes purchase of the seeds, the planting itself, and the typical first year of maintenance. Overall, planting native plants is about 5% of the cost of asphaltting the median instead.<sup>71</sup> If the state has already developed a median without planting in the center, then the cost is even less.

Although \$10,000 is the typical cost of planting with native plants in a median, this price can still be relatively high for local areas on a lower budget. In Vermont, the Department of Transportation covers most of the highway systems including the medians and shoulders on the roadways.<sup>72</sup> However, small and local roads are typically under the cover of the municipality.<sup>73</sup> The municipality's planning commission or transportation committee will often work on developing and improving on the roadways.<sup>74</sup> Further, the planning commission often has control over the development of driveways in residential and nonresidential areas.<sup>75</sup> Ten thousand dollars may be a large sum for some local and municipal areas, depending on the socioeconomics of that area.



### *c. Implementing Native Plantings on Medians*

If a state or local authority is currently developing a road system, median, or shoulder, it is very important that the authority develops its plan to use native planting early in the project process. Typically, a transportation project has five major phases: 1) local planning; 2) regional planning; 3) scoping; 4) project development and 5) construction and maintenance.<sup>76</sup>

Ideally, if an authority intends to incorporate native planting, it should begin to discuss doing so at the local planning phase. The local planning phase incorporates the local authorities, citizens, and other planners establishing the goals for the transportation system at the local level.<sup>77</sup> Importantly, this often includes the landscape goals. Further, the landscaping goals will be on the town's budget, and the town should plan to use native planting early in the process to avoid excessive costs later when the landscaping plans come to fruition.<sup>78</sup>

All states have a sight line requirement that extends to median plantings. Usually, there can be no obstacles blocking the driver's view of oncoming vehicles to avoid collisions.<sup>79</sup> The design of the road also changes the way that an authority may implement median plantings. Curved and hilled roads have different needs than straight, flat roads. Although there may be significant requirements for curved and hilled roads, the shoulders of roads, depending on the width of the shoulder, can be a viable alternative for native planting.<sup>80</sup>

Native planting can include both trees, shrubbery, grasses, and flowers. A mixture of many is the ideal method. Where trees cannot grow due to visibility issues, shrubbery, flowers, and grasses might be a viable alternative for the project. However, there are many native trees and shrubs that are grown specifically to be "street trees," or trees that either have no branches from the trunk or clear stems can be clipped.

A village, town or even highway authority might impose distance requirements for plantings on either the median, shoulder, or the green belt next to the shoulder of the road. Usually, these distance requirements are for the safety of cars

in case of collision or if the car needs to swerve in an emergency or accident.<sup>81</sup> The distance requirements are very specific to the area and location of the proposed project. Distance might be based on emergency stopping areas, slope of the road, and the speed limit.<sup>82</sup>

Distance might also incorporate lighting issues. Trees might need to be spaced at a certain distance to avoid over-shading in certain areas.<sup>83</sup> Lighting is not as large of an issue if the project instead uses shrubs, flowers or grasses. Overall, distance issues should account for safety. Even if the project cannot use trees due to distance or lighting issues, there are many other native plants that can be used in lieu of trees.

The second phase, the regional phase, often arises when the state is building a highway system, or if there is a large stretch of road that will go through multiple municipalities.<sup>84</sup> Either way, when portions of the road may be under state control rather than local, the state should also use the early planning process to incorporate landscaping goals, such as native planting. The same issue at the local level may arise later for the regional level as well. Waiting to determine what kinds of plantings, landscaping ideas, and planning for those ideas might cause the state or municipality to front higher costs than if they plan early in the process.

As stated above, the ideal time to plan for native planting is in either phase one or two. However, the goals for landscaping and native planting should be recognized throughout the entire project. In phases three and four, or scoping and development, the authority should consider the planting process in their plan and throughout the development of the project. The scoping and development phases provide insight into how well the phases are going.<sup>85</sup> The scoping phase is particularly helpful in deciding whether an alternative landscape design is needed.<sup>86</sup> The development phase is particularly helpful for the actual implementation of the native plants into the project.

