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A Guide to Public Green Space Planning for Urban Ecosystem Services: Supplemental Materials

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S.1 Existing ecosystem services in the Friendly Area Neighborhood

The tables and figure below provide detailed data and explanations underlying results discussed in the main text regarding the distribution of public green space and the associated delivery of ecosystem services. **Fig. S1** shows the road distance to the nearest public park or school yard. **Table S1** documents applicable ecosystem service supply rates compiled by Derkzen et al. [1]; **Table S2** describes the validation of remotely sensed quantification of public green space in the Friendly Neighborhood; **Table S3** distinguishes between the distribution of public green space within the right-of-way and in parks/school-yards in the study neighborhood; and **Table S4** integrates those two to estimate current ecosystem supply rates in the study neighborhood.

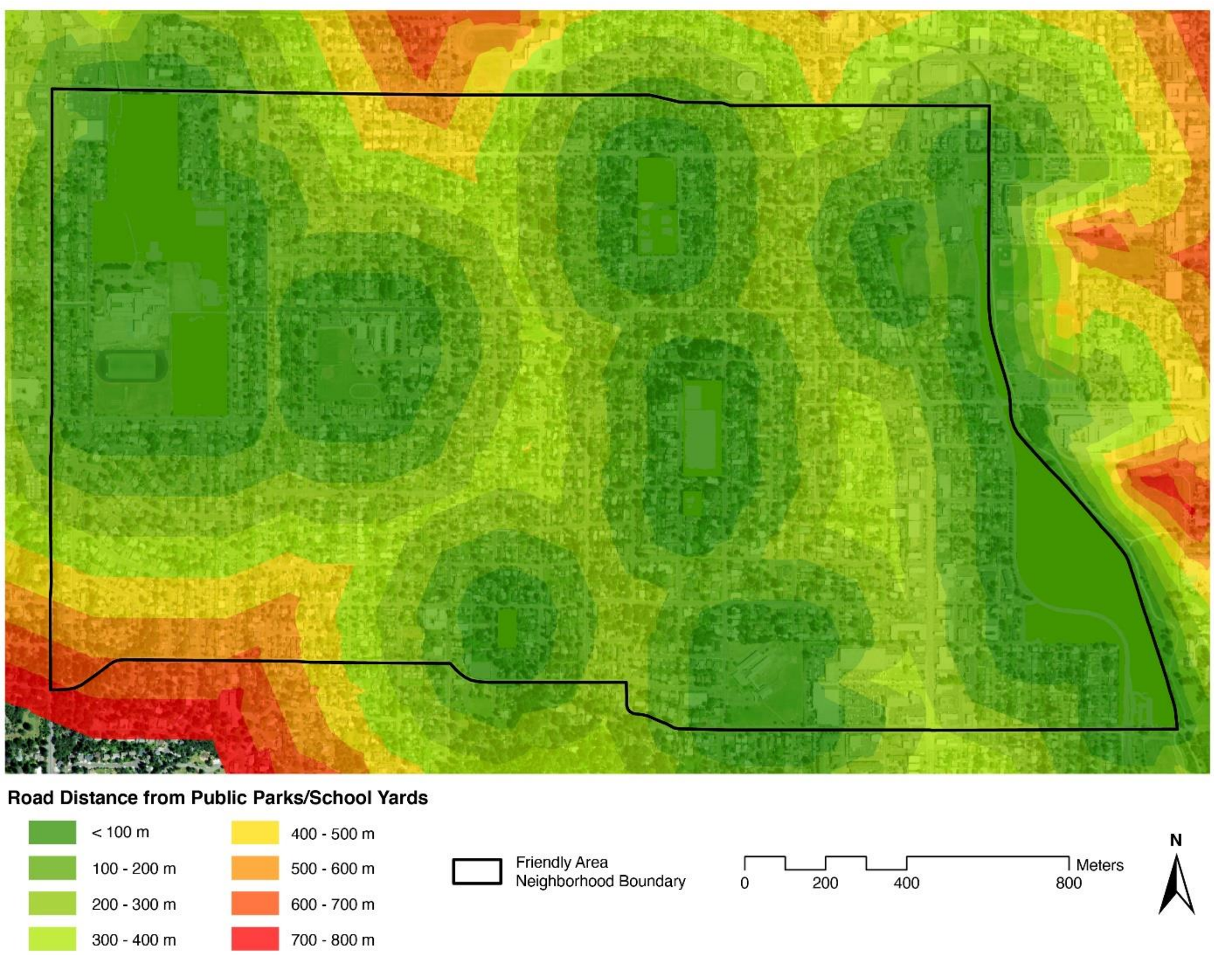


Figure S1: Distances to parks

Road distances from the nearest public park or schoolyard in the Friendly Area Neighborhood, calculated in ESRI ArcMap 10.7 with the Cost Distance tool [2]. Of the total area in the neighborhood, 93.9% is within 400 m of a public park or school yard, and 100% of the neighborhood is within 800 m.

Table S1: Urban ecosystem service supply rates by land cover type

Land Cover Type [a]	Description/ Classification	Air Purification [b] ($g\ m^{-2}\ yr^{-1}$) [c]	Carbon Storage ($kg\ m^{-2}$) [d]	Runoff Retention ($L\ m^{-2}$) [e]	Cooling Fraction (LC Fraction: weight)	Recreation [b] (Index value m^{-2})
Tree	individual tree; height >5m; NDVI ≥ 0.25	3.97	10.64	8.7 [f]	1.0	2.15
Woodland	clustered trees; urban forest patch	2.69	15.62	8.7	1.0	2.9
Tall Shrub	height = 2-5m; NDVI ≥ 0.25	2.05	7.79	7.3	1.0	2.55
Short Shrub	height = 0.33-2m; NDVI ≥ 0.25	2.05	5.61	7.3	1.0	2.55
Lawn/ Herbaceous	height < 0.33m; NDVI ≥ 0.0	0.9	0.17	8	0.5	2.55

Adapted from "Quantifying urban ecosystem services based on high resolution data of urban green space: an assessment for Rotterdam, the Netherlands", by Derkzen, et. al [1].

[a] This study did not distinguish 'garden', 'water', or 'other' land cover types used in Derkzen et al. [1].

[b] Supply rate dependent on UGS location; air purification rate doubles for UGS within 50-meter road buffer; recreation rate doubles for UGS in municipal parks).

[c] Air purification expressed in grams of particulate matter with a diameter less than 10 microns (PM_{10}).

[d] Carbon storage represents cumulative carbon sequestration; not an annual rate

[e] Runoff retention based on 12 mm storm event.

[f] Woodland runoff retention value used for all tree cover; Derkzen et al. expressed runoff retention per tree instead of per m^2 crown area as most individual trees in Rotterdam are planted in tree wells within paved surfaces [1]; in the Friendly Area Neighborhood of Eugene, street trees are planted in planting strips with grass understory.

Table S2: Public green space NDVI / LiDAR mapping validation

Remotely Sensed Land Cover	Lawn	Short Shrub	Tall Shrub	Tree	Impervious/ Bare	Confidence Interval (%) [a]
Tree	1	0	0	98	1	95.3 – 100
Tall Shrub	4	0	30	66	0	21.0 – 39.0
Short Shrub	7	66	11	15	1	56.7 – 75.3
Lawn [b]	87	1	0	3	9	80.5 – 93.6
Impervious/Bare [b]	3	0	0	0	97	93.7 – 100

[a] 95-percent confidence interval for land cover classification from NDVI/LiDAR method

[b] Only selected from parks/schoolyards, as lawn in right-of-way was quantified by direct measurement.

Table S3: Distribution of public green space [a]

Land Cover Type	Unadjusted Area (ha)	Adjusted Area (ha) [a]	Right-of-Way Area (ha)	Park/Public Schoolyard Area (ha)	Park/Public Schoolyard Area ≤ 50-meters from road (ha)	Park/Public Schoolyard Area > 50-meters from road (ha)
Tree	12.9	16.8	12.5	4.2	2.0	2.2
Woodland	5.0	5.0	0.0	5.0	1.2	3.8
Tall Shrub	4.3	1.6	1.3	0.3	0.1	0.2
Short Shrub	2.6	2.0	1.4	0.6	0.3	0.3
Lawn/ Herbaceous	35.6	32.0	4.9	27.1	13.4	13.8
Total	60.4	57.4	20.2	37.3	17.0	20.3

[a] NDVI/LiDAR derived green land cover area adjusted using validation proportions from **Table S2.**

For example: Adjusted Tree Area = (0.98 × Unadjusted Tree Area) + (0.66 × Unadjusted Tall Shrub Area) + (0.15 × Unadjusted Short Shrub Area) + 0.03 × Unadjusted Lawn Area).

Table S4: Urban ecosystem services delivery rates in the FAN

Land Cover Type	Area hectares *(% of total)*	Air Purification kg yr^{-1} *(%)*	Carbon Storage kg *(%)*	Runoff Retention L/12 mm storm *(%)*	Cooling Fraction *(%)*	Recreation *(%)*
Tree [a]	16.8 *(29.2%)*	1,244 *(62.2%)*	1,786,262 *(62.5%)*	1,460,571 *(30.9%)*	*(40.5%)*	*(19.1%)*
Woodland	5.0 *(8.7%)*	168 *(8.4%)*	780,313 *(27.3%)*	434,617 *(9.2%)*	*(12.1%)*	*(12.2%)*
Tall Shrub	1.6 *(2.7%)*	61 *(3.1%)*	122,603 *(4.3%)*	114,891 *(2.4%)*	*(3.8%)*	*(2.0%)*
Short Shrub [a]	2.0 *(3.6%)*	77 *(3.8%)*	114,685 *(4.0%)*	149,235 *(3.2%)*	*(4.9%)*	*(2.9%)*
Lawn/ Herbaceous [b]	32.0 *(55.8%)*	452 *(22.6%)*	54,436 *(1.9%)*	2,561,707 *(54.3%)*	*(38.7%)*	*(63.8%)*
Total	57.4 *(100%)*	2,002 *(100%)*	2,858,300 *(100%)*	4,721,021 *(100%)*	*(100%)*	*(100%)*

[a] Right-of-way areas not adjusted for lawn misclassification as lawn validation was only performed for parks/schoolyards

[b] Right-of-way area not adjusted, as data were collected in the field rather than using NDVI/LiDAR

S.2 Resident survey and results

The tables below provide results of the resident survey in full. **Table S5** summarizes data according to supporting, regulating, provisioning, and cultural services and highlights the original distribution of votes used to evaluate priority and non-priority urban ecosystem services. **Table S6** details residents' stated willingness to pay for green infrastructure development that increases the delivery of urban ecosystem services, and **Table S7** summarizes residents' stated willingness to volunteer for green infrastructure development that increases the delivery of urban ecosystem services.

