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Year 4 Massachusetts Small Municipal Separate Storm System Permit – Municipal Property Retrofits



Submitted to the Town of Oxford
June 30th, 2022
Nitsch #14845

Year 4 Massachusetts Small Municipal Separate Storm System Permit – Municipal
Property Retrofits
For the Town of Oxford

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1 Municipal Property Retrofits

The MS4 permit requires the Town of Oxford to identify a minimum of 5 permittee-owned properties that could potentially be modified or retrofitted with BMPs designed to reduce the frequency, volume, and pollutant loads of stormwater discharges to and from its MS4 area. These pollutant loads include both phosphorus and nitrogen for the Town of Oxford.

Implementing these BMPs presents an opportunity for the Town to also work towards their reduction requirements for phosphorus and help to reduce nitrogen loads as well as required by their Nitrogen Source Tracking and Lake Phosphorus Control Plan. Nitsch Engineering evaluated 109 town-owned parcels of the total 6,007 parcels in the town for potential retrofit opportunities. The intent is to select 5 sites for potential retrofit opportunities that will be further evaluated for BMP selection and design in subsequent reports.

1.1 Methodology

Nitsch Engineering evaluated town-owned parcels against several criteria to prioritize stormwater retrofit locations. Nitsch Engineering gave a score based on how well the criterion would improve success/efficiency of a retrofit on a town-owned parcel. Nitsch Engineering assigned each criteria a score that may have included a range to account for all possible values within that defined criterion. Some criteria were not assigned a score as these were for informational purposes only and may influence further decision making on BMP selection and design. Each of the 109 town-owned parcel's criteria scores were totaled, and the five highest scoring parcels were selected as having the highest probability of a successful stormwater retrofit. The criteria and corresponding source information are listed and described in Appendix A.

The scores for each criterion per location can be found in Appendix B. Note that the phosphorus or nitrogen loading rates are for town parcel watersheds, not just the parcel area. The watershed was found through the "watershed" function, using the MassGIS Lidar DEM as a base for flow direction. Each town parcel watershed was calculated individually and was not clipped to the boundary of the town.

For local decision making, considerations in this screening process can be further supplemented and fine-tuned based on local priorities. For some communities, localized flooding has been an important additional consideration and has been included in the scoring. In other situations, the PVPC has recommended that, where possible, communities add tree canopy analysis in the ranking. This allows investments for improved stormwater pollution control through vegetated systems to also mitigate heat island effects in neighborhoods where there are few trees. The stormwater retrofit prioritization will continue to be updated in future Permit years to adapt to local efforts in pursuit of the MS4 permit.

1.2 Priority Stormwater Retrofit Site Selection

After consideration of the criteria listed in Appendix A and score calculation for each parcel (Appendix B), Nitsch Engineering choose the top five (5) parcels (Table 1).

Table 1. Top 5 Oxford, MA BMP Retrofit Locations

LOC_ID	Address	Lake/Pond Watershed	Phosphorus Load lb/yr	Nitrogen Load lb/yr	Score
F_552838_2858456	0 Hardwood St	None	10083	102063	27
F_555766_2862385	0 Lowes St Roadway	None	1328	14032	25
F_556065_2880446	25 Depot Rd	None	11	113	24
F_557338_2873475	450 Main St	Lowes Pond	1	8	24
F_555871_2867501	34 Charlton St	None	98	702	24

The top scoring parcel held a score of 27 and the lowest scoring parcel held a score of 13. The maximum number of points that could have been awarded was 35. This ranking and scoring matrix are to be re-evaluated in the subsequent permit years to select BMP sites that will achieve the goals of the MS4 Permit. See Figure 1 below for the location of the sites.



