



# **TURF CONSULTANT'S REPORT ON PARK FIELDS IN CULVER CITY**



**OCTOBER 23, 2019**



10/23/2019  
Patrick Reynolds  
Parks Division Manager  
City of Culver City  
4117 Overland Ave  
Culver City, CA 90230  
310-253-6571

RE: PRZ Sports Field Assessment  
Park Fields in Culver City

Patrick:

Here is what we found on your sites:

1. Your current maintenance level on these fields is an average 1.67 but your average wear level is close to 3.82, 5 being the highest. There is a direct correlation between maintenance and wear. This much difference between the two has created unsustainable turf on some these fields.
2. Your fields have no time to rest.
3. You have a hodgepodge of 3 or 4 varieties of turf grasses on your fields.
4. Your irrigation systems on these fields are in fair to OK condition and some may need to be upgraded.
5. There is almost no preventative irrigation maintenance taking place at these parks.
6. You need some additional man hour saving maintenance equipment.
7. These fields are 10-30% weeds which presents a problem if we are to try to re-establish your fields from seed.
8. You are currently fertilizing 4 times a year with approximately ½ lbs. of Nitrogen per quarter or 2 lbs. per year.
9. You are currently mowing your grass at 3.5"
10. Most of the fields have programed sports, some have only drop-in sports and others are passive turf parks (Culver West, Carlson, El Marino). The adult sports are at Vets and SK and sometimes at Botts Field in CC park. The youth sports are on all the active turf parks.
11. Vets park fields are used by youth 60% and 40% by adults. Syd's fields are used by adults 54% of the time and 44% by youth. The rest are used 100% by youth.
12. Your adult sport usage is unusually low compared to most of my City Assessments.

I am recommending that you:

1. Drastically increase your maintenance level on these fields. You will need to add approximately 7850 additional manhours to do it all yourself. You could increase your mowing and aerating only and pay a contractor to do the annual tasks such as deep-tine aeration, top dressing, and over-seeding.
2. Your shortage of man hours to reach sustainability is literally 4 people short to achieve this. I recommend that you hire 2 of these for irrigation maintenance. This is one area where you will realize water savings as well as observable improvements in appearance!
3. Switch to a very aggressive Hybrid Kentucky Blue grass variety by over-seeding. The pages to follow will go into greater detail but here are the advantages:
  - A. This bluegrass will not go dormant in your microclimate, so you won't have to over-seed with ryegrass every fall. This blue grass can achieve 100% of its ability to repair itself 6 months out of the year. Your proximity to the ocean causes your temperatures to be less than ideal for Bermuda grasses. I would recommend picking out 1 or 2 sites to try these Blue grasses.
4. The No-Till option is new to the US but used in Europe for 12 years and can be used on some of your sites. It was brought here by GreenOne Industries and they are the only company that has all the European equipment it takes to do this system. It costs 25-40% less than the cost of Complete renovation. The No-Till Renovation system will re-level your fields and bring them up to a sustainable level. The No-Till Renovation sites can be finished in 2.5-3 weeks each plus 60 days grow in. I have worked with GreenOne industries for over 25 years all over the US and they are the best contractor I have ever worked with and their honesty and integrity make them the favorite for anyone who has ever used them.
5. You need to schedule time off on the fields each summer for *Major Annual Turf Renovation* during the best recovery time for your grasses. This is a must for high wear turf such as yours at these sites! This should be scheduled a year in advance on everybody's calendar and approved by the City Council so no one can infringe on these dates. Teach everyone that *Major Annual Turf Renovation equals* sustainable turf! This can be done 1 field at a time instead all the fields shut down at the same time.
6. Turf diseases can occur in unhealthy or wear damaged turf, especially during elevated humidity during your rainy season. Compost is packed with beneficial bacteria and fungi that will kill and prevent turf diseases on contact if spread annually.
7. For your hybrid Bermuda grasses to give you the most wear it can, you must fertilize at the rate of 1lb. of Nitrogen per month. You would have to cut it at 1" or less which means you should also have to mow it at least twice a week!
8. The turfgrass leaves require a minimum of 3-3.5% on nitrogen in the leaf the entire time it is being played on. This means you should be using a controlled release fertilizer every 8 weeks or 6 times a year or fertigation.
9. Most of your soil samples indicate the need for much potassium but the leaf analyses for the same sites indicate that the plant is getting everything it needs from the microbiology in the soil. The exception are the fields at Veteran's park, Lindberg Park fields and Fox Hill Fields. The maintenance calendars in this assessment reflect what these fields need.

10. I am recommending fertigation for all your high wear fields because this is the quickest way to grow in new turf. It is also the very fastest way to mend damaged turf since every drop of irrigation water contains a trace of fertilizer. Unlike granule fertilizer which must be spread bi-monthly at great man-power costs, it doesn't have to be broken down by the irrigation water that hits the ground and then broken down by the microbes in the soil. Even the liquid that hits the ground is already available to the plants. I recommend Eco-Fert because they are the only company that installs the equipment for an installation fee then charges a monthly fee which includes monthly visits to refill the tanks and check out the fields for wear or any other problems and fill out a report on their findings. They call me and take pictures if they see problems. They also do annual soil analysis and have me compare it to previous years to see progress with their fertilization program which saves water and converts to mostly organics over time. I am recommending that you hire them separately for their work. I have worked with them for 5 years.
11. I also recommended Community Works Design Group, a landscape architecture group that specializes in testing current irrigation systems and designing new ones. They don't sell irrigation systems but know all of them well and can recommend what fits best with your sites. I am recommending that you hire them separately to do your evaluations and then write the design specifications for each site. I have worked with them for over 20 years.
12. The tasks that you should do annually on your high wear fields such as deep tine aeration, top dressing and overseeding, can be done much more quickly by an outside contractor with larger equipment because these tasks are labor intensive. I recommend GreenOne Industries which has many annual clients in California. I have worked with them for 30 years.

This report is only the beginning. We are here to help implement any plans that we all develop together. We will help you implement the maintenance recommendations with your team.

Our initial fees cover us through the finishing of this assessment and through the end of the 2020 growing season. Any further conference calls or changes or questions that need to be answered concerning this assessment, are covered in our initial fees through 2020. Any trips for presenting to boards, committees or user's groups or for implementing maintenance ideas with the crews would be at our site visit rate of \$1,500.

After your review and comments, we will make any needed changes to this assessment. The following report identifies in detail the issues we found and how to address them.

Sincerely,



Larry Musser  
President

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## Field Overview Assessment for 10 Parks in Culver City, some with Multiple Fields

The following is an evaluation of these parks and fields as of June 2019. It discusses the current condition of these fields and explains why they are in these conditions. It will then go over a plan of action that can help to remedy any problems and cover the maintenance steps, needed equipment, and costs of maintaining these fields to prevent them from returning to their original condition. This document will then show the level of wear on the sports fields and how many hours of play per week each site can sustain and still have viable turf.

### Current Conditions of the fields

Steve Hagy, I and one of your crew members visited and evaluated these sites. To have sustainable turf long term, you need 8"-10" of roots and as indicated in the chart below, these are much shallower. Some of these fields have bare areas, and most are compacted. Some of these irrigation systems need renovation. The field conditions are rated by your crew as from Poor to OK. The irrigation systems are rated from A-D, A being the best.

			2019 SITE SURVEY				
	Root	Field	Bare		Compacted	Irrigation	Worn
SITE	Depth	CONDITION	Spots	Weeds	Areas	System	Areas
Culver City Park	3.00	OK	10%	10%	35%	C- to B	0%
Veterans Park-Fields	2-3"	OK	20%	30%	30%	A	20%
Syd Kronenthal Park Fields	2.50	Poor	0%	20%	0%	D	0%
Culver West Alexander Park Fields	4.00	OK	0%	10%	30%	B	0%
El Marino Park Fields	4.00	OK	0%	10%	30%	A	0%
Tellefson Park Fields	3.00	OK	10%	10%	0%	B	0%
Lindberg Park Fields	3.50	OK	0%	20%	25%	B	0%
Blanco Park Fields	4.00	OK	0%	0%	30%	A	0%
Fox Hills Park Fields	3.00	OK	0%	10%	20%	A	0%
Carlson Park Fields	3.00	OK	0%	0%	0%	A	0%

## The Causes of the Current Conditions

1. **Wear** causes compaction which is the number one problem in turf management. In your case some of your wear is excessive. This combined with some of the other problems to be discussed in the following paragraphs, are causing the current conditions on your fields.