S.2.1 Summary of results

Table S5: Residents' urban ecosystem service (UES) priorities (n=97)

Ecosystem Service (ES)	Non-Priority (values 1-3)	Priority (values 4-5)	Chi-Square	*p*-value [a]
Supporting Services (α=0.78) [b]	**46**	**342**	**12.48**	**0.0004**
Native Species [c]	8	89	7.07	0.0078
Pollinator Habitat [d]	10	87	4.63	0.0314
Bird Habitat	12	85	2.71	0.0995
Plant Diversity	16	81	0.42	0.5194
Regulating Services (α=0.80)	**99**	**483**	**1.86**	**0.1722**
Stormwater Purification [c]	8	89	7.07	0.0078
Air Purification [d]	10	87	4.63	0.0314
Carbon Sequestration	12	85	2.71	0.0995
Air Temperature Regulation	20	77	0.01	0.9303
Soil Health	23	74	0.69	0.4076
Flood Reduction	26	71	2.45	0.1178
Provisioning Services (α=0.74) [e]	**53**	**141**	**5.71**	**0.0169**
Fruit Production	26	71	2.45	0.1178
Vegetable Production	27	70	3.27	0.07054
Cultural Services (α=0.73) [f]	**127**	**358**	**9.03**	**0.0027**
Outdoor Recreation/Education [c]	7	90	8.49	0.0036
Natural Beauty/Aesthetics	14	83	1.31	0.2524
Community Identity	15	82	0.80	0.3713
Noise Reduction [f]	40	57	24.39	0.0000
Privacy [f]	51	46	56.642	0.0000
Overall Distribution	325	1324	-	-

[a] Chi-square test comparing individual UES to overall UES distribution

[b] α = Cronbach's alpha

[c] $p < .01$; significantly greater than the overall UES distribution

[d] $p < .05$; significantly greater than the overall UES distribution

[e] $p < .05$; significantly less than the overall UES distribution

[f] $p < .01$; significantly less than overall UES distribution

Table S6: Residents' willingness to pay for green infrastructure development (n=97)

Willingness to Pay for Ecosystem Services by Land Use Type	**Out-of-Pocket** # of respondents *(% of total)*	**Tax Measure** # of respondents *(% of total)*	**Tax Measure and Out-of-Pocket** # of respondents *(% of total)*	**No** # of respondents *(% of total)*
Private Property	21 *(21.6%)*	21 *(21.6%)*	19 *(19.6%)*	36 *(37.1%)*
Right-of Way Planting Strips	5 *(5.2%)*	42 *(43.3%)*	21 *(21.6%)*	29 *(29.9%)*
Parks	3 *(3.1%)*	57 *(58.8%)*	23 *(23.7%)*	14 *(14.4%)*

Table S7: Residents' willingness to volunteer for green infrastructure development (n=97)

	0 hours # of respondents *(% of total)*	**1-4 hours** # of respondents *(% of total)*	**5-8 hours** # of respondents *(% of total)*	**9-12 hours** # of respondents *(% of total)*	**>12 hours** # of respondents *(% of total)*
Willingness to Volunteer	19 *(19.6%)*	22 *(22.7%)*	18 *(18.5%)*	13 *(13.4%)*	25 *(25.8%)*

2.2.1 Resident survey

<u>Ecosystem services are benefits that humans receive from nature</u>. For example, trees filter out air pollution that could otherwise damage human lungs. Planting trees also reduces stormwater runoff which can protect houses from flooding damage. Parks and natural areas provide spaces for recreation and aesthetic appreciation. Publicly owned planted areas in the Friendly Neighborhood currently provide multiple environmental benefits to humans but could be designed to increase the delivery of ecosystem services. In this section, you will indicate how important various ecosystem services are to you in your neighborhood.

For each of the following ecosystem service types, check one box indicating how important on a 1 through 5 scale you consider it to be for your neighborhood, 1 being very unimportant and 5 being very important.

Please Check One Box Per Row	Very Unimportant (1)	Moderately Unimportant (2)	Neutral (3)	Moderately Important (4)	Very Important (5)
Supporting plant species native to Oregon					
Supporting a variety of plants (plant diversity)					
Reducing flooding					
Providing space for vegetable production					
Reducing noise					
Providing shade to cool air temperature					
Providing nutrients to improve soil					
Providing natural beauty					
Providing spaces that create community identity					
Providing space for outdoor recreation and education					
Providing space for fruiting trees and bushes					
Removing atmospheric carbon through the planting of vegetation					
Providing habitat for birds					
Providing privacy and seclusion					
Providing habitat for pollinating insects					
Reducing pollution into local water bodies					
Improving air quality					

How important are the following for public green space management:

Please Check One Box Per Row	Very Unimportant (1)	Moderately Unimportant (2)	Neutral (3)	Moderately Important (4)	Very Important (5)
Low cost of implementation and maintenance					
Ease of maintenance					
Neatness and orderliness of plantings					

In this section, you will indicate your interest in participating in the planning and planting of public spaces to enhance ecosystem services.

Is there grass/lawn planted on the property where you currently live?

☐ Yes

No

Would you be interested in <u>altering</u> the type of plants growing on the property <u>where you currently</u> <u>live</u> to increase the provision of ecosystem services? (Select all that apply)

Yes, I would be willing to contribute financially, out of pocket, to this type of project

Yes, I would support a tax measure to fund this type of project

Yes, I would support a tax measure **<u>and</u>** be willing to contribute financially, out of pocket.

Yes, but only if I do not have to contribute financially

No

Don’t know

Would you be interested in having your <u>neighborhood parks</u> designed to increase the provision of ecosystem services? (Select one)

Yes, I would be willing to contribute financially, out of pocket, to this type of project

Yes, I would support a tax measure to fund this type of project

Yes, I would support a tax measure **<u>and</u>** be willing to contribute financially, out of pocket.

Yes, but only if I do not have to contribute financially

No

Don’t know

Would you be interested in having right-of-way planting strips (area between the sidewalk and the street) designed to increase the provision of ecosystem services? (Select one)

Yes, I would be willing to contribute financially, out of pocket, to this type of project

Yes, I would support a tax measure to fund this type of project

Yes, I would support a tax measure **and** be willing to contribute financially, out of pocket.

Yes, but only if I do not have to contribute financially

No

Don't know

How interested would you be in participating in the planning/design process of ecosystem service enhancements in the Friendly neighborhood?

Very Uninterested	Moderately Uninterested	Neutral	Moderately Interested	Very Interested

How interested would you be in participating in the implementation process of ecosystem service enhancements in the Friendly neighborhood? This could include helping to fundraise, plant, or maintain public projects.

Very Uninterested	Moderately Uninterested	Neutral	Moderately Interested	Very Interested

How many hours (events) per year might you be willing to provide towards implementing ecosystem services enhancement in the Friendly Neighborhood?

0 hours	1 – 4 hours (~1 event)	5 – 8 hours (~2 events)	9 – 12 hours (~3 events)	More than 12 hours (More than 3 events)

How long have you lived in the Friendly Neighborhood?

Under 5 years	5 – 9 years	10 – 14 years	15 – 19 years	More than 20 years

Do you rent or own the property where you live?

Own   Rent   Other: ____________________

S.3 Delphi surveys and results

The tables and figure below provide data obtained by the Delphi surveys in full. **Table S8** and **Fig. S2** summarize the priority ecosystem services on right-of-way planting strips and in parks, generated after two survey iterations. **Table S9** summarizes Delphi results regarding benefits and concerns with lawn planted on public space, as well as benefits, barriers, and potential strategies to address barriers to the conversion of lawn to alternative land cover types.

S.3.1 Summary of results

Table S8: Delphi participants' consensus responses regarding public lawn (n=15)

Delphi Responses	First Survey	Second Survey	
	Percent of Respondents (%)	Percent of Respondents for Right-of-Way (%)	Percent of Respondents for Parks (%)
Benefits of Lawn			
Space for Recreation	73.3	- [a]	93.3
Safety/Sight Lines	13.3	86.7	-
Space for Gathering	20.0	-	73.3
Ease of Maintenance	26.7	-	66.7
Concerns with Lawn			
Provides Fewer Regulatory Services than Alternative Planting Regimes	33.3	86.7	86.7
Irrigation Requirements	60.0	66.7	66.7
Low Biodiversity	20.0	66.7	66.7
Impacts from Fertilizers/Pesticides/Herbicides	26.7	66.7	-
Conversion Benefits			
Increased Biodiversity	26.7	80.0	80.0
Improved Habitat for Birds/Pollinators	33.3	-	73.3
Improved/Diversified Aesthetics	20.0	66.7	-
Stormwater Runoff Reduction	73.3	66.7	-
Conversion Barriers			
Impaired Safety/Sight Lines	53.3	66.7	-
Increased Maintenance Complexity[b]	53.3	60.0	53.3
*Cost of Transition*b	40.0	53.3	53.3
Increased Opportunity for Illegal Camping[b]	53.3	-	53.3
Addressing Barriers			
Education, Marketing, and Outreach	66.7	66.7	80.0
Quality Design and Maintenance Plans	20.0	73.3	80.0
Lawn Conversion Support [c]	N/A	93.3	86.7

Consensus was defined as ≥ 66.7% agreement.