Figure 1. Top 5 BMP Retrofit Sites

Appendix A – GIS Layers for Ranking of Town Owned Parcels

GIS Layers for Ranking of Town Owned Properties			
Evaluation Criteria	Data Source	Description	Score Value for Prioritization
WITHIN 100 FEET OF PRIORITY NATURAL COMMUNITIES AREA	MassGIS: BioMap2 Mass.gov	MassGIS's BioMap2 dataset identifies areas with priority natural communities. Parcels within 100 feet of them were identified as less viable for retrofit locations.	Yes = 0 No = 1
WITHIN 100 FEET OF SPECIES OF CONSERVATION CONCERN AREA	MassGIS: BioMap2 Mass.gov	MassGIS's BioMap2 dataset identifies areas with species of conservation concern. Parcels within 100 feet of them were identified as less viable for retrofit locations.	Yes = 0 No = 1
WITHIN 200 FEET OF A STREAM	MassGIS Data: MassDEP Wetlands (2005) Mass.gov	MassDEP's Wetland dataset identifies streams as wetland connections as of 2017. Parcels within 200 feet of them were identified as less viable for retrofit locations.	Yes = 0 No = 1
WITHIN 100 FEET OF A WETLAND	MassGIS Data: MassDEP Wetlands (2005) Mass.gov	MassDEP's Wetland dataset identifies wetland areas as of 2017. Parcels within 100 feet of them were identified as less viable for retrofit locations.	Yes = 0 No = 1
WITHIN 100 FEET OF CERTIFIED VERNAL POOL	MassGIS Data: NHESP Certified Vernal Pools Mass.gov	Under the Massachusetts Wetland Protection Act, area within 100 ft of a certified vernal pool is protected and subjected to regulations under M.G.L.c. 131 § 40.	Yes = 0 No = 1
WITHIN A 2020 ENVIRONMENTAL JUSTICE POPULATION AREA	MassGIS Data: 2020 Environmental Justice Populations Mass.gov	To ensure environmental justice and provide healthier environments to all, especially minorities, projects within environmental justice population areas were given a higher score.	Yes = 1 No = 0
DRAINAGE AREA TO PARCEL	MassGIS Data: Lidar Terrain Data Mass.gov	To calculate the watershed attributing to each parcel to figure out the nitrogen and phosphorus load that a BMP on that parcel would capture.	N/A
NITROGEN LOAD POUNDS PER YEAR	MassGIS Data: 2016 Land Cover/Land Use Mass.gov MassGIS Data: Soils SSURGO-Certified NRCS Mass.gov	Areas with higher nitrogen loading were given a higher score as those are the parcels that should be focused on for BMPs in accordance with the MS4 permit.	>100,000 = 5 >10,000 = 4 >1,000 = 3 >100 = 2 >0 = 1
PHOSPHORUS LOAD POUNDS PER YEAR	MassGIS Data: 2016 Land Cover/Land Use Mass.gov MassGIS Data: Soils	Areas with higher phosphorus loading were given a higher score as those are the parcels that we should focus on for	>10,000 = 5 >1,000 = 4 >500 = 3 >100 = 2 >0 = 1

GIS Layers for Ranking of Town Owned Properties			
Evaluation Criteria	Data Source	Description	Score Value for Prioritization
	SSURGO-Certified NRCS Mass.gov	BMPs in accordance with the MS4 permit.	
WITHIN 15 FEET OF RIGHT OF WAY	MassGIS Data: 2016 Land Cover/Land Use Mass.gov	This measure ensures that there will be easy access to the parcel for upkeep and maintenance of the BMP.	Yes = 0 No = 1
AVAILABLE SQUARE FOOTAGE FOR RETROFIT WITHIN PARCEL	MassGIS Data: 2016 Land Cover/Land Use Mass.gov MassGIS Data: Building Structures (2-D) Mass.gov	Provides an idea of how much area the Town may have to implement a BMP on the parcel excluding areas of buildings and wetlands. This scoring threshold may need to be re-evaluated if the parcel is selected for retrofit.	>10,000 sf = 1 <10,000 sf = 0
PRIMARY SOIL DRAIN CLASS WITHIN PARCEL	MassGIS Data: Soils SSURGO-Certified NRCS Mass.gov	This information provides insight on how well the soils may drain and reflects how fast a BMP may drain.	Excessively Drained = 5 Somewhat Excessively Drained = 4 Well Drained = 3 Moderately Well Drained = 2 Poorly Drained = 1 Very Poorly Drained = 0
PRIMARY HYDROLOGIC SOIL GROUP WITHIN PARCEL	MassGIS Data: Soils SSURGO-Certified NRCS Mass.gov	Hydrologic soil group provides insight on soil characteristics that reflect how well a BMP may perform in that area. This is for informational use as the drain class was used for scoring.	N/A
PRIMARY 2016 LAND USE WITHIN PARCEL	MassGIS Data: 2016 Land Cover/Land Use Mass.gov	This is an informative layer that may weigh on parcel selection later in the process but was currently not assigned a score.	N/A
PRIMARY 2016 LAND COVER WITHIN PARCEL	MassGIS Data: 2016 Land Cover/Land Use Mass.gov	Natural and undeveloped land covers were given a score of 0 because those should not be developed.	Impervious = 1 Developed Open Space = 1 Cultivated = 1 Pasture/Hay = 1 Grassland = 0 Deciduous = 0 Evergreen = 0 Shrub/Scrub = 0 Forested Palustrine = 0 Emergent Palustrine = 0 Forested Estuarine = 0 Shrub/Scrub Estuarine = 0 Emergent Estuarine = 0 Shored Unconsolidated = 0 Bare = 0
SQUARE FOOTAGE OF PARCEL IMPERVIOUS AREA	MassGIS Data: 2016 Land Cover/Land Use Mass.gov	This provides an idea of what kind of BMP can be implemented and will be used later for BMP design if the parcel is selected.	N/A
PERCENT OF PARCEL IMPERVIOUS AREA	MassGIS Data: 2016 Land Cover/Land Use Mass.gov	This provides an idea of what kind of BMP can be implemented and will be used later for BMP design if the parcel is selected. If the area of impervious is greater than 25% of the parcel than	>25% = 1 <25% = 0