The Wear Index In Hours Per Week on the chart below shows that these fields have an average of **24.3** activity-weighted hours of play per week or 20.7 actual hours per week average. Your current average maintenance level for your fields is approximately 1.67 on a scale of 1 to 5, 5 being the highest. Your wear level is 3.75! This difference between maintenance and wear level has given you some sustainability problems.

WEAR INDEX IN HOURS PER WEEK							
			Actual	Actual	Activity	Current	Current
		#	Hours/Yr	Hours/Wk	Weighted	Wear	Maint.
SITE	Sq. Ft	Weeks	Per Field	Per Field	Hours/ Wk	Level	Level
Culver City Park	294000	52	1456	28.0	38.5	4.58	1.67
Veterans Park-Fields	180000	52	1062	20.4	33.2	4.58	1.67
Syd Kronenthal Park Fields	204000	52	872	17.4	16.2	3.33	1.67
Culver West Alexander Park F	40000	52	1214	23.3	29.4	4.58	1.67
El Marino Park Fields	31000	52	182	20.2	43.1	3.75	1.67
Tellefson Park Fields	31500	52	45	5.0	1.7	2.25	1.67
Lindberg Park Fields	110000	52	184	10.2	11.3	4.75	1.67
Blanco Park Fields	106000	52	1148	23.0	54.7	4.75	1.67
Fox Hills Park Fields	130000	52	572	20.4	13.4	3.08	1.67
Carlson Park Fields	115000	52	350	38.9	1.2	1.83	1.67
<b>Totals/ Averages</b>	<b>1241500</b>	<b>52</b>	<b>708</b>	<b>20.7</b>	<b>24.3</b>	<b>3.75</b>	<b>1.67</b>

This is high wear and has given you the picture below of Blanco Park which was taken by a satellite. This was the norm at some of your other sites as well.



The chart below shows the accumulative wear of all the fields. Again, your average maintenance level is 1.67 but collectively the average hours per week and recommended maintenance level are much higher at an **average of 3.75**. You must raise the maintenance level if you are to have sustainability. There is a direct correlation between maintenance and wear, and this is the main reason some of these fields look like they do.

WEAR INDEX IN HOURS PER WEEK								
			Actual	Actual	Activity	Current	Current	Recommened
		#	Hours/Yr	Hours/Wk	Weighted	Wear	Maint.	Maint.
SITE	Sq. Ft	Weeks	Per Field	Per Field	Hours/ Wk	Level	Level	Level
Culver City Park	294000	52	1456	28.0	38.5	4.58	1.67	4.58
Veterans Park-Fields	180000	52	1062	20.4	33.2	4.58	1.67	4.58
Syd Kronenthal Park Fields	204000	52	872	17.4	16.2	3.33	1.67	3.33
Culver West Alexander Park F	40000	52	1214	23.3	29.4	4.58	1.67	4.58
El Marino Park Fields	31000	52	182	20.2	43.1	3.75	1.67	3.75
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Lindberg Park Fields	110000	52	184	10.2	11.3	4.75	1.67	4.75
Blanco Park Fields	106000	52	1148	23.0	54.7	4.75	1.67	4.75
Fox Hills Park Fields	130000	52	572	20.4	13.4	3.08	1.67	3.08
Carlson Park Fields	115000	52	350	38.9	1.2	1.83	1.67	1.83
Totals/ Averages	1241500	52	708	20.7	24.3	3.75	1.67	3.75

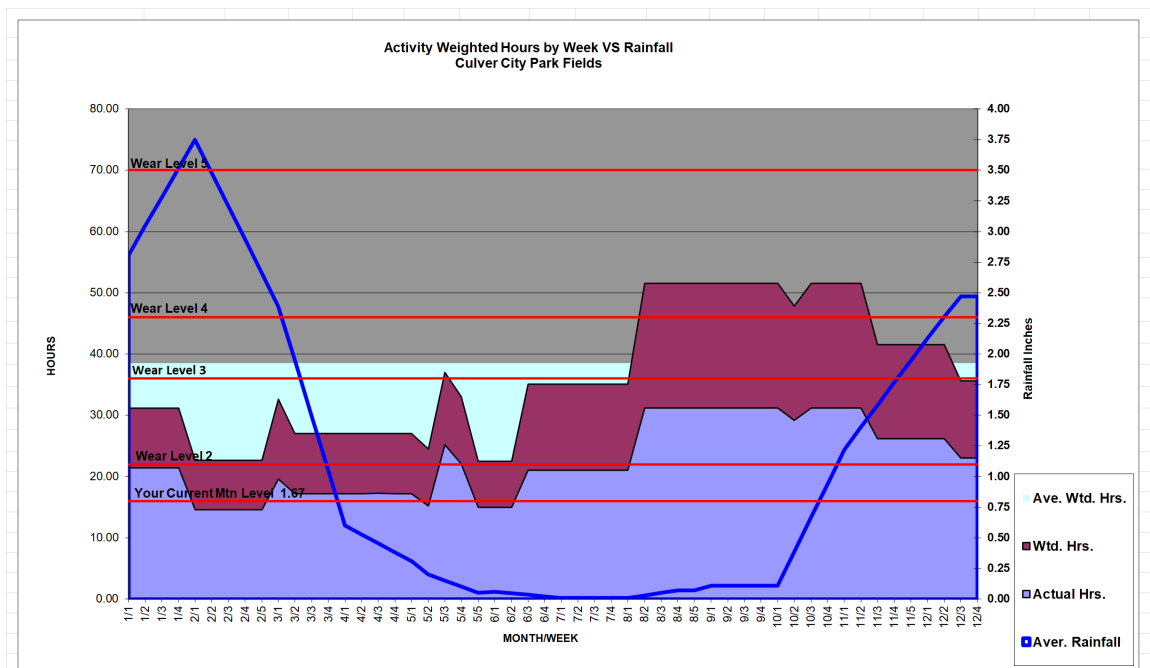
The following Activity Weighting Scale chart below shows the wear effect of each of the different sports and common activities that take place on sports fields. As you can see walking across a field is 1 and soccer practices are 2, meaning 1 hour of soccer practice is equivalent to 2 hours of walking or standing on the field. Also note that any sports clinics carry a 2.5 rating which helps to explain the damage that can result from a weeklong or even a weekend clinic.

<b>Activity Weighting Scale</b>			
<b>Walking on field/Softball</b>			<b>1.00</b>
<b>Baseball</b>			<b>1.25</b>
<b>PE</b>			<b>1.50</b>
<b>Parked Cars</b>			<b>1.50</b>
<b>Marching Band</b>			<b>1.75</b>
<b>Youth Soccer Games</b>			<b>1.85</b>
<b>Youth Flag Football Games</b>			<b>1.85</b>
<b>Youth Soccer &amp; Flag FB Prac.</b>			<b>2.00</b>
<b>Adult Soccer &amp; Flag FB Games</b>			<b>2.13</b>
<b>Adult Soccer &amp; Flag FB Prac.</b>			<b>2.25</b>
<b>Lacrosse</b>			<b>2.25</b>
<b>Tackle FB &amp; Rugby</b>			<b>2.50</b>
<b>Sports Clinics &amp; Camps</b>			<b>2.50</b>

Note the chart below titled Activity Weighted Hours by Week Vs Rainfall for the Culver City Park Fields.

The light blue area indicates actual hours on the field. The magenta area represents the activity weighted hours on this field and the light green area represents the average activity weighted hours for the year. The wear on these fields take place year-round with no rest period (approximately 38 activity weighted hours per week). The dark blue line represents your rainfall and some of your highest rainfall occurs during your heavier wear periods from October through December.