Finally, the final phase, construction and maintenance, is the most important in the actual implementation of the native planting. If a municipality or state authority planted trees, it is crucial to maintain them and preserve them as they begin to grow.<sup>87</sup> Further, general maintenance of the newly planted area is necessary to ensure that the planting process is effective.<sup>88</sup> Often this is the responsibility of the local authorities. The final phase is crucial because maintenance is important in the final phase of the process.

#### **d. Utilities**

Many state and local authorities will run into issues with utility lines and pipes. Sewage and gas pipes often run under roadways.<sup>89</sup> Whilst underground utility lines are uncommon, above ground utility lines and poles are very common. This poses issues particularly for trees. Pipes can be redirected lower underground to avoid tree roots. However, trees that are planted above ground might need to be clipped or cropped to avoid interacting with the above-ground utility lines and poles.<sup>90</sup>

Native planting does not entirely need to be concerned with utility lines. However, if part of the native planting process includes native tree species, then utility lines must be considered. In the case of utility lines, smaller trees might be preferable over larger trees or trees that have extensive branch systems.<sup>91</sup> Further, as stated above, many street trees that fall into the native species can be used in lieu of larger trees. As always, a viable alternative to large trees that might impact visibility or interact with utility lines might be to use other native plants. Shrubs, flowers, and grasses can aesthetically impact the area as well as physically and environmentally. Where trees may pose too many issues with over and under-ground systems, smaller native species may be the better suited.

#### **e. Vermont Specific: Freezing and Snow**

Vermont is prone to ground freezing from the fall through the spring. Deciduous trees with particularly high shading due to thick branching or twig patterns might cause the ground to freeze earlier and to thaws later.<sup>92</sup> This is particularly problematic for road and driving safety. Ground freezing might increase ice coverage on the roads and can cause more traffic accidents during the winter months.<sup>93</sup> The solution to freezing is to choose trees that are either smaller and have a lower shading impact, or to choose trees with fewer branches at the trunk or with a thinner Vermont also has a significant amount of snow maintenance throughout the winter months including road treatment, plowing, and snow coverage.<sup>95</sup> These three issues might affect the ability of the native plant to sustain itself in an area with larger amounts of snow maintenance. The trees or plants used on the medians, shoulders or green belts should be viable throughout the winter months and be able to withstand possible plowing collisions and road treatments for snow & ice.



## Examples of other city policies implementing native planting

There are several cities across the country that have implemented an ordinance or city policy to encourage natural landscaping or native plantings, although few have focused specifically on incorporating native plantings in medians. Listed below are some innovative strategies used by cities to increase native plantings to mitigate flooding and stormwater runoff, as well as increase biodiversity, pollination, and reduce maintenance.

### *a. Chicago, Illinois*

The City of Chicago Department of Transportation has implemented a Landscaped Median Project that encourages use of median space to plant greenery that helps collect and treat stormwater, as well as beautify the community and help combat climate change.<sup>96</sup> With over <sup>110</sup> miles of landscaped medians throughout the city, these landscaped medians “collect and store stormwater, reducing the amount that enters storm sewers and basements.”<sup>97</sup> While this policy does not specifically mandate use of native plants in the landscaped medians, the Department of Transportation has acknowledged that “native species planted in the medians provide food, water and shelter to birds and insects,”<sup>98</sup> and the City of Chicago has published a Recommended Native Plants List to encourage the use of these species<sup>99</sup> as well as a Roadway Plant List developed by the Department of Transportation.<sup>100</sup>

Crucially, discretion for planting and maintenance is left up to the Department of Transportation, the agency most familiar with urban roadway conditions and with the most experience working with medians and other roadside areas.<sup>101</sup> The Landscape Median Project relies heavily on the expertise and knowledge of the implementing authority rather than mandating specific plantings that may not work in practice.<sup>102</sup>