[a] Signifies < 66.7% agreement

[b] Simple majority without consensus

[c] Includes responses supporting partial and complete lawn conversion

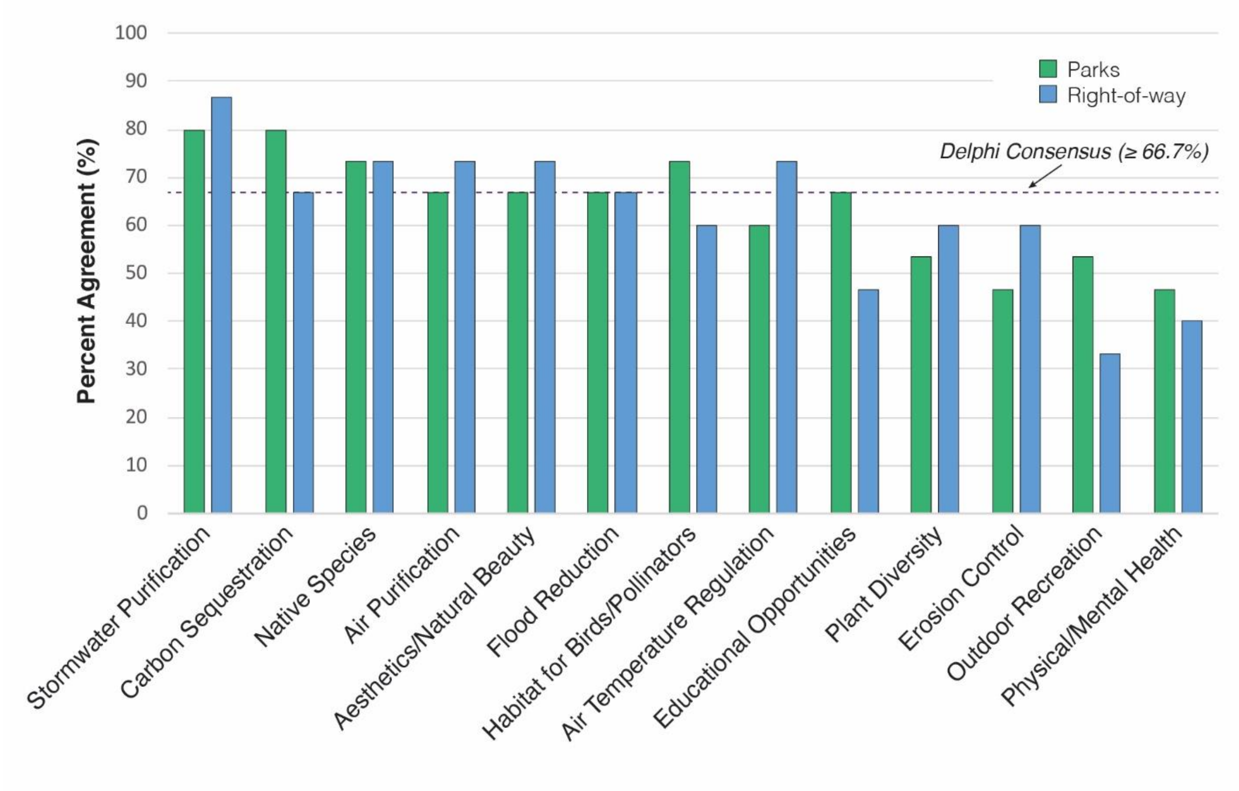


Figure S2: Delphi participants' ecosystem services priorities (n=15)

Percent of Delphi participants (n=15) in the second survey that identified each of the above ecosystem services as important for public green space in Eugene, Oregon, distinguishing between green space located in parks and on right-of-way planting strips.

2.3.2 Delphi Survey – Round 1

Round #1

Thank you so much for your willingness to participate in this research study. Please read the information provided below and then answer the following questions.

The primary objective of this project is to evaluate the potential restoration of ecosystem services achievable by converting lawn on publicly owned land (e.g. right-of-way planting strips, parks, and vacant lots) to alternative planting regimes. A combination of public perception surveys and spatial data collection have been completed to better understand residents' environmental priorities for their public green space and quantify the sizes and distributions of public parcels planted in grass in the Friendly Area Neighborhood. The final phase of this research project involves conducting a Delphi method analysis where professionals from various fields (e.g. city planning, ecology, urban forestry, stormwater management, parks and open space, and landscape architecture) attempt to generate consensus on the benefits and barriers to green infrastructure development in Eugene.

The Delphi method is an iterative survey process in which experts are polled in two or more rounds with the goal of generating consensus on a given topic. After each round, the researchers analyze the data and include the compiled and anonymized responses with the next set of questions. The format and substance of the questions may change based on the responses from the previous round of surveys.

The main goals of this Delphi method analysis are to:

1) Generate consensus around the benefits and barriers to green infrastructure development that increases the provisioning of ecosystem services achievable by converting lawn on publicly owned land to alternative planting regimes.

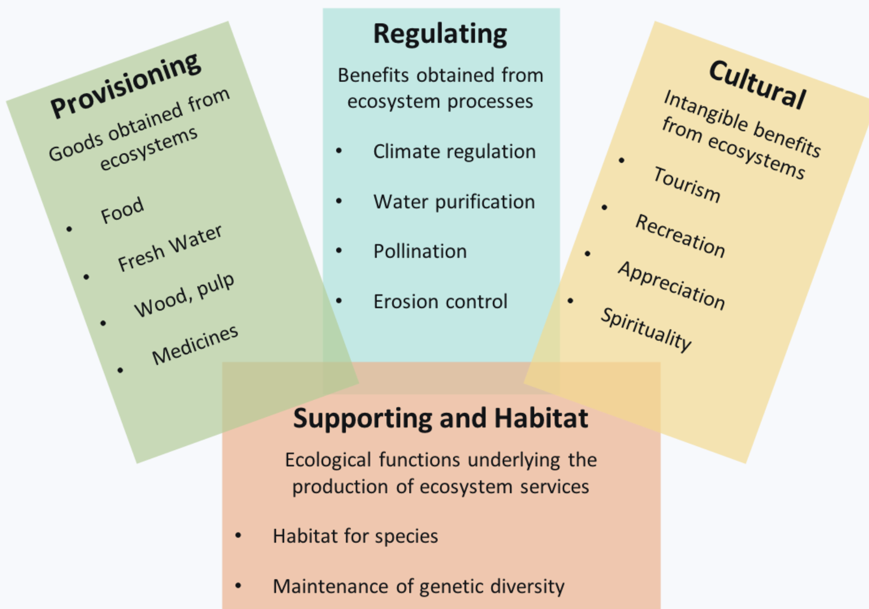
2) Determine potential strategies to address the most critical barriers to green infrastructure development in Eugene.

Important Definitions:

Ecosystem Services — the benefits humans receive from nature and natural processes

Green Infrastructure — the planned network of vegetated areas in the urban context that provide ecosystem services

Ecosystem services are frequently organized into four categories:



(Adapted from Gomez-Baggethun et al, 2013)

Please read and respond to the following questions from your perspective, providing any relevant expertise you may have from your respective professional field.

Q1. What ecosystem services are provided by green infrastructure in cities? Please explain thoroughly.

Q2. What are the primary benefits of lawn and mown grass planted on public property? Please explain thoroughly.

Q3. What are the primary concerns with lawn and mown grass planted on public property? Please explain thoroughly.

Q4. What are the **benefits** to converting lawn on public property to alternative planting regimes (e.g. trees, stormwater planters, community vegetable gardens, native plantings, etc.) that increase the provisioning of ecosystem services? Please explain each benefit thoroughly.

Q5. What are the **barriers** to converting lawn on public property to alternative planting regimes that increase the provisioning of ecosystem services? Please explain each barrier thoroughly.

Q6. What actions are required to overcome these barriers? Please explain thoroughly.

Q7. Are there any other concerns you have with converting lawn on public property to alternative planting regimes? Please explain each concern thoroughly.

Q8a. Rank the importance of providing the following ecosystem services on public green space from most important (1) to least important (17). You can move each ecosystem service by clicking and dragging to the desired ranking. This list will get pared down after each survey iteration based on responses.

______ Reducing pollution into local water bodies
______ Improving air quality)
______ Providing shade/canopy cover
______ Reducing flooding
______ Providing nutrients to improve soil
______ Increasing carbon sequestration
______ Supporting plant diversity
______ Supporting native species
______ Providing pollinator habitat
______ Providing bird habitat
______ Providing space for vegetable production
______ Providing space for fruiting trees and bushes
______ Providing space for outdoor recreation
______ Providing space for community gatherings
______ Providing aesthetic/natural beauty
______ Providing Privacy and Seclusion
______ Reducing Noise

Q8b. Please explain your rationale for your top five ranked ecosystem services in the question above:

____

2.3.3 Delphi Survey – Round 2

Round #2
Thanks again for your willingness to participate in the Delphi process. This survey is a refinement of the previous survey and the responses from the first survey have been compiled; the relevant data and a selection of representative responses are provided with each set of new questions. The 15 participants from the first survey represent a diversity of perspectives from the City of Eugene's Public Works, Parks and Open Space, and Planning Departments, as well as representatives from several relevant non-profit organizations and the University of Oregon. You are encouraged to reconsider your responses from the previous survey in light of the collective data.

This will be the final survey, and it should take 25-30 minutes to complete. If you do not have time to complete the survey all at once, you can leave the survey and it will automatically save your responses.

Important Definitions:

Ecosystem Services — the benefits humans receive from nature and natural processes.

Green Infrastructure — the network of planned vegetated areas in the urban context that provide ecosystem services.