GIS Layers for Ranking of Town Owned Properties			
Evaluation Criteria	Data Source	Description	Score Value for Prioritization
		a BMP can be implemented on or under the pavement.	
WITHIN URBANIZED AREA (COMBINED 2000 AND 2010)	Layer: Urbanized Areas (ID: 4) (census.gov) Layer: Urbanized Areas (ID: 1) (census.gov)	Since the MS4 regulates urbanized area, parcels were given a higher score for being within it.	Within Urbanized Area = 1 Outside Urbanized Area = 0
WITHIN POND WATERSHED	StreamStats (usgs.gov)	The MS4 is focused on improving certain impaired waterbodies, it is important that the parcel selected for BMP implementation is within one of these watersheds to improve their health.	Within Pond Watershed = 1 Outside Pond Watershed = 0
NUMBER OF PUBLIC WATER SUPPLIES WITHIN PARCEL	MassGIS Data: Public Water Supplies Mass.gov	It is not preferred to be in a public water supply area and cause disruption or construction within those areas for the quality of the drinking water recharge.	Outside of Area = 1 Within Area = 0
WITHIN INTERIM WELLHEAD PROTECTION AREA	MassGIS Data: MassDEP Wellhead Protection Areas (Zone II, Zone I, IWPA) Mass.gov	It is not preferred to be in a public water supply area and cause disruption or construction within those areas for the quality of the drinking water recharge.	Outside of Area = 1 Within Area = 0
WITHIN WELLHEAD PROTECTION ZONE II	MassGIS Data: MassDEP Wellhead Protection Areas (Zone II, Zone I, IWPA) Mass.gov	It is not preferred to be in a public water supply area and cause disruption or construction within those areas for the quality of the drinking water recharge.	Outside of Area = 1 Within Area = 0
WITHIN WELLHEAD PROTECTION ZONE I	MassGIS Data: MassDEP Wellhead Protection Areas (Zone II, Zone I, IWPA) Mass.gov	It is not preferred to be in a public water supply area and cause disruption or construction within those areas for the quality of the drinking water recharge.	Outside of Area = 1 Within Area = 0
WITHIN SURFACE WATER PROTECTION ZONE A	MassGIS Data: Surface Water Supply Protection Areas (ZONE A, B, C) Mass.gov	It is not preferred to be in a public water supply area and cause disruption or construction within those areas for the quality of the drinking water recharge.	Outside of Area = 1 Within Area = 0
WITHIN SURFACE WATER PROTECTION ZONE B	MassGIS Data: Surface Water Supply Protection Areas (ZONE A, B, C) Mass.gov	It is not preferred to be in a public water supply area and cause disruption or construction within those areas for the quality of the drinking water recharge.	Outside of Area = 1 Within Area = 0
WITHIN SURFACE WATER PROTECTION ZONE C	MassGIS Data: Surface Water Supply Protection Areas (ZONE A, B, C) Mass.gov	It is not preferred to be in a public water supply area and cause disruption or construction within those areas for the quality of the drinking water recharge.	Outside of Area = 1 Within Area = 0