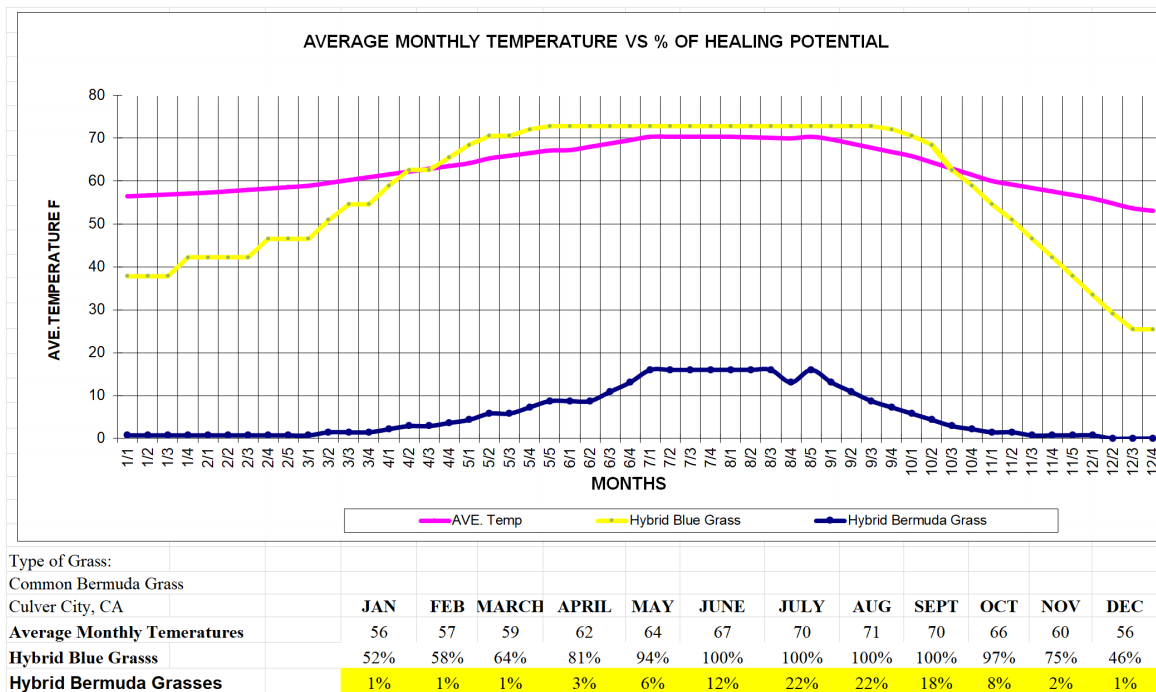
Play that takes place during the rainier months causes the most compaction and thus damaged turf. It will be critical that we insure that we have the proper drainage and strive to reduce play in these peak rainfall times (field shut down for so many hours after the rain has subsided, so they are not playing on saturated root zone) to insure sustainability.



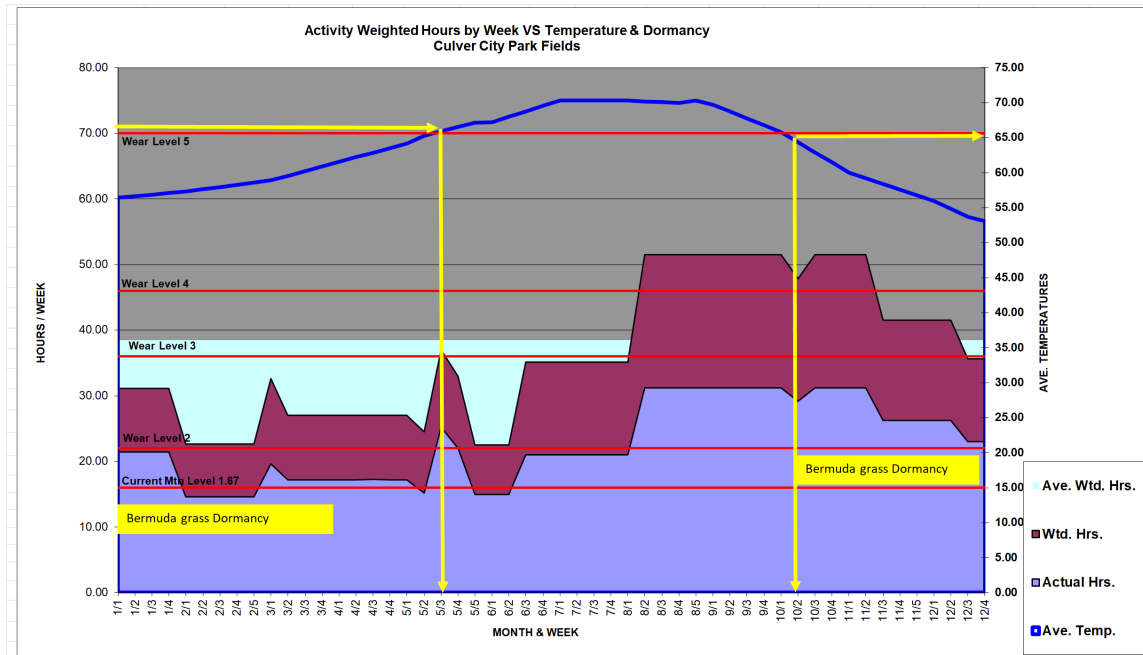


## 2. The Growing Season and weather patterns:

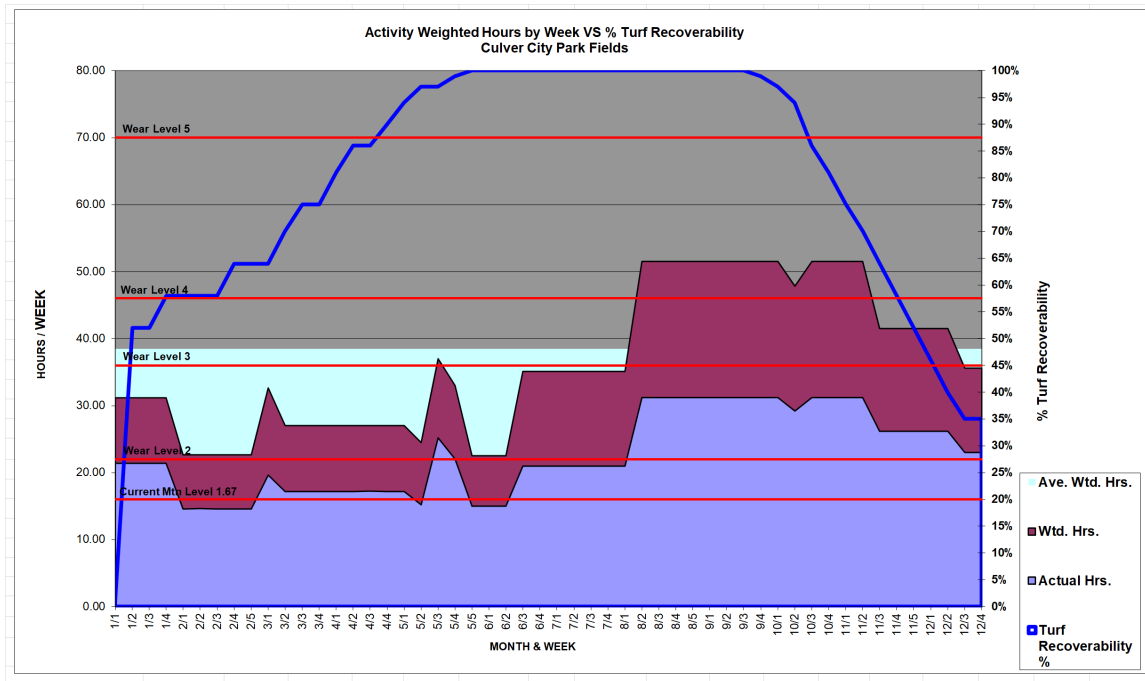
Please note the Average Monthly Temperature Vs % of Healing Potential Chart on the next page. When the monthly average temperature is less than 65 degrees, Bermuda grasses are dormant or going dormant. This chart also shows how much more healing potential Hybrid Blue Grass has than Hybrid Bermuda grass does at your location.