### *b. Westchester County, New York*

Westchester County’s Executive passed an Executive Order directing that “plant materials native... [to the region] shall be used exclusively in designing, planting, maintaining, and managing the landscape features of all County roadsides, parks, public areas, and other County properties and facilities.”<sup>103</sup> This Order included directions that any planting must consider biological needs of the site (including soil analysis), require little or no maintenance or water usage, and be an educational tool for the public to learn about the importance of native plants in the region.<sup>104</sup> While the County Executive stated that the main purpose of the Order was to increase biodiversity, create pollinator habitats, and provide public awareness,<sup>105</sup> the Order also acknowledges that “native plants enrich the soil by helping rain percolate into the soil through their root systems, thereby reducing erosion and water irrigation requirements and filtering storm water runoff, which, in turn, improves water quality.”<sup>106</sup>

Although the Executive Order is not specific to medians, roadsides and other County property is included in the Order and thus can be read to include medians and other roadside plantings.<sup>107</sup> Importantly, this Order recognizes that requiring a new system of planting and new landscaping techniques may be ineffective without recognizing that additional knowledge and expertise may be necessary to assist in proper implementation and ensuring that those accountable for implementing new regulations have the technical support they need. This includes proposed partnerships with institutions, nurseries, and other growers to help with the implementation of the Order and provides technical guidance.<sup>108</sup>

### *c. Town of Victor, New York*

The Town of Victor passed an ordinance requiring that “all plantings used to satisfy landscaping and landscaped area requirements shall be comprised of at least seventy-percent native plant species... the remaining 30% or less of plantings shall be comprised of nonnative plant species which are not invasive plant species.”<sup>109</sup> While not specific to medians, this ordinance provides a valuable example in how some local governments are gradually phasing in native planting requirements.

In order to help facilitate this ordinance, the town government published a Native Plant Manual, enumerating which trees, shrubs, perennial and grasses would be appropriate for developers and contractors to use in order to be compliant with the 70% requirement.<sup>110</sup> The manual also discusses proper planting and correct siting, stating that “energy savings and environmental benefits of installing plants are accrued indefinitely, while the cost of installation occurs just once... [and] benefits tend to increase over time as the plants grow, while maintenance costs are low to non-existent.”

<sup>111</sup> Additionally, the manual emphasizes that “judicious use of plants in the landscape is a cost-effective way to utilize the environmental benefits of plants... [and] bioengineered water control devices are far more cost effective in managing stormwater than man-made structures.”<sup>112</sup> The 70-30 requirement can be an effective way to ease developers and property owners into native planting without requiring full natural landscaping, allowing some traditional non-native plants while also encouraging a transition to more native species.

### *d. Eugene, Oregon*

The City of Eugene has passed a city policy prioritizing native plants and discouraging or prohibiting non-native or invasive species in order increase the use of native plants on city-owned land through the Department of Public Works.<sup>113</sup> Rather than requiring city staff to plant native species, the language in this policy emphasizes using native alternatives to commonly used landscaping species and discourages non-native plant use when possible, declaring that “in an effort to halt the intentional introduction of invasive species and to promote the re-introduction of native species, the City...prohibits the use of the most problematic and documented invasive species, discourages the planting of other species that are suspected to be problematic and encourages the use of native plants on all City-owned lands and projects.”<sup>114</sup> While a less restrictive and more permissive policy than others, the city focuses on positive incentives and providing information to encourage staff to plant natives- even providing a comprehensive list of native alternatives and habitat requirements to encourage staff to choose plants themselves.<sup>115</sup> This document further acknowledges that “while native species generally require less water and care than non-native species, this is only true when planted in the appropriate soil moisture and sunlight conditions,” emphasizing additional resources employees can use to properly choose plant species.<sup>116</sup>

## Conclusion

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Native vegetation offers a variety of benefits with low costs that will aid local municipal governments in stormwater management and flood control. Every region in the United States has plants that are native to a specific area that offer benefits not only to issues such as stormwater runoff and flooding, but also for aesthetic beauty and climate mitigation. Vermont has many plants that are specifically adapted to the region and can aid local governments in developing sound strategies and projects to avoid climate change issues while improving residential life and reducing costs.