GIS Layers for Ranking of Town Owned Properties			
Evaluation Criteria	Data Source	Description	Score Value for Prioritization
NUMBER OF BUILDINGS WITHIN THE PARCEL	MassGIS Data: Building Structures (2-D) Mass.gov	This was important to know whether the parcel is accessed by the public so that it may also be used for an educational opportunity.	Buildings on Parcel = 1 None = 0



Appendix B – Site Selection Scoring Matrix

Loc_ID	Within 100' of Priority Area Natural Communities Area	Within 100' of Species of Conservation Concern Area	Within 200' of Stream	Within 100' of Wetland Area	Within Env Justice Groups 2020	Number of Buildings in Parcel	Within Surface Water Protection Zone A	Within Surface Water Protection Zone B	Within Surface Water Protection Zone C	Number of Public Water Supplies (Well)	Name of Pond Watershed (2000/2010)	Within Urbanized Area (2000/2010)	% of Town Parcel Impervious	Area of Town Parcel Impervious (SF)	Within Wellhead Protection Zone I	Within Wellhead Protection Zone II	Interim Wellhead Protection Area (WPA)	Primary 2016 Land Cover	Primary 2016 Land Use	Primary Hydrologic Soil Group	Primary Drain Class	Within 100' of Certified Soil (No buildings or wetland)	Available Area for Retrofit Vernal Pool	Within 15' of Right of Way	Drainage Area to Parcel (Acres)	Nitrogen Load lb/yr	Phosphorus Load lb/yr
F_546302_289754	0	0	7	5	0	0	0	0	0	0	0 Texas Pond	1	0	0	0	0	0 Deciduous Forest	Open land	D	Very poorly drained	0	261,545,451	66,671,1142	63,238,17004			
F_546353_289367	0	0	0	0	0	0	0	0	0	0	0 Texas Pond	1	3,579443218	2396,928198	0	0	0	1 Developed Open Space	Tax exempt	C/D	Moderately well drained	0	32,640,6499	7,676,20761	0,662,56136		
F_548132_289303	0	0	0	0	0	0	0	0	0	0	0 Texas Pond	1	0	0	0	0	0	0 Deciduous Forest	Open land	C	Well drained	0	69,673,70222	2,0,281,68124	0,0,375,95953		
F_553152_2889849	0	0	2	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0 Deciduous Forest	Open land	A	Somewhat excessively drained	0	35,180,23828	1,11,185,5306	1,0,597,010547		
F_548462_288774	0	0	2	1	0	0	0	0	0	0	0 Texas Pond	1	0	0	0	0	0	0 Deciduous Forest	Open land	B	Well drained	0	44,618,35326	3,35,269,80549	75,675,82282	8,856,6599823	
F_548466_2887180	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0 Developed Open Space	Open land	C/D	Moderately well drained	0	44,799,69704	0,0,388,60543	0,0,572,75027		
F_551217_2884993	0	0	0	0	0	0	0	0	0	0	0	1	32,71462335	1386,720548	0	0	0	0 Developed Open Space	Open land	A	Somewhat excessively drained	0	4238,8265	3,0,472,22725	1,4,178,39846	0,1,865,24986	
F_549675_2883997	0	0	2	1	0	0	0	0	0	0	0	0	0,000,6734	2,166,836323	0	0	0	0 Deciduous Forest	Open land	C	Well drained	0	28,239,81753	43,694,90831	3,8,503,22704		
F_549705_2884527	0	0	1	1	0	0	0	0	0	0	0	1	3,34207526	2050,854734	0	0	0	0 Developed Open Space	Open land	B	Well drained	0	14,584,25767	2,3,686,01147	17,149,714017	1,7,727,63228	
F_549706_2884537	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0 Developed Open Space	Open land	B	Well drained	0	15,183,61580	3,31,863,51458	0,3,563,21458		
F_550128_2884054	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 Deciduous Forest	Open land	B	Well drained	0	8,789,83548	0,0,435,20405	1,1,892,39774	0,1,453,13883	