This chart below also shows how much of your wear takes place during dormancy. This shows that Bermuda grass turf is dormant from the 1<sup>st</sup> week of October through the third week of May at your location. Heavy play on dormant turf can destroy it.



The chart on the next page shows the ability of the turf to recover listed by % of recoverability for hybrid blue grasses. Note that as the outside air temperatures and thus soil temperatures come down, the wear tolerance expressed as recoverability is dramatically reduced. Also, as it is coming out of the lower temperatures, the recoverability is also very low but improves weekly as soil temperatures rise. Also, note when this chart is layed over your wear, it points out when the most damage from wear will occur! The blue line indicates the recoverability % of your turf month by month. Any time the wear (red area) is outside this dark blue line, your turf is being compromised. Again, for this field, it is the Month of December.



#### 4. The Soil and Leaf Analysis:

Below, the soil analyses of the root zone of Culver City Park fields shows under lbs./1,000 sq. Ft. Needed that this rootzone needs Potassium and Sulfur. However, the leaf analysis below indicates that the grass is getting everything it needs from the soil. This means that we don't have to add these nutrients. You can see how leaf analysis along with soil analysis can have great savings in fertilizer costs over time!

FOR:		Culver City Park			SOIL ANALYSIS														
ACRES:		6.75																	
pH	SALT	LIME		ORGAN.	NIT.	PHOS.	POTAS.	SULF	CALC.	MAGN.	SOD.	ZINC	IRON	MANG.			Boron		
	MMOS	%		%	N PPM	P PPM	K PPM	S PPM	Ca PPM	Ma PPM	Na PPM	Zn PPM	Fe PPM	Mn PPM	Cu PPM				
7.15	0.29	No	S.Loam	5.40	7.05	91	330	17	2165	379	52	67.20	30.00	2.00	1.30	1.05			
RECOMMENDED LEVELS			LOW	S.LOAM	3.5%+		50 PPM	413	15 PPM	2100.00	269.18	35 PPM	2.00	10.00	10.00	0.50	0.50		
LBS/ 1000 SQ FT. NEEDED						8.00	0.00	5.00	1.84	0.00	0.00	0.04	0.00	0.00	0.37	0.00	0.00		
									12.0%	6.0%	3.0%		1.0%	17.0%	2.5%	1.0%	0.1%		
			CATION EXCHANGE CAPACITY																
RECOMMENDED LEVEL			%CEC	%H	%K	%Ca	%Mg	%Na	Chlor	SAND%	SILT%	CLAY%							
			15.06	0%	6%	72%	21%	2%	28.00	58.00%	27.70%	14.30%							
			12-14					<5	<150										
			Leaf Analysis																
Culver City Park			Total %N	%Phos.	%FPott.	%K	Ca %	Mg %	S %	Zn ppm	Fe ppm	Mn ppm	Cu ppm	B ppm	Na %	N:S Ratio			
			2.5-3.5	.15-5	1 to 3	.5-3		.2-5	.25-.4	20-250	25-300	25 to 200	5 to 30	5 to 20	.01-250	12 to 8			
Fields 10/24/2018			3.87	0.38	3.08	0.62	0.25	0.24	52.00	427.00	21.00	9.00	21.00	0.05	16.30				

The chart above shows only one of your sites. To see a chart showing all your sites in one place, turn to the Addendum B further back in this assessment on page 46 & 47.

## Your Potential Solutions

### 1. You must increase your maintenance level

You have an average maintenance level of 1.67 and **wear level average of 3.75**.

The chart below shows how many of each task you are currently doing and how many you should be for your wear level for sports turf sustainability.

	MAINTENANCE FREQUENCY											
	Category		Mowings		Aerations		Top-Dress		Overseed		Fertilize	
	Mtn. Level		Per		Per		Per		Per		Per	
			Year		Year		Year		Year		Year	
	Curr.	New	Curr.	New	Curr.	New	Curr.	New	Curr.	New	Curr.	New
	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level
Culver City Park	1.67	4.58	52	96	2	12	0	1	1	1	2	6
Veterans Park-Fields	1.67	4.58	52	96	2	12	0	1	2	1	2	6
Syd Kronenthal Park Fields	1.67	3.33	52	96	2	6	0	1	2	1	2	6
Culver West Alexander Park Fields	1.67	4.58	52	96	2	12	0	1	2	1	2	6
El Marino Park Fields	1.67	3.75	52	96	2	6	0	1	2	1	2	6
Tellefson Park Fields	1.67	2.25	52	52	2	6	0	0	2	1	2	6
Lindberg Park Fields	1.67	4.75	52	96	2	12	0	1	2	1	2	6
Blanco Park Fields	1.67	4.75	52	96	2	12	0	1	2	1	2	6
Fox Hills Park Fields	1.67	3.08	52	96	2	6	0	0	2	1	2	6
Carlson Park Fields	1.67	1.83	52	52	2	2	0	0	2	1	2	6

This assessment makes recommendations that will allow these numbers to be reduced and change the sustainability of your turf. Category 3.75 level of maintenance on your highest of wear fields includes:

- Deep-tine or shatter-tine aeration once annually to relieve and prevent deep compaction.
- Annual Top dressing to re-level the field and to replace used up organics to the soil.
- By-monthly applications of fertilizer or continuous fertigation to grow grass as fast as it is being worn off.
- Mowing 2 times a week during periods of high use because of the higher growth rate due to increased fertilizer application.
- Knife aeration monthly.

### 1. Fertigation is the best and cheapest way to increase wear-ability and esthetics while decreasing manpower costs and we are recommending this throughout this assessment.

Fertigation allows you to grow-in, mend and renovate the wear areas of your fields the very quickest way possible because 20% of the nitrogen goes in through the leaf

and the 80% of the liquid that hits the ground is already available to the plants. Granule fertilizers must be first broken down by water then broken down by the bacteria and fungi to be available to the plants. Fertigation also controls the mowing rate and maintains the beautiful dark green color throughout the growing season. When the fertilizer is delivered to the tanks by an outside contractor, there is a tremendous savings.

2. **When you are ready to renovate any fields, one of your options would be No-till renovation. No-till would accomplish the same thing as adding proper amendments, rototilling, laser grading and re-sodding but for 50-75% less and is ready to play from seed in 8 weeks.**
3. **We recommend that you over-seed with a very aggressive Hybrid Kentucky Blue grass seed blend.**

I would have you mow this turf at 1" after over-seeding which should choke out the common bermuda and regular cool weather grasses over time.

The Hybrid Kentucky Blue grass mix likes being cut at 1"

The seed varieties in the mix have:

- A. Quick germination (8-9 days)
- B. Quick Establishment (15 Weeks)
- C. Remarkable wear tolerance
- D. Some shade tolerance
- E. Good Heat tolerance
- F. Fine leaf texture
- G. Disease resistance
- H. Dark green color
- I. 1/3<sup>rd</sup> less water requirement than regular blue grasses
- J. Extensive rhizomes & extensive lateral movement for quick repair

By over-seeding with this mix, you will see it take over your fields. Also, the faster germination allows it to reestablish more quickly on damaged fields.

4. **You should purchase some special pieces of multi-use equipment that will make your sports fields more sustainable.**

In the maintenance manual part of this assessment we will discuss specific advantages of the recommended equipment and the approximate costs. I can then help you to write a tight specification to ensure that you get the correct equipment to be used on your fields.

- A. There is a 6' model up to a 20' model pull-behind rotary mulching mower that can mow at twice the normal mowing speed. It can be set from 1/2" to 4" in cutting height without scalping.



- B. The Aerway slice aerator I am recommending can be used in the afternoon and the field played on immediately. It does not leave behind any plugs and the roller on the back of it levels any rough spots it may have created. It has a 6" turf tine that I am recommending you do monthly on your high wear fields. It also has a 7" fracturing tine that fractures as deep as 10" and I recommend that this be used annually during your Annual Renovation of each site.

## Costs of Solving Your Problems

### 1. Manpower

The wear index chart below indicates that the fields at this are being overused and the maintenance level must be increased. Stepping up your maintenance level from 1.67 to 3.75 average on these fields will require an additional **7851** maintenance hours **for \$267,258 in additional manpower costs**. At your average hourly wages rate with benefits, this is approximately 4 full time people short. This figure doesn't include the additional materials such as fertilizer, seed, and topdressing.