Using native plants in Vermont and across the United States will benefit stormwater management, decrease flooding issues, and will increase each region's natural beauty with low maintenance and effective planting. Incorporating native planting throughout the planning and development phase of a road or highway project will support a local region's development.

Hartford, Vermont should use resources it already has available to implement native planting projects. Hartford has language in its ordinances and code that discusses what kinds of planting and how they should be planted based on careful planning. Further, Hartford should use Vermont's Act 250 to not only help plan for projects, but to receive permitting and support from the state of Vermont as well. As Hartford can set the baseline for implementing a native planting project, many other local and municipal governments can follow Hartford's example and incorporate native planting in their own road and highway projects.

Overall, native planting supports regional resilience and sustainable highway and road projects. Using plants that are essential and thrive in a certain region will support the current ecosystems and prevent invasive species from taking over. Further, planting native plants supports the resilience of the natural ecosystem of the region. The natural ecosystem of Vermont has the ability to reduce stormwater runoff and prevent flooding. As native vegetation is incorporated into medians, green belts and shoulders, these plants will naturally prevent some of the issues currently facing local governments. In the long-term, future generations will see the positive effects of using native planting on highway and roadway projects.

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# References

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- <sup>1</sup>. National Research Council, Informing an Effective Response to Climate Change The National Academics of Science, Engineering, and Medicine 1 (2010) <https://www.nap.edu/read/12784/chapter/2> (explaining that over 50% of Americans live in a jurisdiction that has enacted some sort of greenhouse gas emission reduction goal or climate change policy).
  - <sup>2</sup>. Stormwater Strategies: Cities Prepare Aging Infrastructure for Climate Change Environmental Health Perspectives 119 A516 (December 2011) <https://ehp.niehs.nih.gov/doi/pdf/10.1289/ehp.119-a514>.
  - <sup>3</sup>. Id.
  - <sup>4</sup>. Bill Schlachter, Morton Coleman & Nicholas Anway, Fiscal Policy and Governance Committee: Key Challenges and Strategies for Local Government University of Pittsburg Institute of Politics 4 (2011) <https://iop.pitt.edu/sites/default/files/Reports/Other/Key%20Challenges%20and%20Strategies%20for%20Local%20Governments.pdf>.
  - <sup>5</sup>. Id at 5.
  - <sup>6</sup>. Water Resources Assistance Program Vermont League of Cities & Towns <https://www.vlct.org/municipal-assistance/water-resources-assistance-program>.
  - <sup>7</sup>. Stormwater Discharges from Municipal Sources United States Environmental Protection Agency (February 27, 2020) <https://www.epa.gov/npdes/stormwater-discharges-municipal-sources>.
  - <sup>8</sup>. Amy Rowe & Michele Bakacs, An Introduction to Green Infrastructure Practices New Jersey Agricultural Experiment Station, Rutgers University (December 2012) <https://njaes.rutgers.edu/fs1197/>.
  - <sup>9</sup>. Sam Evans-Brown, As Water Infrastructure Ages and Funds Dry Up, Towns Struggle to Keep Up New Hampshire Public Radio (April 18, 2013) <https://www.nhpr.org/post/water-infrastructure-ages-and-funds-dry-towns-struggle-keep#stream/0>.
  - <sup>10</sup>. Stephen Mills, Municipalities Struggle for Transportation Funds Rutland Herald (February 13, 2019) [https://www.rutlandherald.com/news/local/municipalities-struggle-for-transportation-funds/article\\_8ca00d78-4de1-5fb1-b179-d77c0c2c4a8d.html](https://www.rutlandherald.com/news/local/municipalities-struggle-for-transportation-funds/article_8ca00d78-4de1-5fb1-b179-d77c0c2c4a8d.html).
  - <sup>11</sup>. Flooding Climate Change in Vermont, State of Vermont <https://climatechange.vermont.gov/our-changing-climate/what-it-means/flooding>.
  - <sup>12</sup>. Planning for Flood Recovery and Long-Term Resilience in Vermont: Smart Growth Approaches for Disaster-Resilient Communities United States Environmental Protection Agency 3 (July 2014) <https://www.epa.gov/sites/production/files/2014-07/documents/vermont-sgia-final-report.pdf>.
  - <sup>13</sup>. U.S. Floods: The Necessity of Mitigation National Academy of Public Administration (September 5, 2017) <https://www.napawash.org/standing-panel-blog/u.s.-floods-the-necessity-of-mitigation>.
  - <sup>14</sup>. Framing the Challenge of Urban Flooding in the United States National Academies of Science, Engineering, and Medicine (2019) <https://www.ncbi.nlm.nih.gov/books/NBK541182/>.
  - <sup>15</sup>. Supra note 13.
  - <sup>16</sup>. Lessons from the Floods Lake Champlain Committee 5 (2014) [https://www.lakechamplaincommittee.org/fileadmin/files/News\\_Releases/Lessons\\_from\\_the\\_Floods\\_-\\_Lake\\_Champlain\\_Committee.pdf](https://www.lakechamplaincommittee.org/fileadmin/files/News_Releases/Lessons_from_the_Floods_-_Lake_Champlain_Committee.pdf).
  - <sup>17</sup>. Supra note 12.
  - <sup>18</sup>. Hartford Code, §200-21(B).
  - <sup>19</sup>. Id.
  - <sup>20</sup>. Id.
  - <sup>21</sup>. Id.
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# References