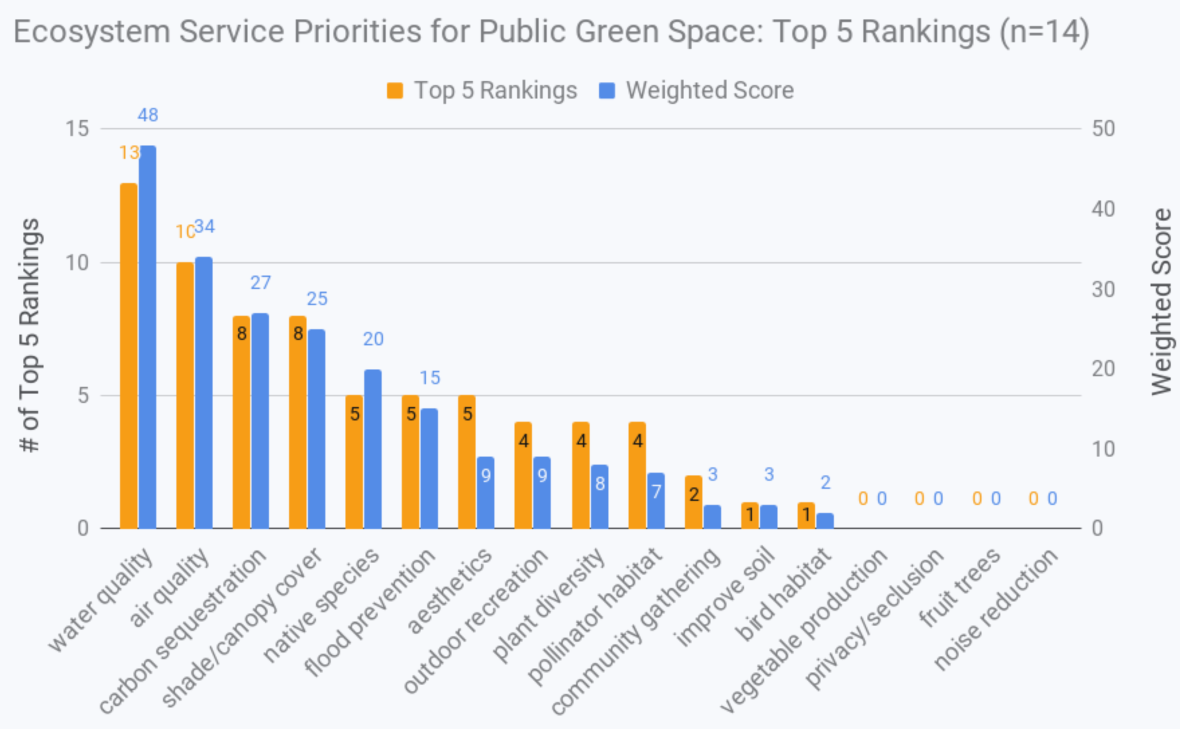
Public Green Space — for the purposes of this study, public green space is defined as planted areas in parks and on the right-of-way planting strips.

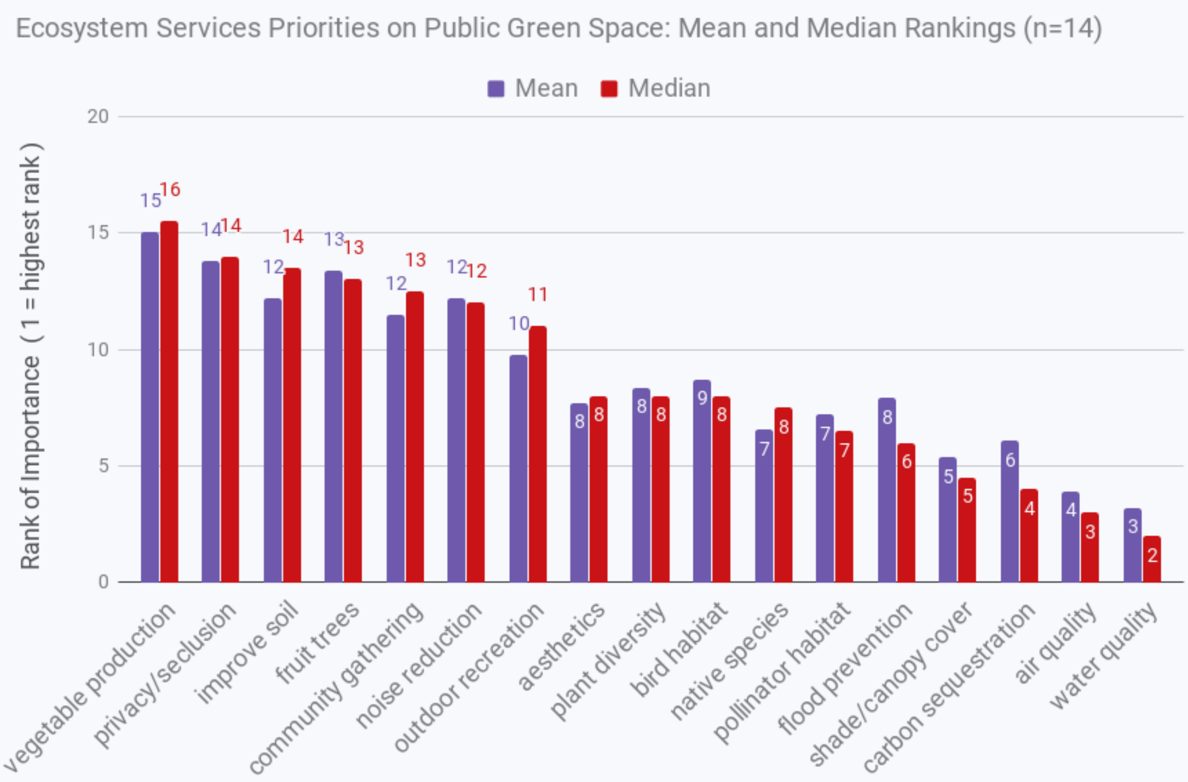
Alternative Planting Regimes — plant communities or management plans that differ from mown lawn/turf; these include, but are not limited to, native plantings, landscaped flower and shrub beds, trees/urban forest patches, trees with understory grass/ground cover, vegetable gardens, stormwater planters, rain gardens, vegetated swales, and wetlands.

Results from Round #1:

The weighted score for each ecosystem service was generated using the following system:

Ranking	Weighted Score
1	5
2	4
3	3
4	2
5	1
6-17	0


Ecosystem Service Priorities for Public Green Space: Top 5 Rankings (n=14)
Top 5 Rankings
Weighted Score
# of Top 5 Rankings
Weighted Score
water quality 13 48
air quality 10 34
carbon sequestration 8 27
shade/canopy cover 8 25
native species 5 20
flood prevention 5 15
aesthetics 5 9
outdoor recreation 4 9
plant diversity 4 8
pollinator habitat 4 7
community gathering 2 3
improve soil 1 3
bird habitat 1 2
vegetable production 0 0
privacy/seclusion 0 0
fruit trees 0 0
noise reduction 0 0


Ecosystem Services Priorities on Public Green Space: Mean and Median Rankings (n=14)
Mean
Median
Rank of Importance (1 = highest rank)
vegetable production 15 16
privacy/seclusion 14 14
improve soil 12 14
fruit trees 13 13
community gathering 12 13
noise reduction 12 12
outdoor recreation 10 11
aesthetics 8 8
plant diversity 8 8
bird habitat 9 8
native species 7 8
pollinator habitat 7 7
flood prevention 8 6
shade/canopy cover 5 5
carbon sequestration 6 4
air quality 4 3
water quality 3 2

Ecosystem Service Priorities on Public Green Space: Survey #1 Responses:

1. Water quality, air quality, climate change and biodiversity are the over-arching issues with the most potential to be positively affected in our urban environments.
2. Triple bottom line concepts are reflected in my top 5 items: increasing carbon sequestration, reducing pollution into local water bodies, providing space for outdoor recreation, providing shade/canopy cover, and improving air quality. Providing space for outdoor recreation helps connect people with the benefits of trees and other green infrastructure elements. Canopy coverage percentage has the potential to influence the overall health and well-being of communities. And of course, reducing pollution is self-explanatory.
3. On-site stormwater collection reduces load on city stormwater infrastructure.
4. What drives public agencies such as our Public Works Department is regulatory requirements - meeting the Federal Clean Water Act and our NPDES Permit requirements (e.g. reducing pollution into local waterways, reducing flooding, and improving air quality). Other items are secondary to the basic welfare and safety of the general public.
5. Erosion control benefits the maintenance of natural ecosystems and can help ameliorate damage from natural disasters like wildfires (per California fires in 2017)
6. Pollination opportunities strengthen local biomes.
7. For me, it's all about restoring habitat that's been lost in urban areas to buildings, streets, parking lots, and conventional landscaping (including lawns). It's going to be a much harder sell to get private property owners on board, so let's start with public property.
8. I believe there is currently a deficit in native species, pollinator habitat, carbon sequestration, improved air quality, and reducing pollution into local waterways due to existing and past urban practices. We need to provide opportunities for stop-gaps, then remediation, then propagation to encourage symbiosis between citizens and the natural urban environment.
9. I think traditional water quality services are the most direct benefit to the earth.
10. Providing shade/canopy cover, reducing pollution into local waterway, providing space for outdoor recreation, providing space for community gathering, and proving aesthetic/natural beauty are the benefits most achievable in urban public spaces.
11. The return on investment would seem to be greatest with improving air quality, reducing pollution into local waterways, providing shade/canopy cover, providing aesthetic/natural beauty, and reducing flooding.
12. I support the national pollutant removal and runoff reduction first and then other benefits would follow.
13. Reducing pollution into local waterways, increasing carbon sequestration, reducing flooding, improving air quality, and providing shade/canopy cover have the broadest range of positive impacts to the urban environment.

Q1. With these preliminary results in mind, how would you refine these ecosystem services priorities in the management of parks? Select and rank all ecosystem services you consider to be priorities in the management of parks. To select ecosystem services, click and drag from the column on the left into the box labeled 'Priority Ecosystem Services for Parks'. You can then move them into rank order. Several of the ecosystem services that were consistently ranked near the bottom have been removed, and several ecosystem services that were written in have been added.

Priority Ecosystem Services for Parks

______ Improving Air Quality (1)

______ Reducing Flooding (2)

______ Increasing Carbon Sequestration (3)

______ Providing Habitat (4)

______ Supporting Native Species (5)

______ Supporting Plant Diversity (6)

______ Providing Aesthetic/Natural Beauty (7)

______ Providing Space for Outdoor Recreation (8)

______ Reducing Pollution into Local Water Bodies (9)

______ Providing Shade/Canopy Cover (10)

______ Improving Physical/Mental Health (11)

______ Controlling Erosion (12)

______ Educational Opportunities (13)

______ Other (14)

If you selected "Other" above, please define:

____

Q2. With the preliminary results in mind, how would you refine these ecosystem services priorities in the management of right-of-way planting strips? Select and rank all ecosystem services you consider to be priorities in the management of right-of-way planting strips. To select ecosystem services, click and drag from the column on the left into the box labeled 'Priority Ecosystem Services for Right-of-Way Planting Strips'. You can then move them into rank order.