WEAR INDEX IN HOURS PER WEEK													
			Actual	Actual	Activity	Current	Current	Recommended	Current	Needed	Addit.	Current	New
		#	Hours/Yr	Hours/Wk	Weighted	Wear	Maint.	Maint.	Ann. Mtn.	Ann. Mtn.	Ann. Mtn.	Approx.	Approx.
SITE	Sq. Ft	Weeks	Per Field	Per Field	Hours/ Wk	Level	Level	Level	Hours	Hours	Hours	Mtn.Cost	Mtn.Cost
Culver City Park	294000	52	1456	28.0	38.5	4.58	1.67	4.58	273	1129	856	\$9,567	\$39,519
Veterans Park-Fields	180000	52	1062	20.4	33.2	4.58	1.67	4.58	276	1848	1572	\$13,941	\$64,679
Syd Kronenthal Park Fields	204000	52	872	17.4	16.2	3.33	1.67	3.33	1661	1926	265	\$58,128	\$67,399
Culver West Alexander Park	40000	52	1214	23.3	29.4	4.58	1.67	4.58	78	910	832	\$2,735	\$31,838
El Marino Park Fields	31000	52	182	20.2	43.1	3.75	1.67	3.75	59	643	584	\$2,077	\$22,505
Tellefson Park Fields	31500	52	45	5.0	1.7	2.25	1.67	2.25	58	68	10	\$2,022	\$2,371
Lindberg Park Fields	110000	52	184	10.2	11.3	4.75	1.67	4.75	138	1304	1167	\$4,819	\$45,648
Blanco Park Fields	106000	52	1148	23.0	54.7	4.75	1.67	4.75	273	1129	856	\$3,600	\$28,397
Fox Hills Park Fields	130000	52	572	20.4	13.4	3.08	1.67	3.08	273	1129	856	\$5,692	\$29,499
Carlson Park Fields	115000	52	350	38.9	1.2	1.83	1.67	1.83	273	1129	856	\$4,547	\$42,530
Totals/ Averages	1241500	52	708	20.7	24.3	3.75	1.67	3.75	3363	11215	7851	\$107,127	\$374,385

### 2. Annual Maintenance Costs-

In the chart below, Scenario #1 below shows your current maintenance level of 1.67 and the \$149,063 it cost you in 2019 to maintain these fields at these sites. This was \$5,230 per acre per year which is way too low to have sustainable turf. Scenario #2 shows the \$467,519 in costs to do the maintenance level 3.75 that you will need to do to have sustainable turf at all your sites in 2020. Some of the equipment needed would require you to purchase, rent or pay a contractor to do. Scenario #3 shows what you would have spent in 2021 if you were to purchase the new equipment needed to bring your maintenance level up to 3.75. These would-be one-time purchases.

Scenario #4 shows your annual costs of \$467,519 for 2022 and beyond after purchasing the manhour saving equipment you will need. This is \$16,404 per acre which is average for high wear turf in SOCAL.

COMPOSITE SCENARIO COST ANALYSIS							
City of Culver City				Scenario #1	Scenario #2	Scenario #3	Scenario #4
Composite of All The Parks:				2019	2020	2021	2022
				Current	Current	Current	Current
				Wear	Wear	Wear	Wear
				Mtn Level	Mtn Level	Mtn Level	Mtn Level
				1.67	3.75	3.75	3.75
				Mowing 1/ Week Only		With Equipment Purchase	After New Equipment
			\$/acre/yr	\$5,230	\$16,404	\$17,590	\$16,404
Square Feet			Natural Turf	1,241,500	1,241,500	1,241,500	1,241,500
ANNUAL TOTALS:				\$149,063	\$467,519	\$501,319	\$467,519
Top dressing				\$3,760	\$18,022	\$18,022	\$18,022
Grass Seed				\$36,606	\$7,395	\$7,395	\$7,395
Fertilizer-Granular fertilizer applied every 8 weeks				\$1,570	\$59,846	\$59,846	\$59,846
Fertigation					\$7,870	\$7,870	\$7,870
Manpower				\$107,127	\$374,385	\$374,385	\$374,385
New Equipment Needs							
Overseeder						\$13,000	
Aerway Aerator						\$13,000	
Fertigation at Veteran's and Syd Kronenthal Parks						\$7,800	

### 3. Annual Maintenance Costs-

#### A. Fertilizers and Bio Stimulants

- Below are the annual needs for 2020 with liquid and granule products using control release UFLEX (46% N) as the nitrogen source. Vets and Syd would use the UAN 32 as the nitrogen source through the fertigation systems. Some of these quantities will be less in 2021.

	TURF NUTRIENTS REQUIRED FOR 2020 Granule/ Fertigation										
Nutrient	UFLEX	UAN 32	P	K	Solu-Plus	Solu-Kelp	Calfresh	Biology Boost	Con. Soil	Magnesium	
Product	46-0-0	32-0-0	11-52-0	0-0-50	1-0-1	1-1-4	Na Blocker	Innoculant	Conditioner	Pro MAG	
Formulation	46.00	32.00									
Form	LBS	Lbs.	Lbs	Lbs.	Gallons	Lbs.	Gls.	Lbs.	Yrds.	Lbs	
All Fields	18698	2219	0	8560	31	16	0	10	14	317.87	
Cost Each	0.91	3.85	0.56	0.55	50.00	35.00	35.00	20.00	1900.00	0.68	
Total Cost	\$17,015	\$8,543	\$0	\$4,708	\$1,542	\$558	\$0	\$197	\$27,067	\$ 216	\$59,846

2. As mentioned earlier during the discussion on your soil analyses, some of these fields are all low on potassium (0-0-50) and magnesium (pro mag 36% Mg). The quantities shown here are to be applied over time based on the calendars because we can only apply so much at a time on turf or it can be burned.
  3. The Angel Soil Conditioner is an amazing product that has received rave reviews from everyone who has tried it including the Raiders and the 49ers! These product quantities are applied in one application.
  4. The bio boost inoculant would only be needed if you hydroseed with a sports mix or upgrade with a newer more aggressive variety (Hybrid Blue Grass Blend).
- B. Fertigation Installation and Service
1. Ecofert based out of Santa Ana will install a 2-tank one pump system, a larger one for the UAN-32 liquid nitrogen and a smaller one for the liquid biology boosting products which can't be mixed in the same tank as the nitrogen.
  2. The price for each installation would include a locking aluminum cabinet, a single pump, two tanks and all the required equipment, warranties, etc. The price for install for Vets would be \$3,690. The price for Syd Kronenthal would be \$4,680.
  3. The Ecofert representative would make monthly trips and their monthly fee would include a site visit to fill the tanks and look at the fields for problems. Their monthly price of \$697 includes the UAN 32 in the fertigation tank. The rest of the products that you would need to apply can be ordered as needed but is over and above the monthly fee. This price also includes any repairs on the equipment.
  4. The combined installation fees of \$8,370 does not include the cost of digging if you want the tanks underground or fencing to protect the equipment. Ecofert-Lou-714-931-9065

## **Sports Field Management System Manual**

### **a. Annual Maintenance Calendar**

On the page below is the Sports Field Management System Annual Calendar for Culver City Park. It lays out every aspect of maintenance for the year. This calendar is customized for this field only.

This calendar is based on granular fertilizers which you will have to spread with a dry fertilizer spreader and manpower. The product on the far left (46-0-0) is spread with a dry fertilizer spreader. Down the left side are the dates that each fertilizer item and each task should occur including mowing and aerating. Once you decide which fields will receive what process, I can redo these calendars to reflect your wishes.



As you step up your maintenance on this field to level 3 you could have 180 more additional activity weighted hours per year or 90 actual hours per year more, however, this field is showing no set aside time each year for renovation.