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<sup>22</sup>. Hartford Code, §§ 260-24, 260-27.

<sup>23</sup>. Hartford Code, § 260-27.

<sup>24</sup>. Id.

<sup>25</sup>. Do I Need a Permit?, State of Vermont Natural Resources Board, <https://nrb.vermont.gov/act250-permit/need-a-permit>.

<sup>26</sup>. Act 250 Jurisdiction Categories, State of Vermont Natural Resources Board, [https://nrb.vermont.gov/sites/nrb/files/documents/Act%20250%20Jurisdiction%20Categories\\_0.pdf](https://nrb.vermont.gov/sites/nrb/files/documents/Act%20250%20Jurisdiction%20Categories_0.pdf).

<sup>27</sup>. Id.

<sup>28</sup>. Id.

<sup>29</sup>. What are the 10 Criteria?, State of Vermont Natural Resources Board, <https://nrb.vermont.gov/act250-permit/criteria>.

<sup>30</sup>. Craig Dremann, Highway medians – too narrow for irrigation systems or maintenance – what about native plants?, Ecoseds <http://www.ecoseds.com/nomow.html> (2016).

<sup>31</sup>. Craig Dremann, Highway medians – too narrow for irrigation systems or maintenance – what about native plants?, Ecoseds <http://www.ecoseds.com/nomow.html> (2016).

<sup>32</sup>. Id.

<sup>33</sup>. Id.

<sup>34</sup>. The Importance of Local Ecotype: Guidelines for the Selection of Native Plants U.S. Forest Service (2004) [https://www.fs.fed.us/wildflowers/Native\\_Plant\\_Materials/Native\\_Gardening/genetics.shtml](https://www.fs.fed.us/wildflowers/Native_Plant_Materials/Native_Gardening/genetics.shtml)

<sup>35</sup>. How to Naturescape PlantNative (2009) [http://www.plantnative.org/how\\_intro.htm](http://www.plantnative.org/how_intro.htm).

<sup>36</sup>. <https://www.urban-forestry.com/assets/documents/roundtables/roundtable%20medians.pdf> Page 22

<sup>37</sup>. Greenscaping: Greenacres, A Source Book on Natural Landscaping for Public Officials U.S. Environmental Protection Agency Archive (February 21, 2016) <https://archive.epa.gov/greenacres/web/html/chap2.html>.

<sup>38</sup>. Fawn Hoener, Using Native Species in Urban Landscaping Strong Towns (January 3, 2019) <https://www.strongtowns.org/journal/2019/1/3/using-native-species-in-urban-landscaping>.

<sup>39</sup>. Landscaping with Native Plants: Exploring the Environmental, Social and Economic Benefits Conference U.S. Environmental Protection Agency Archive (December 2004) [https://archive.epa.gov/greenacres/web/html/conf\\_knwldge.html](https://archive.epa.gov/greenacres/web/html/conf_knwldge.html).