Priority Ecosystem Services for Right-of-Way Planting Strips

______ Improving Air Quality (1)

______ Reducing Flooding (2)

______ Increasing Carbon Sequestration (3)

_______ Providing Habitat (4)

______ Supporting Native Species (5)

______ Supporting Plant Diversity (6)

______ Providing Aesthetic/Natural Beauty (7)

______ Providing Space for Outdoor Recreation (8)

______ Reducing Pollution into Local Water Bodies (9)

______ Providing Shade/Canopy Cover (10)

______ Improving Physical/Mental Health (11)

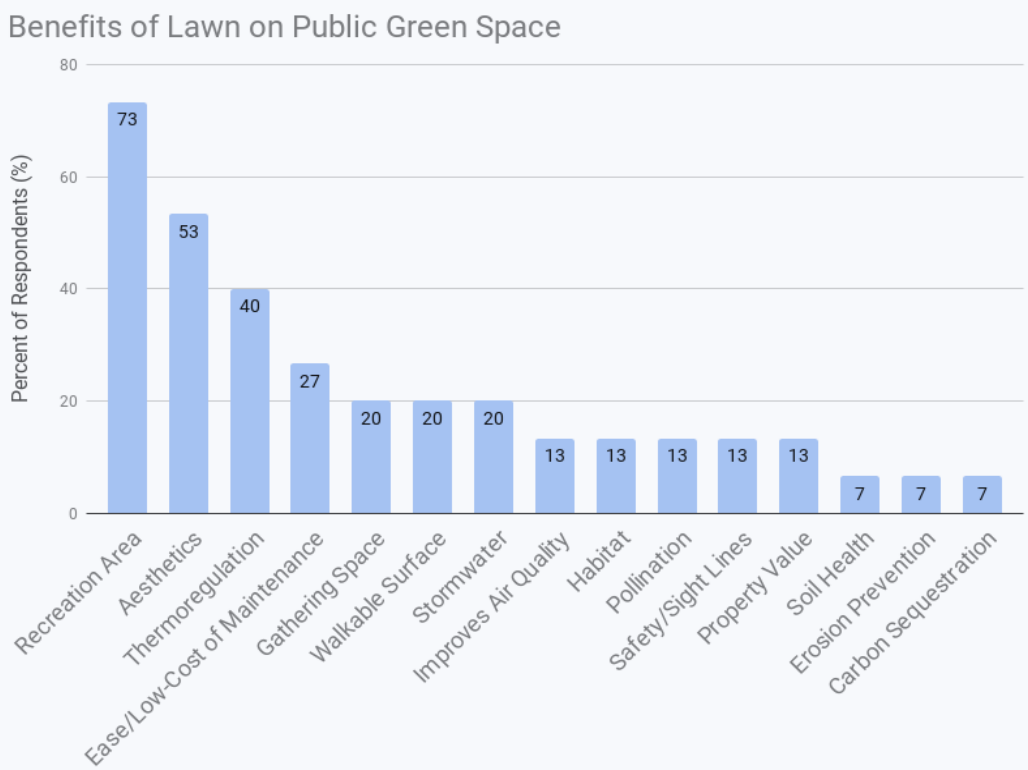
______ Controlling Erosion (12)

______ Educational Opportunities (13)

______ Other (14)

If you selected "Other" above, please define.

____



Benefits of Lawn on Public Space: Survey #1 Responses

1. Who doesn't like a manicured lawn? It looks clean and inviting as opposed to dead, unkempt and overgrown.
2. There are different types of uses for turf lawns in City of Eugene: 1) sports play for soccer, softball, and football 2) General use for tossing around a Frisbee and sun bathing 3) Special community events like at Alton Baker Park where events rent the space to have activities.
3. Popular sentiment aside, turf is a simple treatment that is easy to maintain and is a walkable, playable multipurpose surface that facilitates many activities.
4. Turf and mown grass provide some minimal ecosystem services in terms of thermoregulation, infiltration, and sometimes pollinator habitat. However, the main benefit of lawn is for some open space recreation like sports fields.
5. Lawn establishes living ground cover that prevents soil erosion and provides temperature reduction to offset paved surfaces and provides aesthetic value.
6. Ornamental lawn adds to property value.
7. The primary benefits are for recreation, or for people who see mowed lawns as "appropriate landscaping in an urban setting." It's something that Americans are socialized to appreciate.
8. It indicates that the people caring for these lawns--public employees--are doing their jobs by keeping nature under control.
9. Lawn allows citizens to be involved in passive recreation activities with low sight lines (safety).
10. Reduced maintenance cost versus intensely managed landscapes.

Q3. With the preliminary results in mind, identify the benefits of lawn planted in parks. Select and rank any items from the column on the left you consider to be benefits of lawn in parks. To select benefits, click and drag from the column on the left into the box labeled 'Benefits of Lawn in Parks'. You can then move them into rank order.

Benefits of Lawn in Parks

______ Space for Recreation (1)

______ Aesthetics (2)

______ Thermoregulation/Reducing Heat Island Effect (3)

______ Ease of Maintenance (4)

______ Low Cost of Maintenance (5)

______ Space for Gathering (6)

______ Walkable Surface (7)

______ Stormwater Retention (8)

______ Stormwater Pollutant Removal (9)

______ Improved Air Quality (10)

______ Habitat (11)

______ Pollination (12)

______ Safety/Sight Lines (13)

______ Property Value (14)

______ Soil Health (15)

______ Erosion Prevention (16)

______ Carbon Sequestration (17)

______ Other (18)

If you selected "Other" above, please define.

____

Q4. With the preliminary results in mind, identify the benefits of lawn on right-of-way planting strips. Select and rank any items from the column on the left you consider to be benefits of lawn on right-of-way planting strips. To select benefits, click and drag from the column on the left into the box labeled 'Benefits of Lawn on Right-of-Way Planting Strips'. You can then move them into rank order.

Benefits of Lawn on Right-of-Way Planting Strips

______ Space for Recreation (1)

______ Aesthetics (2)

______ Thermoregulation/Reducing Heat Island Effect (3)

______ Ease of Maintenance (4)

______ Low Cost of Maintenance (5)

______ Space for Gathering (6)

______ Walkable Surface (7)

______ Stormwater Retention (8)

______ Stormwater Pollutant Removal (9)

______ Improved Air Quality (10)

______ Habitat (11)

______ Pollination (12)

______ Safety/Sight Lines (13)

______ Property Value (14)

______ Soil Health (15)

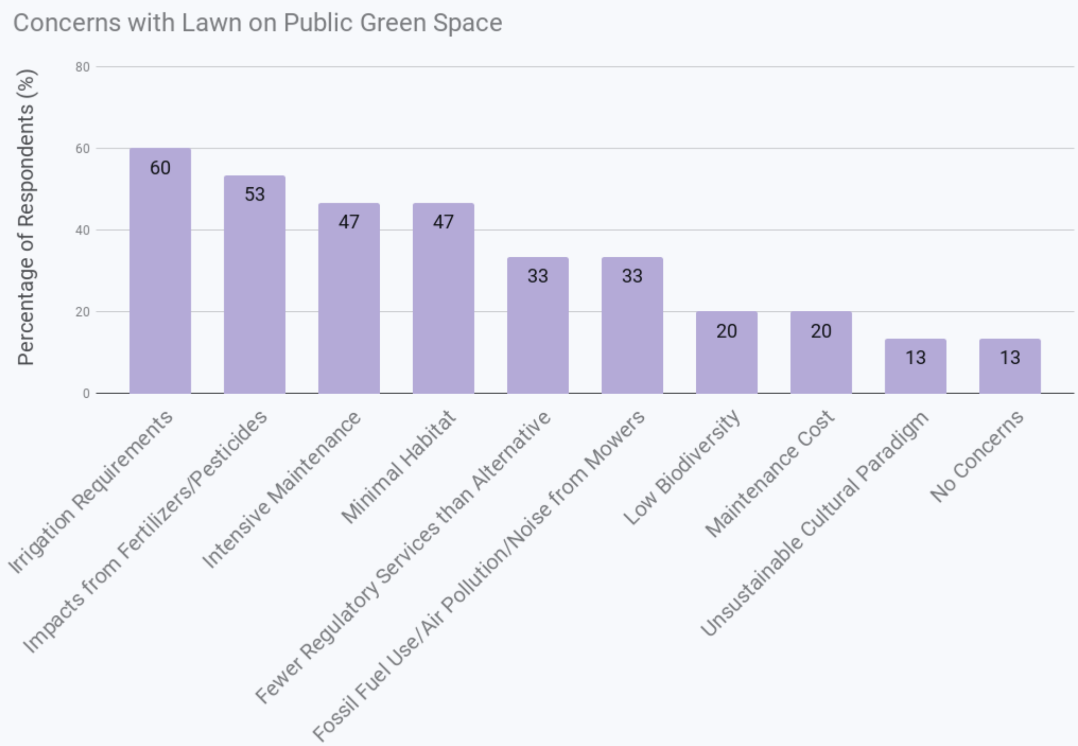
______ Erosion Prevention (16)

______ Carbon Sequestration (17)

______ Other (18)

If you selected "Other" above, please define.

____



<u>Concerns with Lawn on Public Space: Survey #1 Responses</u>

1. The main concerns with lawns on public property relate to high fossil fuel use for maintenance (mowing), high water usage (irrigation), maintenance requirements (staff time), storm water quality concerns (runoff of fertilizer and herbicides), and the perpetuation of unsustainable cultural expectations.
2. Lawns and mowed grass are enormously expensive to maintain—water, possibly fertilizer and pesticides, maintenance of the irrigation system, fossil fuels to mow and to transport machinery from one park to the next, etc.
3. The cost incurred by eliminating whatever natural habitat—grassland, savanna, woodland—that would otherwise have existed on that site.
4. Even though I grew up with an appreciation for lawns (being an American), I now see them mostly as "lost opportunities" where a much more nature-friendly landscape could be occupying that site. Yes, I suppose we need playing fields and places to sit in the sunshine and read, but we've gone way, way overboard. It's just that, in this culture--and of course in many others around the world now--we grow up learning how to take care of a lawn, but we never learn how to design, plant, and take care of the many more nature-friendly options.
5. Lawn doesn't have the highest level of habitat value or water and air quality benefits.
6. If public lands were to turn off irrigated lawns, the fields crack, impacting playability and can create hazards to all the users.
7. Pesticides are used to maintain a monocrop and remove broad-leaved plants from lawn reducing wildlife value above and below ground. Over fertilization causes nutrients to enter the streams through storm events (pesticides too).