FIELD USAGE / AVAILABILITY ANALYSIS																		
Culver City Park																		
Type of Grass:		Square Ft.	294000	Total														
		Weeks/ YR	52	Hours	Aver.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Cool Weather Grasses		Weeks/ mo				4	5	4	4	5	4	4	5	4	4	4	4	
Field Availability		(Numbers represent activity-weighted hours per week)																
Current Maint.	Hours Allowed		659	13	8	9	10	13	15	16	16	16	16	16	12	7		
Level	Current Hours of use				31	23	28	27	29	29	35	48	52	51	46	39		
1.67	Excess hours of usage		644	12	23	13	18	14	14	13	19	30	23	35	34	31		
Maint. Level	Hours Allowed		906	18	11	13	14	18	21	22	22	22	22	21	17	10		
2.00	Hours Available																	
	Excess hours of usage		396		20	10	14	9	8	7	13	26	30	29	29	28		
Maint. Level	Hours Allowed		1483	29	19	21	23	29	34	36	36	36	36	35	27	17		
3.00	Hours Available		180					2	5	7	1							
	Excess hours of usage				12	2	5					12	16	16	19	22		
Maint. Level	Hours Allowed		1895	37	24	27	29	37	43	46	46	46	46	45	35	21		
4.00	Hours Available		592			4	1	10	14	17	11							
	Excess hours of usage				7							2	6	6	11	17		
Maint. Level	Hours Allowed		2884	56	36	41	45	57	66	70	70	70	70	68	53	32		
5.00	Hours Available		1581		31	23	28	27	29	29	35	48	52	51	46	39		
	Excess hours of usage															6		
Maintenance Frequencies-Annual Requirement					Activity Weighting Scale												Determining Field Availability	
	Current			Needed	Walking on field/Softball 1.00												Use the following steps to evaluate requests for additional field time:  1. Determine the actual hours of additional use requested. 2. Multiply the total hours of proposed use by the appropriate activity weight. 3. Locate the column for the month when the proposed additional use would occur. 4. Determine if there are available hours at the current maintenance level. If there are, you can schedule the activity. 5. If not, see if sufficient hours can be made available by increasing the maint. Level. 6. If sufficient hours can be made available, and you can afford the additional mtn., you can schedule the activity.	
Maint. Level	1.67			3.2	Baseball 1.25													
Mowings/ Yr	52			96	PE 1.50													
Aerations/Yr	2			16	Parked Cars 1.50													
Top Dress/Yr	0			1	Marching Band 1.75													
Over Seed/Yr	1			1	Youth Soccer Games 1.85													
Fertilization/Yr	2			6	Youth Football Games 1.85													
Sweeping	0			0	Youth Soccer & FB Prac. 2.00													
Deep Tine/Yr	2			1	Adult Soccer & FB Games 2.13													
Verticuttings/yr	0			0	Adult Soccer & FB Prac. 2.25													
					Lacrosse 2.25													
					Rugby 2.50													
Annual Costs					Sports Clinics & Camps 2.50													
Ann. Increase					Current Wear Level 3.20													
Cost/month					Current Maintenance Level 1.67													
Cost/week					Needed Maint. Level-Weather Adjusted 3.2													



# 2020 Maintenance Instructions

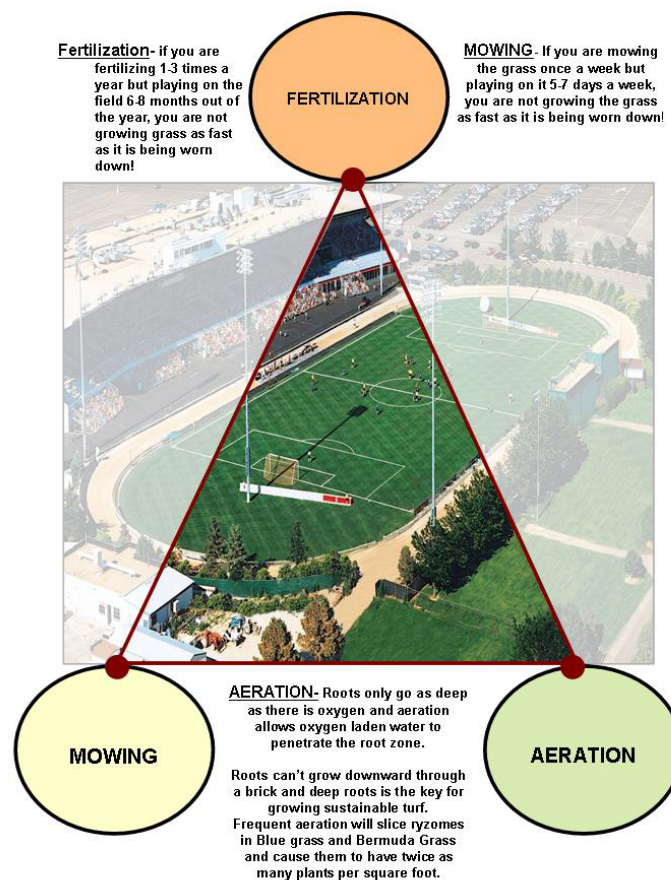
1. Our maintenance calendar to follow calls for:

## A. The High Wear Sports Field Maintenance Trifecta!

The Trifecta of turf maintenance as you can see below is increased:

1. Fertilization/fertigation
2. Mowing
3. Aeration

As you will read below, this combination is what you must do for turf that is under heavy wear to for it to be sustainable. This combination will give you 8"-10" of roots which is what is required for turf to tolerate the most wear!



- B. **Increased fertilization.** Your fertilization program needs to be supplemented by some additional granule fertilizers as shown in the maintenance calendars.

- C. **Fertigation** allows us to get approximately 20% of the nutrients through the leaf (foliar) and the rest going through the soil. This is especially affective during drought or water rationing. My maintenance calendar calls for ensuring that every drop of water that is applied to the turf, will have a trace of nitrogen in it. You may still need to spread some concentrated granular nutrients as well.
- D. **Additional mowings.** The maintenance calendars to follow call for 2 mowings per week on your fields because when you fertilize more, the easiest thing for the plant to do is make leaf. All that you have accomplished with continued 1 mowing per week and no fertilizer is few clippings and no wear tolerance. By mowing an additional time, the plant uses this energy by trying to push the roots down and the Bermuda and bluegrass ryzomes sideways (this is how they mend themselves, choke out weeds and fill in and create new plants) but they can't do either if the plant is growing in a brick (compacted soil). The new blue hybrid Kentucky Blue grasses I am recommending are finer bladed than these others and thrive at being cut at 1".
- E. **More aeration.** By increasing your aerating to monthly on all your Athletic fields to relieve the compaction which allows oxygen laden water to move downward and allowing roots to follow and stolens and ryzomes to spread sideways choking out weeds as well. Also slice aeration slices these ryzomes causing them to grow more plants per square foot thus a denser, tighter turf. The slice aerator will allow you to play on the field immediately after aeration since it has a roller that levels the surface and it leaves no plugs behind to disrupt the direction of the soccer ball or baseball. It also has a 7" fracturing tine that fractures as deep as 10" under ideal conditions and should be used once a year during Annual Renovation.
- F. **Annual top dressing** on all high wear fields. With the wear you have, you get compacted areas that become low spots. This means you have lost the grade on the field and it no longer drains properly. Top dressing fills in the low spots and reestablishes the grade on the fields. The top dressing should include compost and sand with an **80% sand 20% compost mix**. The compost is very high in microbes and helps to control funguses and diseases. They also help prevent compaction and when you slice aerate monthly, you slice the organics and sand into the root zone 6" deep and actually increase percolation in the root zone over time. **Be sure that you use topdressing that is not Nitrogenized (has no bark, fir or red wood in it which has been sprayed with nitrogen to make it look stabilized).** These will create many problems for you over time by taking the nitrogen that you apply for the turf, away from the turf to break down the wood. I am recommending that initially you use **1/4" of top dressing** to ensure that you have enough material to fill in the low spots and to fill as many of the aeration holes as possible to create permanent avenues for water and oxygen to move freely downward.