<sup>40</sup>. Id.

<sup>41</sup>. Craig Dremann, Highway medians – too narrow for irrigation systems or maintenance – what about native plants?, Ecoseds <http://www.ecoseds.com/nomow.html> (2016).

<sup>42</sup>. Reducing Urban Heat Islands: Compendium of Strategies, Trees and Vegetation U.S. Environmental Protection Agency 8 (2008) [https://www.epa.gov/sites/production/files/2017-05/documents/reducing\\_urban\\_heat\\_islands\\_ch\\_2.pdf](https://www.epa.gov/sites/production/files/2017-05/documents/reducing_urban_heat_islands_ch_2.pdf).

<sup>43</sup>. Native and Non-Native Root Comparison Chart Mid-American Regional Council [https://cfpub.epa.gov/npstbx/files/KSMO\\_KnowYourRoots.pdf](https://cfpub.epa.gov/npstbx/files/KSMO_KnowYourRoots.pdf).

<sup>44</sup>. Supra note 39.

<sup>45</sup>. What is Green Infrastructure? U.S. Environmental Protection Agency (December 4, 2019) <https://www.epa.gov/green-infrastructure/what-green-infrastructure#raingardens>

# References

<sup>46</sup>. Greenscaping: Greenacres, A Source Book on Natural Landscaping for Public Officials U.S. Environmental Protection Agency Archive (February 21, 2016) <https://archive.epa.gov/greenacres/web/html/chap2.html>.

<sup>47</sup>. For visual examples of green infrastructure absorption rates versus traditional infrastructure: Green Stormwater Infrastrucutre Arcgis <https://www.arcgis.com/apps/Cascade/index>.

<sup>49</sup>. Native Gardening U.S. Forest Service [https://www.fs.fed.us/wildflowers/Native\\_Plant\\_Materials/Native\\_Gardening/index.shtml](https://www.fs.fed.us/wildflowers/Native_Plant_Materials/Native_Gardening/index.shtml).

<sup>50</sup>. Melissa Denchak, Flooding and Climate Change NRDC (April 10, 2019) <https://www.nrdc.org/stories/flooding-and-climate-change-everything-you-need-know>.

<sup>51</sup>. Supra note 49.

<sup>52</sup>. Zachary Christin & Michael Kline, Why We Continue to Develop Floodplains: Examining the Disincentives for Conservation in Federal Policy Earth Economics 27 (2017) [https://www.aswm.org/pdf\\_lib/discincentives\\_for\\_conservation\\_in\\_federal\\_policy.pdf](https://www.aswm.org/pdf_lib/discincentives_for_conservation_in_federal_policy.pdf).

<sup>53</sup>. Supra note 39.

<sup>54</sup>. Id.

<sup>55</sup>. Bevan Griffiths-Sattenspiel & Wendy Wilson, The Carbon Footprint of Water River Network 1 (May 2009) <https://www.csu.edu/cerc/researchreports/documents/CarbonFootprintofWater-RiverNetwork-2009.pdf>.

<sup>56</sup>. Why Native Plants Matter National Audubon Society <https://www.audubon.org/content/why-native-plants-matter>.

<sup>57</sup> Id.

<sup>58</sup>. Supra note 39.

<sup>59</sup>. Steve Wright, Restoring Native Habitat, Helping to Mitigate Flooding in Houston National Recreation and Park Association (September 4, 2018) <https://www.nrpa.org/parks-recreation-magazine/2018/September/restoring-native-habitat-helping-to-mitigate-flooding-in-houston/>.

<sup>60</sup>. Aer Parris, Your Guide to Understanding Public Lands, REI [HYPERLINK "https://www.rei.com/blog/hike/your-guide-to-understanding-public-lands"](https://www.rei.com/blog/hike/your-guide-to-understanding-public-lands)<https://www.rei.com/blog/hike/your-guide-to-understanding-public-lands> (Last Accessed March 30t, 2020).