F_546350_2882310	0	0	0	0	0	0	0	0	0	0	0 Buffumville Lake	0	0,008027627	2,21436808	0	0	0	0 Grassland	Open land	B	Well drained	0	27,561,40035	3,0,834,93197	1,1,670,58947	0,1,126,93916	
F_545206_2885682	0	0	1	1	0	0	0	0	0	0	0 Buffumville Lake	0	0	0	0	0	0 Deciduous Forest	Open land	B	Well drained	0	52,690,71527	10,942,25154	6,855,02325			
F_545207_2885683	0	0	1	1	0	0	0	0	0	0	0 Buffumville Lake	0	0	0	0	0	0 Deciduous Forest	Open land	B	Well drained	0	22,030,21349	5,5,397,20439	0,5,294,21349			
F_546185_2882196	0	0	1	0	0	0	0	0	0	0	0 Buffumville Lake	0	0	0	0	0	0 Deciduous Forest	Open land	C/D	Moderately well drained	0	24,501,71844	2,194,43847	63,158,23299	4,6,108,0232		
F_546886_2882268	0	0	1	1	0	0	0	0	0	0	0 Buffumville Lake	0	0	0	0	0	0 Deciduous Forest	Open land	C/D	Moderately well drained	0	26,393,84586	3,196,688484	60,688,04918	1,6,880,2922		
F_547120_2882400	0	0	1	1	0	0	0	0	0	0	0 Evergreen Forest	0	0	0	0	0	0 Evergreen Forest	Open land	C	Well drained	0	51,577,9373	2,194,754300	63,458,71215	0,4,429,72509		
F_547385_2882680	0	0	0	1	0	0	0	0	0	0	0 Buffumville Lake	0	0	0	0	0	0 Palustrine Forested Wetland	Open land	C	Well drained	0	44,944,72569	3,0,344,66635	0,1,939,85856			
F_547446_2882868	0	0	0	2	1	0	0	0	0	0	0 Buffumville Lake	0	0	0	0	0	0 Palustrine Forested Wetland	Open land	C/D	Moderately well drained	0	66,636,7353	2,178,9345199	552,253,5882	59,419,14479		
F_547455_2883064	0	0	0	2	1	0	0	0	0	0	0 Buffumville Lake	0	0	0	0	0	0 Palustrine Forested Wetland	Open land	C/D	Moderately well drained	0	17,036,47951	2,111,254947	189,567,7779	19,125,17465		
F_548199_2882752	0	0	0	0	0	0	0	0	0	0	0 Buffumville Lake	0	0	0	0	0	0 Deciduous Forest	Open land	C	Well drained	0	37,03,38545	0,1,535,66792	3,9,171,81101	0,4,626,14245		
F_548209_2882747	0	0	0	1	1	0	0	0	0	0	0 Buffumville Lake	0	0	0	0	0	0 Deciduous Forest	Open land	C	Well drained	0	13,093,35648	0,1,586,96968	4,6,445,56854	0,5,269,23559		
F_552514_2882752	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0 Deciduous Forest	Open land	A	Somewhat excessively drained	0	0,127,48461	0,0,30,070,938	0,1,127,48461		
F_552520_2883166	0	0	1	2	0	0	5	0	0	0	0	1	26,338,14535	102320,0995	0	0	0	0 Developed Open Space	Tax exempt	B	Well drained	0	37,110,54581	4,45,104,9954	134,303,8480	12,019,98356	
F_556065_2880446	0	0	0	1	2	0	0	5	0	0	0	1	35,430,81857	134180,0519	0	0	0	0 Developed Open Space	Tax exempt	A	Somewhat excessively drained	0	32,694,65461	3,37,091,9756	112,563,96347	10,544,71982	
F_565783_2881200	0	0	2	2	1	0	0	0	0	0	0	0	0,072476535	527,643,9006	0	0	0	0 Pasture/Hay	Open land	C	Well drained	0	26,509,09	0,70,767,97237	8,478,961,2634		
F_566145_2881669	0	0	0	1	0	0	0	0	0	0	0	0	0,4753,8883	879,704,1537	0	0	0	0 Grassland	Open land	C	Well drained	0	18,515,8955	4,47,972,97276	19,585,21592		
F_567246_2881296	0	0	5	1	0	0	0	0	0	0	0	0	0,0003,74724	3,7192,96119	0	0	0	0 Deciduous Forest	Open land	C	Well drained	0	99,524,9938	3,38,043,7564	96,691,31174	6,37,812,938	
F_558895_2876151	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0 Deciduous Forest	Open land	A	Somewhat excessively drained	0	14,298,82421	3,7,537,02191	10,628,55329		
F_556208_2878888	0</																										