8. Lawn has less to offer in terms of both wildlife value and heat island reduction than other, more complex plantings, and is shown to have high sediment runoff.
9. Noise and air pollution from lawn mowers and leaf blowers.
10. Maintenance costs associated with mowing, fertilizing and watering.
11. Lack of plant diversity and wildlife habitat.

Q5. With the preliminary results in mind, identify the concerns with lawn planted in parks. Select and rank any items from the column on the left you consider to be concerns associated with lawn planted in parks. To select concerns, click and drag from the column on the left into the box labeled 'Concerns Regarding Lawn in Parks'. You can then move them into rank order.

Concerns Regarding Lawn in Parks

______ Irrigation Requirements (1)

______ Impacts from Fertilizers/Pesticides/Herbicides (2)

______ Intensive Maintenance (3)

______ Minimal Habitat (4)

______ Provides Fewer Regulatory Services than Alternative Planting Regimes ** (5)

______ Click to write Item 11 (11)

______ Fossil Fuel Use/Air Pollution/Noise from Mowers (6)

______ Low Biodiversity (7)

______ Maintenance Cost (8)

______ Unsustainable Cultural Paradigm (9)

______ Other (10)

** Regulatory services include carbon sequestration, urban heat island mitigation, improved air quality, stormwater runoff reduction and filtration, and erosion prevention.

If you selected "Other" above, please define.

____

Q6. With the preliminary results in mind, identify the concerns with lawn planted on right-of-way planting strips. Select and rank any items from the column on the left you consider to be concerns associated with lawn planted on right-of-way planting strips. To select concerns, click and drag from the column on the left into the box labeled 'Concerns Regarding Lawn on Right-of-Way Planting Strips'. You can then move them into rank order.

Concerns Regarding Lawn on Right-of-Way Planting Strips

______ Irrigation Requirements (1)

______ Impacts from Fertilizers/Pesticides/Herbicides (2)

______ Intensive Maintenance (3)

______ Minimal Habitat (4)

______ Provides Fewer Regulatory Services than Alternative Planting Regimes ** (5)

______ Fossil Fuel Use/Air Pollution/Noise from Mowers (6)

______ Low Biodiversity (7)

______ Maintenance Cost (8)

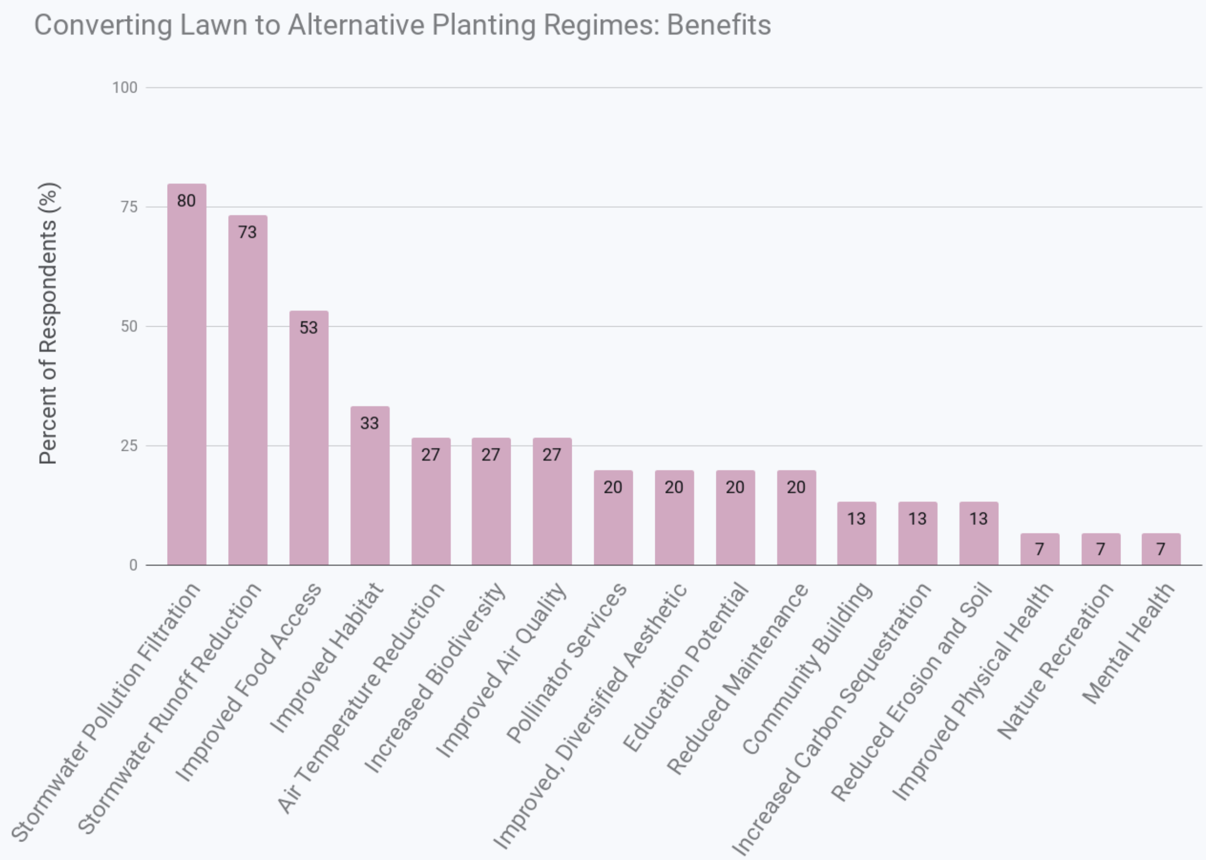
______ Unsustainable Cultural Paradigm (9)

______ Other (10)

** Regulatory services include carbon sequestration, urban heat island mitigation, improved air quality, stormwater runoff reduction and filtration, and erosion prevention.

If you selected "Other" above, please define.

____



Benefits of Converting Lawn to Alternative Planting Regimes: Survey #1 Responses

1. I don't believe that converting all lawn on public property would be a benefit, because lawn does have benefits of its own. However, the conversion of lawn in targeted areas could be beneficial given the right circumstances. For instance, lawns in medians are problematic because they require regular mowing which can put employees at risk as they work in the right of way.
2. Conversion of lawns in medians to trees (even set in permeable pavement) can reduce risk to staff and promote ecosystem services, including carbon sequestration, stormwater capture and filtration, reducing temperatures, creating continuous canopy for habitat.
3. Some lawn in parks could be transitioned (although I wouldn't support all lawn going away). A great example of an area that was transitioned from lawn to native plants is in Skinner Butte Park, just east of Lamb Cottage. This area is very wet, and the mowers get bogged down and leave terrible ruts every year when mowing in the spring. The City piloted a project to convert to native plants and have generally found success. Some members of the public complained that it looked messy and "why weren't we mowing and maintaining that area?". The City responded by incorporating rustic

fencing to delineate it as a unique area with interpretive signage. The amount of biodiversity and habitat in that area is strikingly different than in the adjacent lawn areas.

4. The benefits of converting public lawns to forests include: less frequent/reduced maintenance, increased carbon sequestration, improved soil formation/health, improved stormwater management.
5. Stormwater planters/rain gardens/bioswales can help to improve aesthetics, water quality and quantity.
6. Community gardens/orchards can help to provide food and increase public awareness about food security.
7. Native plantings can help reduce energy inputs, maximize wildlife/pollinator habitat and contribute to ecosystem integrity.
8. There are enormous benefits to almost anything but lawns (well, parking lots and buildings and streets are even worse than lawns, but not by much). Knowing what we, as a society, now know about "ecosystem services" and the benefits of more nature-friendly landscaping, it's especially important for public entities to "show the way" to the rest of society, by implementing more nature-friendly practices in everything they do. In a word, it's about education. By changing our practices on public property, we're "showing the way" to the rest of society and demonstrating that this is not just okay, but is much preferred to the status quo for reasons A, B, C, etc.
9. Cleaner and cooler water and air, less energy needed by neighboring buildings to cool in the summer, closer connection to nature for those who spend more time outside because of the inviting, engaging landscape, more exercise for the same people, local food benefits including addressing food scarcity issues, and connecting people to their food source.
10. Benefits of conversion include increased species diversity (many plant genera), improved water quality (filtering through roots, reduction of polluting fertilizers), pollinator attraction (many kinds of blooms), aesthetics (blooming and foliage), educational opportunities (all around), community building, increased habitat (diversity of type, size, shape and bloom), shade, food production (community gardens).
11. Community vegetable gardens provide social and economic benefits, and less of the ecological benefits.
12. Benefits may include reduction of the urban heat island effect and additional storm water runoff reduction.

Q7. With the preliminary results in mind, identify the benefits of converting lawn planted in parks to alternative planting regimes. Select and rank any items from the column on the left you consider to be benefits associated with converting lawn in parks to alternative planting regimes. To select benefits, click and drag from the column on the left into the box labeled 'Benefits of Converting Lawn in Parks'. You can then move them into rank order.

Benefits of Converting Lawn in Parks

______ Increased Stormwater Pollution Filtration (1)

______ Stormwater Runoff Reduction (2)

______ Improved Food Access (3)

______ Improved Habitat (4)

______ Air Temperature Reduction (5)

______ Increased Biodiversity (6)

______ Improved Air Quality (7)

______ Pollinator Services (8)

______ Improved/Diversified Aesthetics (9)

______ Education Potential (10)

______ Reduced Maintenance Inputs (11)

______ Reduced Maintenance Cost (12)

______ Community Building (13)

______ Increased Carbon Sequestration (14)

______ Reduced Erosion (15)

______ Increased Soil Formation (16)

______ Improved Physical Health (17)

______ Increased Nature Recreation Opportunities (18)

______ Improved Mental Health (19)

______ None (20)

______ Other (21)

If you selected "Other" above, please define.