#### G. Additional Equipment.

- b. **Mower-** The Trimax mower from New Zealand comes in 6' to 34' cutting widths and it is especially ideal for you because they are rotary mowers that mulch, won't scalp and mows at twice the normal mowing speed and the 20 foot model allows you to mow 20 acres per hour.
- c. **Tractor-** The 20' model would also require a 65-horsepower tractor to pull it. You could pull a 16' model with your current tractor and could mow 16 acres an hour with it.
- d. I am recommending that you slit seed the aggressive SS365 Kentucky Blue Grass Hybrid seed. If you keep these mowed at 1" they will dominate the grasses, you currently have over time. The Hybrid blue grass mix is spread at 3 lbs. per 1,000 sq. ft. for new seeding and 2 lbs. per 1,000 sq. ft. for overseeding.
- e. I recommend that you convert to fertigation! It's the fastest way grow in new turf and the fastest way to mend damage turf.

#### Irrigation

Deep roots (8-10") allow the turf grass to heal itself much quicker, thus enable it to stand up to heavy wear. Roots only grow as deep as the oxygen goes and percolating water carries oxygen. Therefore, until we achieve deep roots, we must maintain this downward percolating irrigation water through lighter more frequent watering rather than infrequent heavy watering that tends to leave the soil wet and cause compaction. **Again, this is only until you achieve deeper roots!**

The best way to decide how much water to put on is using a soil probe to check soil moisture in the root zone. You want the soil moist or damp but not wet evenly to at least 1" below the deepest roots. As the temperatures rise you will notice that it will be dryer near the surface than at the lower depths. This will mean adding extra minutes to each zone to keep the soil moisture correct. As the temperature continues to raise it may be necessary to go to an additional watering per day, one in the late evening and one in the early morning with a possible syringing in the heat of the day. When you first do this, use your probe to determine if you need to back off again on the minutes per zone keeping in mind again that you don't want the soil to be wet in the morning.

Also use your probe regularly after rainfall to see how quickly it dries out. This will give you a good idea of how long you should keep play off the fields after a heavy rain. As compaction takes place from heavy wear, the time it takes to dry out after the rain will get longer. Therefore, it is necessary to knife aerate at least monthly during the heaviest of play.

## Mowing Instructions

The grasses I am recommending for the turf-grass on these fields will be a Hybrid Kentucky Blue Grass mix that you can mow as close as .7" but 1" is ideal. The slice aeration will cause the bluegrass grass ryzomes to start new plants closer to the parent plant thus creating more plants per square foot and denser turf thus making the 1" height play as if it were cut shorter. At this height, you should not have to pick up clippings.

The analysis of the leaf clippings below reads like the analysis of a bag of fertilizer. The plant takes these nutrients out of the soil and uses them to maintain the plant. By throwing away these clippings you would be throwing away reusable fertilizer.

Total % N	Phos. %P	Pott. % K	Calcium % Ca	Magnes. %Mg	Sulfur %S
4.77	0.62	3.14	0.27	0.21	0.39

The mulching mowers prevent the need for picking up clippings.

Please note the **PRZ Turf Maintenance Calendars**. Your wear changes throughout your growing season and your mowing schedule follows the wear at **2 mowings per week**

## Aeration

You have sandy loam soils in most of these fields. Aeration is our best tool to relieve compaction. I have three types of aeration you will need to do on this field annually to relieve compaction. The Aerway aerator I am recommending can be used in the afternoon and the field played on immediately. It does not leave behind any plugs and the roller on the back of it levels any rough spots it may have created.

1. **Knife aeration** is the only aeration that I recommend be done regularly throughout the growing season because it temporarily relieves compaction without leaving the surface roughed up or leaving plugs that could deflect the ball. Because of the clay soil on these sites, you will need to do this *monthly* with a 6" turf slicing knife during the growing season. Do not go two directions with knife aerating because you can make an X with two slits that could be caught by a soccer cleat and ripped up. You can go in more than one direction during the Annual Renovation because these slits will mend before play resumes.
2. **Shatter-tine aeration** with the Aerway fracture tine machine will fracture the entire root-zone 7-10" deep. This should be done once a year during the *Major Annual Turf Renovation* to relieve any compaction that might have taken place since last year. The continual aeration at the same depth over a period can cause a hard pan at that depth so by doing the fracture tining once a year at 7", you will prevent this hard pan from forming a hard pan at 6".

3. **Core or plug pulling aeration** pushes a spoon or circular tube into the soil and pulls and slings or discards the soil and root plug onto the surface. This is the best type of aeration because it leaves a 1/2"-3/4" by 2.5"-4" hole in the soil and should also be done annually during the *Major Annual Renovation just before top dressing*. Because of your sandy soils you would not need to collect the plugs before topdressing. The fracturing tine on the 90" Aerway can be set to be more aggressive and can make holes big enough to top dress into without pulling plugs.

## Material Suppliers and Contractors

The following materials are important to the maintainability of your fields. The specifications for each of these have been customized for this site and should not be altered by suppliers who might indicate that their products are equal to or better than those specified. I can have these suppliers submit samples to the lab and give you my opinion if they meet the specification or not.

1. Top Dressing material shall be 80% sand, 20% compost mixture.
  - A. Sand specifications are for #2 with 100% passing a #12 screen and no more than 1% passing a #200 screen.
  - B. Sand Supplier- TLC Sand Co-Terry-909-322-8373. They are capable of mixing compost and sand and delivering them to you that way.
  - C. Compost must:
    - a. contain no nitrogenized product, fir or redwood
    - b. needs to be screened to 3/8" minus
    - c. have a carbon to nitrogen ratio of under 25/1
    - d. Also have a ph less than 8.5 and a dry organic % above 30%, salts EC below 3
    - e. Have no sewer sludge in it and can't have any plastic, glass or other debris in it or the supplier will have to pick it up and replace it.
    - f. Supplier –Greg Jackson-Agromin- 714-475-8682 or TLC Sand-Terry-909-322-8373.
  - D. Use 1/4" the first year or .775 cubic yards /1,000 sq. ft. of the above mixture.
  - E. Hybrid Kentucky Blue grass mix shall be SS365.
  - F. Supplier- Ecofert-Lou-949-766-5800 or other local SOCAL seed suppliers.  
Quantities are, 3 lbs./1,000 sq. ft. for new and 2lbs/1,000 sq. ft. for over-seed.



Shall be seeded at 1.5 lbs. per 1,000 square feet in each of two directions for new seeding and 1 lb. per 1000, sq. ft. in each of two directions for over-seeding.

3. Fertilizers: Both granule and liquid fertigation products:
  - A. I am recommending UFLEX 48-0-0 controlled release nitrogen granular fertilizer in your maintenance calendars because it is a control release granular which lasts 8 weeks. I am recommending that you switch to fertigation as quickly as possible on your high wear fields.
  - B. I am also recommending that you add several biological stimulants to your annual fertilization program. These have a dramatic affect on the health of the turf and the microbes in the soil.
    - a) EF Biology Boost is a COMPLETE Microbial product with Multiple Strains of aerobic Bacteria, Fungi, Actinomycetes, Protozoa and Predator Nematodes.
    - b) EF Solu-Plus to enhance seed germination, nutrient availability, increased biological activity
    - c) EF Solu-Kelp with plant defense elicitors, and ionic potassium
    - d) EF Angel Concentrated Organic is a combination of organic compounds that can save up to 15% on water usage over time when applied as a top dressing and up to 30% when incorporated.
  - C. Supplier shall be Ecofert-Lou-949-766-5800 or equal
4. Contractors
  - A. No till renovation from Europe (Called Green Ways System in US), Deep Tine aeration, top dressing, over seeding, fertilization, Koro Recycle Dresser that makes topdressing from your root-zone while fracturing every square inch of root-zone 8" deep while leaving it in place, baseball field lip removal (see pictures on next page), and Koro Kwik Drain- 4" an hour drainage system installed entirely by machine through the top-Green One Industries Co- Leroy 303-598-6109.

Koro Recycle Dresser that makes topdressing out of your soil



Top Maker Machine removing an infield lip in one pass



The KWIK Drain System, completely installed by equipment, can make tight clay soils percolate at 4" per hour the next day after installation.



- B. Fertigation Dual Tank System for injecting fertilizers & Organic Bio Stimulants on a 50-acre site.



- C. Soil & Leaf testing, Servitech Labs (620) 227-7123.