<sup>61</sup>. Conservation Clinic, Model Native Plant Landscape Ordinance Handbook, Florida Native Plant Society [https://www.law.ufl.edu/\\_pdf/academics/centers-clinics/clinics/conservation/resources/model\\_native\\_plant.pdf](https://www.law.ufl.edu/_pdf/academics/centers-clinics/clinics/conservation/resources/model_native_plant.pdf) (Last Accessed March 30, 2020).

<sup>62</sup>. Aer Parris, Your Guide to Understanding Public Lands.

<sup>63</sup>. Id.

<sup>64</sup>. Our Work, The Trust for Public Land [HYPERLINK "https://www.tpl.org/our-work"](https://www.tpl.org/our-work)<https://www.tpl.org/our-work> (Last Accessed March 30, 2020).

<sup>65</sup>. Conservation Society, Model Native Plant Landscape Ordinance Handbook, 4.

<sup>66</sup>. Id.

<sup>67</sup>. Id at 12.

<sup>68</sup>. Id at 42.

<sup>69</sup>. Craig Dremann, Highway medians – too narrow for irrigation systems or maintenance – what about native plants?, Ecoseds <http://www.ecoseeds.com/nomow.html> (2016).

<sup>70</sup>. Id.

<sup>71</sup>. Id.

# References

---

<sup>72</sup>. 2019 Factbook and Annual Report, VERMONT AGENCY OF TRANSPORTATION [https://vtrans.vermont.gov/sites/aot/files/documents/AOTFactBook\\_current\\_0.pdf](https://vtrans.vermont.gov/sites/aot/files/documents/AOTFactBook_current_0.pdf) (2019).

<sup>73</sup>. Id.

<sup>74</sup>. Id.

<sup>75</sup>. Id.

<sup>76</sup>. Vermont Chapter of the American Society of Landscape Architects, Landscape Guide for Vermont Roadways & Transportation Facilities, VERMONT AGENCY OF TRANSPORTATION (2002).

<sup>77</sup>. Id.

<sup>78</sup>. Id.

<sup>79</sup>. Vermont Chapter of the American Society of Landscape Architects, Landscape Guide for Vermont Roadways & Transportation Facilities, VERMONT AGENCY OF TRANSPORTATION, 12-20. (2002).

<sup>80</sup>. Id.

<sup>81</sup>. Vermont Chapter of the American Society of Landscape Architects, Landscape Guide for Vermont Roadways & Transportation Facilities, VERMONT AGENCY OF TRANSPORTATION, 13 (2002).

<sup>82</sup>. Id.

<sup>83</sup>. Vermont Chapter of the American Society of Landscape Architects, Landscape Guide for Vermont Roadways & Transportation Facilities, VERMONT AGENCY OF TRANSPORTATION, 14 (2002).

<sup>84</sup>. Id.

<sup>85</sup>. Id.

<sup>86</sup>. Id.

<sup>87</sup>. Id.

<sup>88</sup>. Id.

<sup>89</sup>. Vermont Chapter of the American Society of Landscape Architects, Landscape Guide for Vermont Roadways & Transportation Facilities, VERMONT AGENCY OF TRANSPORTATION 14-15 (2002).

<sup>90</sup>. Id.

<sup>91</sup>. Id.

<sup>92</sup>. Vermont Chapter of the American Society of Landscape Architects, Landscape Guide for Vermont Roadways & Transportation Facilities, VERMONT AGENCY OF TRANSPORTATION, 16 (2002).

<sup>93</sup>. Id.

<sup>94</sup>. Id.

<sup>95</sup>. Id.

<sup>96</sup>. Chicago's Urban Forest Agenda City of Chicago 8 (2009) [https://www.chicago.gov/dam/city/depts/doe/general/NaturalResourcesAndWaterConservation\\_PDFs/UrbanForestAgenda/ChicagosUrbanForestAgenda2009.pdf](https://www.chicago.gov/dam/city/depts/doe/general/NaturalResourcesAndWaterConservation_PDFs/UrbanForestAgenda/ChicagosUrbanForestAgenda2009.pdf).