____

Q8. With the preliminary results in mind, identify the benefits of converting lawn planted on right-of-way planting strips to alternative planting regimes. Select and rank any items from the column on the left you consider to be benefits of converting lawn on right-of-way planting strips to alternative planting regimes. To select benefits, click and drag from the column on the left into the box labeled 'Benefits of Converting Lawn on Right-of-Way Planting Strips'. You can then move them into rank order.

Benefits of Converting Lawn on Right-of-Way Planting Strips

______ Increased Stormwater Pollution Filtration (1)

______ Stormwater Runoff Reduction (2)

______ Improved Food Access (3)

______ Improved Habitat (4)

______ Air Temperature Reduction (5)

______ Increased Biodiversity (6)

______ Improved Air Quality (7)

______ Pollinator Services (8)

______ Improved/Diversified Aesthetics (9)

______ Education Potential (10)

______ Reduced Maintenance Inputs (11)

______ Reduced Maintenance Cost (12)

______ Community Building (13)

______ Increased Carbon Sequestration (14)

______ Reduced Erosion (15)

______ Increased Soil Formation (16)

______ Improved Physical Health (17)

______ Increased Nature Recreation Opportunities (18)

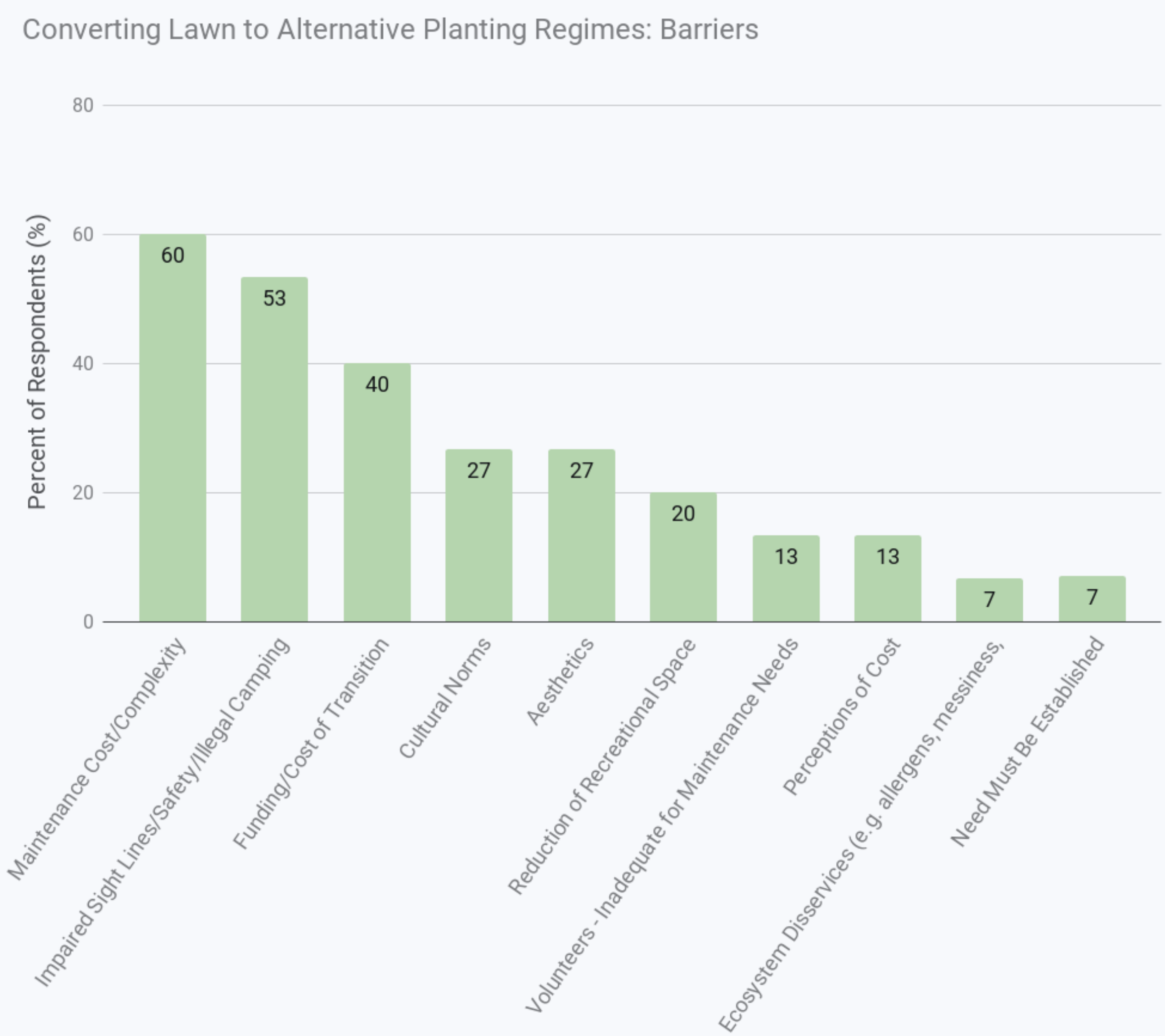
______ Improved Mental Health (19)

______ None (20)

______ Other (21)

If you selected "Other" above, please define.

____



<u>Barriers to Converting Lawn to Alternative Planting Regimes: Survey #1 Responses</u>

1. From a maintenance perspective, large expanses of lawn are relatively easy to maintain. Our maintenance regimes are suited to mechanized mowing as opposed to landscape bed care which tend to require hand weeding. The City uses an Integrated Pest Management approach to pesticides and minimizes use altogether whenever possible. This means that a lot of handwork is needed wherever landscape beds or stormwater facilities exist and this limits the amount of these types of landscapes that we can support.
2. Volunteers are often suggested to fill in the maintenance gaps, and they are definitely used, but there is a limit to the number of volunteers and their long-term commitment to any particular project. When the volunteers move away or move on to a different interest, the maintenance falls back to the city.

3. Regarding community gardens, these must be maintained and managed well. Individuals must be responsible to avoid pest infestations and weed seeds contaminating neighbor plots.
4. From a public safety perspective, having visible sight lines through public spaces is important for law enforcement and the public to be able to see their surroundings. Lawn is well suited to this, while more natural areas can offer hiding spots.
5. I believe there are concerns about maintenance of new facilities and making mowing harder and more time consuming if trees and other facilities like swales are incorporated. There's also limits on funding to complete conversion projects.
6. Some of the main barriers to the conversion of public lawns to alternative planting regimes include: perceptions that alternative landscapes are unkempt/unattractive/not conducive to public use or enjoyment; the belief that alternative planting regimes require more maintenance than lawns; and the belief that alternative plantings encourage illegal camping.
7. The major barrier is aesthetic. The same people who have no problem whatsoever with grasses waving in the wind, or unmowed road shoulders, or branches and leaves lying on the ground when they visit national parks and other "nature preserves," find these things unacceptable in urban areas. We have two heads: our rural, nature-friendly heads, and our urban nature-unfriendly heads. Yeah, we accept some wild areas or parks within the urban zone, but for the most part, we expect landscapes to appear more "controlled" and "tidy."
8. Lack of staff resources to provide necessary outreach to adjacent property owners.
9. Access to irrigation necessary for plant establishment.
10. Limited budget for associated costs of removing turf, modifying irrigation systems, soil amendments and plants + labor for installation and plant establishment.
11. People don't like change.

Q9. With the preliminary results in mind, identify the barriers to converting lawn in parks to alternative planting regimes. Select and rank any items from the column on the left you consider to be barriers to converting lawn in parks to alternative planting regimes. To select barriers, click and drag from the column on the left into the box labeled 'Barriers to Converting Lawn in Parks'. You can then move them into rank order.

Barriers to Converting Lawn in Parks

______ Cost of Maintenance (1)

______ Increased maintenance Time/Complexity (2)

______ Cost of Implementation/Transition (3)

______ Impaired Safety/Sight Lines (4)

______ Increased Opportunities for Illegal Camping (5)

______ Aesthetics (6)

______ Reduction of Recreational Space (7)

______ Volunteers Inadequate to Meet Increased Maintenance Needs (8)

______ Perceptions of Increased Cost (9)

______ Increased Ecosystem Disservices (e.g. allergens and messiness) (10)

______ Cultural Norm (11)

______ Need Must Be Established (12)

______ None (13)

______ Other (14)

If you selected "Other" above, please define.

____

Q10. With the preliminary results in mind, identify the barriers to converting lawn on right-of-way planting strips to alternative planting regimes. Select and rank any items from the column on the left you consider to be barriers to converting lawn on right-of-way planting strips to alternative planting regimes. To select barriers, click and drag from the column on the left into the box labeled 'Barriers to Converting Lawn on Right-of-Way Planting Strips'. You can then move them into rank order.

Barriers to Converting Lawn on Right-of-Way Planting Strips

______ Cost of Maintenance (1)

______ Increased maintenance Time/Complexity (2)

______ Cost of Implementation/Transition (3)

______ Impaired Safety/Sight Lines (4)

______ Increased Opportunities for Illegal Camping (5)

______ Aesthetics (6)

______ Reduction of Recreational Space (7)

______ Volunteers Inadequate to Meet Increased Maintenance Needs (8)

______ Perceptions of Increased Cost (9)

______ Increased Ecosystem Disservices (e.g. allergens and messiness) (10)

______ Cultural Norm (11)

______ Need Must Be Established (12)

______ None (13)

______ Other (14)

If you selected "Other" above, please define.