LOC_ID	Within 100' of Priority Natural Communities Area	Within 100' of Species of Conservation Area																		Within Env Justice Groups 2020	Buildings in Parcel	Within Surface Water Protection Zone A	Within Surface Water Protection Zone B	Within Surface Water Protection Zone C	Number of Public Water Supplies (Well)	Within Watershed	Within Urbanized Area (2000/2010)	% Town Parcel Impervious	Within Wellhead Protection Zone I	Within Wellhead Protection Zone II	Interim Wellhead Protection Area (IWPA)	Primary 2016 Land Cover	Primary Drain Class	Within 100' of Certified Vernal Pool	Available Area for Retrofit (No buildings or wetland)	Within 15' of Right of Way	Nitrogen Load	Phosphorus Load	Totals
		Within 200' of Stream	Within 100' of Wetland Area	Within 100' of Stream	Within 100' of Wetland Area	Within 100' of Stream	Within 100' of Wetland Area	Within 100' of Stream	Within 100' of Wetland Area	Within 100' of Stream	Within 100' of Wetland Area	Within 100' of Stream	Within 100' of Wetland Area	Within 100' of Stream	Within 100' of Wetland Area	Within 100' of Stream	Within 100' of Wetland Area	Within 100' of Stream	Within 100' of Wetland Area																				
F_552838_2858456	1	0	0	1	0	0	1	1	1	1	1	0	1	0	1	0	1	0	1	0	5	1	1	1	5	5	27												
F_555765_2862385	1	1	0	0	0	0	1	1	1	1	1	0	1	0	1	0	1	0	1	0	5	1	1	1	4	4	25												
F_556065_2880446	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	0	1	1	0	1	4	1	1	1	2	1	24												
F_557338_2873475	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	0	1	1	0	1	4	1	1	1	1	1	24												
F_555871_2867501	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	0	1	1	0	1	4	1	1	1	2	1	24												
F_557101_2868431	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	0	1	1	0	1	4	1	1	1	1	1	24												
F_557059_2868110	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	0	1	1	0	1	4	1	1	1	1	1	24												
F_556452_2875677	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	0	1	1	0	1	4	1	1	1	1	1	23												
F_555478_2875043	1	0	1	0	0	0	1	1	1	1	1	0	1	1	1	0	1	1	0	1	4	1	1	1	2	1	23												
F_555699_2867399	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	0	1	1	0	1	4	1	1	1	2	1	23												
F_556901_2867471	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	0	1	1	0	1	4	1	1	1	0	1	23												
F_556403_2869246	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	0	1	1	0	1	4	1	1	1	2	1	23												
F_557509_2869588	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	0	1	1	0	1	4	1	1	1	1	1	23												
F_556895_2868222	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	0	1	1	0	1	4	1	1	1	1	1	23												
F_556456_2863446	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	0	1	1	0	1	4	1	1	1	1	1	23												
F_551517_2884993	1	1	1	1	0	0	0	1	1	1	1	0	1	1	1	1	1	1	1	0	4	1	1	0	1	1	22												
F_552508_2883166	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1	0	1	3	1	1	1	2	1	22												
F_556637_2880397	1	1	1	1	0	0	0	1	1	1	1	0	1	1	1	0	1	1	0	1	4	1	1	1	1	1	22												
F_555002_2866202	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	0	1	1	0	1	4	1	1	0	1	1	22												
F_556732_2869373	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	0	1	1	0	1	4	1	1	1	1	1	22												
F_556896_2868055	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	0	1	1	0	1	4	1	1	0	1	1	22												
F_568315_2864979	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	0	1	1	0	1	4	1	1	1	1	1	22												
F_565320_2865488	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	0	1	1	0	1	2	1	1	1	3	2	22												
F_561959_2861234	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	0	1	1	0	1	3	1	1	1	1	1	22												
F_553226_2862615	1	0	1	1	0	0	0	1	1	1	1	0	1	1	1	0	1	1	0	1	4	1	1	1	2	1	22												
F_552851_2858184	1	1	1	1	0	0	0	1	1	1	1	0	1	1	1	0	1	1	0	1	5	1	1	1	1	1	22												
F_560550_2873156	1	1	1	1	0	0	1	1	1	1	1	0	0	1	1	1	1	1	0	1	3	1	1	0	1	1	21												
F_557458_2869400	1	1	1	1	0	0	0	1	1	1	1	0	1	1	1	0	1	1	0	1	4	1	1	1	1	1	21												
F_565810_2863996	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	0	1	1	0	1	3	1	1	0	2	1	21												
F_555750_2863438	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	0	1	1	0	1	5	1	1	1	1	1	21												
F_553560_2862781	1	1	1	1	0	0	0	1	1	1	1	0	1	1	1	0	1	1	0	1	4	1	1	0	1	1	21												
F_555650_2856051	1	1	1	1	0	0	0	1	1	1	1	0	1	1	1																								