<sup>97</sup>. Landscaped Medians Transportation, Chicago.gov [https://www.chicago.gov/city/en/depts/cdot/provdrs/street/svcs/landscaped\\_medians.html](https://www.chicago.gov/city/en/depts/cdot/provdrs/street/svcs/landscaped_medians.html)

<sup>98</sup>. Id.

<sup>99</sup>. City of Chicago Recommended Native Plants List Chicago.gov [https://www.chicago.gov/content/dam/city/depts/doe/general/NaturalResourcesAndWaterConservation\\_PDFs/Sustainable%20Backyards/ChicagoNativePlantList8.1.11.pdf](https://www.chicago.gov/content/dam/city/depts/doe/general/NaturalResourcesAndWaterConservation_PDFs/Sustainable%20Backyards/ChicagoNativePlantList8.1.11.pdf)

<sup>100</sup>. Roadway Plant List Chicago Department of Transportation (2012) <https://www.chicago.gov/content/dam/city/depts/cdot/street/general/8theditionrev.pdf>.

# References

---

<sup>101</sup>. Id.

<sup>102</sup>. Supra note 97.

<sup>103</sup>. Executive Order No. 10 of 2018 (As Amended), Westchester County Government <https://www.westchestergov.com/images/stories/execorders/2018EO10.pdf>.

<sup>104</sup>. Id.

<sup>105</sup>. County Executive George Latimer Signs Executive Order to Protect Native Plants in Westchester Press Release Westchester.gov (28 September 2018) <https://www.westchestergov.com/home/all-press-releases/7783-county-executive-george-latimer-signs-executive-order-to-protect-native-plants-in-westchester>.

<sup>106</sup>. Supra note 103.

<sup>107</sup>. Id.

<sup>108</sup>. Supra note 105.

<sup>109</sup>. Town of Victor, NY., Ordinance §211-45 (2012) <https://www.ecode360.com/8088346?highlight=native%20>

<sup>110</sup>. Native Plant Manual Town of Victor Conservation Board (2018) <https://www.victorny.org/DocumentCenter/View/2443/Native-Plant-Manual-FINAL-06262018-PDF>.

<sup>111</sup>. Id.

<sup>112</sup>. Id.

<sup>113</sup>. Native and Invasive Plant Policies City of Eugene Department of Public Works <https://www.eugene-or.gov/648/Native-and-Invasive-Plant-Policies>.

<sup>114</sup>. Id.

<sup>115</sup>. Native Plant Alternatives City of Eugene <https://www.eugene-or.gov/DocumentCenter/View/37893/Native-Plant-Alternatives?bidId=>.

<sup>116</sup>. Id.



# Appendices

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## ***Appendix A***

The EPA Landscape Conversion Cost Calculator is a useful tool to estimate the cost of converting current landscape to more environmentally-appropriate and water conserving plant varieties. This tool can be used to illustrate long-term savings over time from lower water bills and lower maintenance costs, allowing local governments to conduct a truer cost-benefit analysis of converting landscapes. Having an initial, 3-year, 6-year, 10 year, and average annual cost comparison between original landscape and converted landscape can provide valuable information to convince city officials of the cost-effectiveness and potential savings.

## ***Appendix B***

There are many excellent native plant databases online, but a Vermont-specific list such as the Native Plant List can provide additional geographical information and more concrete recommendations for native plantings to a particular region. The Federation of Vermont Lakes and Ponds also has resources on native plants classified by soil and habitat type, and the Vermont Fish and Wildlife Department provides resources on native plant nurseries and where to source plants.

## ***Appendix C***

The Audubon Society's Native Plant Database is a national resource that can provide specific information on native plant varieties appropriate for localities throughout the United States, and the National Wildlife Federation's Native Plant Finder uses zip codes to identify the best variety of plant for the specific area, including which plants are best for encouraging pollination.

## ***Appendix D***

The Vermont Department of Transportation Landscape Guide is specific to Vermont but provides valuable information on the factors that need to be taken into account when planting on roadways and medians. This includes considerations such as visibility, plant hardiness, maintenance, and proper plant selection.

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