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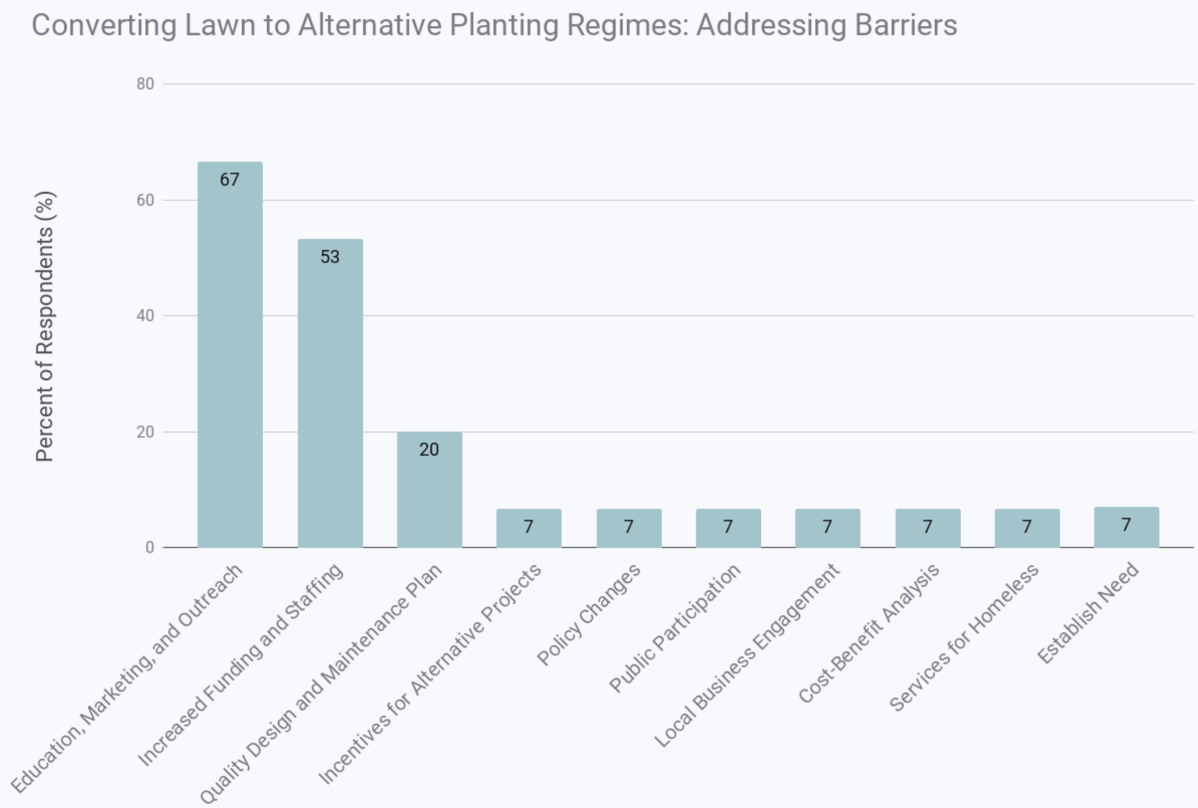

<u>Addressing the Barriers to the Conversion of Lawn to Alternative Planting Regimes: Survey #1 Responses</u>

1. Long-term, sustainable funding to support the ongoing maintenance and operations of alternative landscapes is needed.
2. There are any number of management scenarios that could also work (long-term adoption or lease to other agencies or organizations), but the funding will be an issue regardless of who is managing the facilities.
3. Come up with a plant community that is low maintenance and attempts to exclude weeds.
4. First a need to do so would have to be established. We are currently using public lands to treat stormwater under current federal regulations.
5. Coordinated outreach and marketing campaign to involve the public participation.
6. Budgeting for capital expenses associated with converting lawn areas to alternative uses.
7. Policy changes within city departments to align with alternative uses.
8. Good examples on both city and private properties, including signage.
9. Education! Teaching by example and erecting tasteful signs that explain why this landscape looks different from what people are accustomed to and listing the many "ecosystem services" it provides. Everyone is "an environmentalist" to some degree; but most simply don't understand that what we do on public property (and of course in our private yards, as well), is very, very nature-unfriendly, when it could be just the opposite. I truly think that, given appropriate information, and tips on how

to convert, say, lawn to "meadow," most people would get on-board with the new program.

10. Public education and sharing information about experiments/case studies will help to overcome these barriers.
11. Incentivizing alternative projects will help.
12. Sustainable and dedicated funding for public lands.
13. Analyze associated costs.
14. Spend the money upfront for initial establishment to prevent weed infestations.
15. Services to prevent homelessness and drug abuse.

Q11. With the preliminary results in mind, identify the potential strategies for addressing barriers to converting lawn in parks to alternative planting regimes. Select and rank any items from the column on the left you consider to be suitable strategies for addressing barriers to converting lawn in parks to alternative planting regimes. To select strategies, click and drag from the column on the left into the box labeled 'Strategies for Addressing Barriers to Converting Lawn in Parks'. You can then move them into rank order.

Strategies for Addressing Barriers to Converting Lawn in Parks

______ Education, Marketing, and Outreach (1)

______ Increased Funding (2)

______ Increased Staffing (3)

______ Identify Priority Locations (4)

______ Quality Design and Maintenance Plans (5)

______ Incentives for Alternative Planting Regimes (6)

______ Policy Changes (7)

______ Public Participation (8)

______ Local Business Engagement (9)

______ Cost-Benefit Analysis (10)

______ Other (11)

If you selected "Other" above, please define.

____

Q12. With the preliminary results in mind, identify the potential strategies for addressing barriers to converting lawn on right-of-way planting strips to alternative planting regimes. Select and rank any items from the column on the left you consider to be suitable strategies for addressing barriers to converting lawn on right-of-way planting strips to alternative planting regimes. To select strategies, click and drag from the column on the left into the box labeled 'Strategies for Addressing Barriers to Converting Lawn on Right-of-Way Planting Strips'. You can then move them into rank order.

Strategies for Addressing Barriers to Converting Lawn on Right-of-Way Planting Strips

______ Education, Marketing, and Outreach (1)

______ Increased Funding (2)

______ Increased Staffing (3)

______ Identify Priority Locations (4)

______ Quality Design and Maintenance Plans (5)

______ Incentives for Alternative Planting Regimes (6)

______ Policy Changes (7)

______ Public Participation (8)

______ Local Business Engagement (9)

______ Cost-Benefit Analysis (10)

______ Other (11)

If you selected "Other" above, please define.

____

Q13. Do you support the transition of lawn in parks to alternative planting regimes?

- ○ Yes, I want to see all lawn in parks converted to alternative planting regimes.
- ○ Yes, but I do not want all lawn in parks converted to alternative planting regimes.
- ○ No, I do not support the conversion of any lawn in parks to alternative planting regimes.

Q14. Do you support the transition of lawn on right-of-way planting strips to alternative planting regimes?

- ○ Yes, I want to see all lawn on right-of-way planting strips converted to alternative planting regimes.
- ○ Yes, but I do not want all lawn on right-of-way planting strips converted to alternative planting regimes.
- ○ No, I do not support the conversion of any lawn on right-of-way planting strips to alternative planting regimes.

Q15. Do you have any additional comments, questions, or concerns?

____

S.4 Alternative Planting Regimes

Table S9: Impervious surface assessment in the FAN (*kappa* = 0.89)

Land Cover Classification	Points Identified as Impervious	Points Identified as Impervious	Accuracy (%)
Impervious	96	4	96
Pervious	7	93	93
Total	103	97	94.5

Table S10: Stormwater facility area required for pollutant management

Land Use	Impervious Area (m^2)	Stormwater Planter Area Required [a] (m^2)	Rain Garden Area Required [a] (m^2)
Right-of-way	567,734	17,032	28,386
Public Parcels	109,709	3,291	5,485
Private Parcels	956,862	28,705	47,843
Total (Public)	677,443	20,323	33,872
Total	1,634,305	49,029	81,715

[a] Calculations based on the Simplified Approach outlined in the City of Eugene Stormwater Management Manual [3]; to remove an estimated 80% of stormwater pollutants from impervious surfaces, stormwater planters have a scaling factor of 0.03, while rain gardens have a scaling factor of 0.05. Although the Simplified Approach is intended for use on small properties, this method provides a rough estimate of the stormwater facility area needed to manage pollutants; further analysis is necessary to assess the necessary spatial distribution of stormwater facilities.

Table S11: Alternative planting regime vegetated land cover

	Lawn Converted (ha)	Wood-land (ha)	Trees (ha)	Tall Shrub (ha)	Short Shrub (ha)	Rec. Lawn (ha)	Other Lawn (ha)	Rain Garden [a] (ha)	Storm-water Planter [a] (ha)
Status Quo	**0**								
Parks/Schoolyard	0	5.0	4.2	0.3	0.6	4.0	23.1	0	0
Right-of-way	0	0	12.5	1.3	1.4	0	4.9	0	0
Forest + Stream Neighborhood	**31.1**								
Parks/Schoolyard	27.1	36.7	0	0	0	0	0	0.5	0
Right-of-way	4.9	0	12.8	1.3	1.4	0	0	0	4.6
Birdland (Delphi Priorities)	**26.2**								
Parks/Schoolyard	21.4	13.0	12.6	2.3	3.1	0	5.8	0.5	0
Right-of-way	4.9	0	15.7	1.3	1.4	0	0	0	1.7
Flower Sports (Resident Priorities)	**21.0**								
Parks/Schoolyard	16.1	9.0	11.3	2.3	3.1	4.0	7.1	0.5	0
Right-of-way	4.9	0	13.7	1.3	3.4	0	0	0	1.7
Integration	**22.4**								
Parks/Schoolyard	17.5	11.0	10.8	2.3	3.1	3.1	6.5	0.5	0
Right-of-way	4.9	0	14.7	1.3	2.4	0	0	0	1.7

[a] Assumed to have "short shrub" land cover type for ES calculations; half of stormwater facilities sited in parks and schoolyards are assumed to be >50m from roads, and 50% are assumed to be <50m from roads.

References

1. Derkzen, M.L.; van Teeffelen, A.J.A.; Verburg, P.H. Quantifying urban ecosystem services based on high-resolution data of urban green space: an assessment for Rotterdam, the Netherlands. *Journal of Applied Ecology* **2015**, *52*, 1020–1032, doi:10.1111/1365-2664.12469.
2. ESRI *ArcMap 10.7*; Environmental Systems Research Institute: Redlands, CA, 2019;
3. City of Eugene Stormwater Management Manual 2014.