F_553269_2858272	1	0	0	0	0	1	1	1	1	0	0	0	1	0	1	0	5	1	1	1	1	18
F_553394_2858037	1	0	1	0	0	0	1	1	1	1	0	0	1	0	1	0	5	1	1	1	2	17
F_543700_2892754	1	1	0	0	0	0	1	1	1	1	0	0	1	1	1	0	0	1	1	1	2	17
F_554366_2887180	1	1	0	1	0	0	1	1	1	0	1	0	1	1	1	1	2	1	0	0	1	17
F_549149_2884522	1	1	0	0	0	0	1	1	1	0	0	0	1	1	1	0	3	1	1	1	1	17
F_550328_2884054	1	1	0	1	0	0	1	1	1	0	1	0	1	1	1	0	3	1	0	0	1	17
F_547385_2882680	1	1	1	0	0	0	1	1	1	1	0	0	1	1	1	0	3	1	0	0	1	17
F_552514_2881752	1	0	0	0	0	0	1	1	1	0	1	0	1	1	1	0	4	1	0	1	1	17
F_568219_2870806	1	1	0	0	1	0	1	1	1	1	0	0	1	1	1	0	0	1	1	1	2	17
F_568454_2867256	1	1	0	0	1	1	1	1	1	1	0	0	1	1	1	0	0	1	1	0	2	17
F_560703_2856914	1	1	0	0	0	1	1	1	1	0	1	0	1	1	1	0	3	1	1	0	1	17
F_557924_2856405	1	1	0	0	0	0	1	1	1	1	0	1	1	1	0	0	3	1	1	1	1	17
F_559279_2869453	1	1	1	0	1	0	1	1	1	1	0	0	1	0	1	0	0	1	1	1	1	16
F_546452_2860635	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	0	0	1	1	1	1	16
F_554781_2871780	1	0	0	0	0	1	1	1	1	1	0	0	1	0	1	0	0	1	1	1	1	15
F_556201_2871585	1	1	0	0	0	0	1	1	1	1	0	0	1	0	1	0	0	1	1	1	1	15
F_555424_2871384	1	1	0	0	0	1	1	1	1	1	0	0	1	0	1	0	0	1	1	1	1	15
F_553923_2870021	1	0	1	0	0	1	1	1	1	0	1	0	1	1	1	0	0	1	1	0	1	15
F_555399_2861526	1	1	0	0	0	0	1	1	1	0	1	0	1	0	1	0	0	1	1	1	2	15
F_552208_2853863	1	0	0	0	0	0	1	1	1	0	0	0	1	0	1	0	3	1	1	1	1	15
F_554355_2865207	1	1	1	1	0	0	1	1	1	0	1	0	1	0	1	0	0	1	0	0	1	14
F_553025_2861553	1	0	0	0	0	0	1	1	1	0	1	0	1	0	1	0	0	1	1	0	2	13
F_554000_2858187	1	0	1	0	0	0	1	1	1	0	1	0	1	0	1	0	0	1	1	0	1	13
F_551920_2858411	1	0	1	0	0	0	1	1	1	0	1	0	1	0	1	0	0	1	0	1	1	13