## Equipment Recommendations

### 1. Aerway Aerator

- A. Shall have 100-gallon ballast tank
- B. Shall have Greens roller at the back
- C. Shall be 3-point hitch
- D. Shall have 7" Shattering tine roller on 7.5" spacing
- E. Shall have 6" sports tine slicing tine roller 7.5" spacing
- F. See sizing chart on the next page. The higher horsepower number would be required to pull that machine through heavy clay.



Supplier shall be Gearmore, Inc based in Chino, CA-800-833-3023.



Models Available in case you wish to size it larger for productivity District wide. I am recommending the 90” model for your sites because of your acreages and its productivity. If you add the plug pilling roller(shaft), this will add \$4,000 to the price.

Width	Cost	Hp Required	Acres/ Hour
1. 45”	\$7,000	20-30	2.19
2. 60”	\$12,300	25-40	2.92
3. 75”	\$14,119	30-45	3.65
4. 90”	\$16,000	50-60	4.38

**2. Trimax Mowers from New Zealand**



Trimax Mowers									
		Minimum HP		Mower Speed Miles per Hour					
	Cutting-Width	Required	\$	6.25	7	7.5	8	8.5	9
Procut S3 178DR	5'9"	40-60	\$ 9,250	4.5	5.04	5.4	5.76	6.12	6.48
Procut S3 237DR	7'3"	50-80	\$ 10,790	6	6.72	7.2	7.68	8.16	8.64
Procut S3290DR	9'8"	80-100	\$ 11,750	7.5	8.4	9	9.6	10.2	10.8
Peguses 493CL	16	50-80	\$ 35,475	12	10.8	14.4	15.36	16.32	17.28
Peguses 610 CL	20	75-100	\$ 39,975	15	16.8	18	19.2	20.4	21.6
X-WAM	34	95-120	\$ 53,740	25.5	28.56	30.6	32.64	34.68	36.72
Mower+X-WAM	34	95-120	\$ 93,990	Acres Per Hour					

I am recommending the 493 CL which can be pulled with your tractor and can be roaded between parks without loading and unloading a trailer.

Trimax Peguses 493 CL- James Kizer-512-755-0159.

**This concludes the maintenance manual portion of this assessment. Beginning on the next page are the maintenance calendars for the park fields.**

# Addendum A

## Maintenance Calendars and Field Use / Availability & Analysis Charts

[illegible]

## Field Usage / Availability Analysis Chart

This chart below shows you week by week how many activity weighted hours per week that the turf on these fields can withstand with your common cool weather grasses, without being decimated by wear. Note the yellow bar running across the chart is your current maintenance level 1.67 for these fields. Under excess hours of usage, you can see that currently these fields have 614 activity weighted hours of play more than the turf can withstand and it shows you which months these occur and how many hours this is per week. Since soccer which has an activity rating of 2 is played on this field, the actual excess hours would be 307 hours per year (614/2).

As you step up your maintenance on this field to level 4 you could add 161 additional activity weighted hours per year or 80 actual hours per year more however you have no set aside time scheduled for these fields.

City of Culver City		FIELD USAGE / AVAILABILITY ANALYSIS															
Veterans Park-Fields	Square Ft.	180000	Total														
Type of Grass:	Weeks/ YR	52	Hours	Average	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Cool Weather Grasses	Weeks/ mo				4	5	4	4	5	4	4	5	4	4	4	4	
Field Availability			(Numbers represent activity-weighted hours per week)														
Current Maint. Level	Hours Allowed		620	12	12	9	10	13	15	16	16	12	7	16	12	7	
1.67	Hours Available													16	12	7	
	Excess hours of usage		614			17	32	30	17	43	28	15	2				
Maint. Level	Hours Allowed		831	16	11	13	14	18	21	22	22	17	10	21	17	10	
2.00	Hours Available												0	21	17	10	
	Excess hours of usage		403			14	28	25	11	37	22	10					
Maint. Level	Hours Allowed		1395	27	27	21	23	29	34	36	36	27	17	35	27	17	
3.00	Hours Available		161						2			0	7	35	27	17	
	Excess hours of usage					6	19	14		23	8						
Maint. Level	Hours Allowed		1783	35	35	27	29	37	43	46	46	35	21	45	35	21	
4.00	Hours Available		548			0			11		2	8	11	45	35	21	
	Excess hours of usage						12	6		13							
Maint. Level	Hours Allowed		2713	53	53	41	45	57	66	70	70	53	32	68	53	32	
5.00	Hours Available		1478			14	3	13	34	11	26	26	22	68	53	32	
	Excess hours of usage																
Maintenance Frequencies-Annual Requirement			Activity Weighting Scale					Determining Field Availability									
	Current		Needed					Walking on field/Softball	1.00	Use the following steps to evaluate requests for additional field time: 1. Determine the actual hours of additional use requested. 2. Multiply the total hours of proposed use by the appropriate activity weight. 3. Locate the column for the month when the proposed additional use would occur. 4. Determine if there are available hours at the current maintenance level. If there are, you can schedule the activity. 5. If not, see if sufficient hours can be made available by increasing the maint. Level. 6. If sufficient hours can be made available, and you can afford the additional mtn., you can schedule the activity.							
Maint. Level	1.67		2.7					Baseball	1.25								
Mowings/ Yr	52		96					PE	1.50								
Aerations/Yr	2		0					Parked Cars	1.50								
Top Dress/Yr	0		1					Marching Band	1.75								
Over Seed/Yr	2		1					Youth Soccer Games	1.85								
Fertilization/Yr	2		6					Youth Football Games	1.85								
Sweeping	0		0					Youth Soccer & FB Prac.	2.00								
Deep Tine/Yr	2		1					Adult Soccer & FB Games	2.13								
Verticuttings/yr	0		0					Adult Soccer & FB Prac.	2.25								
Annual Costs	\$3,780		\$1,872					Lacrosse	2.25								
Ann. Increase			-\$1,908					Rugby	2.50								
Cost/month	\$316		\$156					Sports Clinics	2.50								
Cost/week	\$79		\$39					Current Wear Level	2.70								
								Current Maintenance Level	1.67								
								Needed Maint. Level-Weather Adjusted	2.7								



DATE:	SQ.FT:	204000	Syd Kronenthal Park Fields																
10/23/19																			
APPLICATION SCHEDULE:			City of Culver City																
	N 46-0-0 LBS	Fertigation 32-0-0 GLS	P 11-52-0 LBS	K 0-0-50 lbs	Solu-Plus 1-0-1 GLS	Solu-Kelp 1-1-4 GLS	Califresh Na Blocker GLS	Biology Boost Innoculant LBS	Con. Soil Conditioner YRDS	Microbes Starter LBS	Gypsum Ca LBS	Sulfur S LBS	Mow/ Week	Shatter Time	Knife Aerate	Plug Aerate	Over Seed	Top Dress	
WEEK OF																			
01/01/20	0	58	0	510		0	0	0	0	0	0		1		X				
01/08/20													1						
01/15/20													1						
01/22/20													1						
01/29/20	0	58	0	0		0	0	0	0	0	0	0	2		X				
02/05/20													2						
02/12/20													2						
02/19/20													2						
02/26/20	0	58	0	510		0	0	0	0	0	0	0	2		X				
03/04/20													2						
03/11/20													2						
03/18/20													2						
03/25/20	0	58	0	0	0	0.0	0	0	0	0	0	0	2		X				
04/01/20													2						
04/08/20													2						
04/15/20													2						
04/22/20	0	58	0	510	0	0.0	0	0	0	0	0	0	2		X				
04/29/20													2						
05/06/20													2						
05/13/20													2						
05/20/20													2						
05/27/20	0	58	0	0	2.3	2.3	0	2.3	2.34	0	0	0	2	X	X	X	X	X	
06/03/20													2						
06/10/20													2						
06/17/20													2						
06/24/20	0	58	0	510	0	0.0	0	0.0	0	0	0	0	2		X				
07/01/20													2						
07/08/20													2						
07/15/20													2						
07/22/20													2						
07/29/20	0	58	0	0	0	0.0	0	0	0	0	0	0	2		X				
08/05/20													2						
08/12/20													2						
08/19/20													2						
08/26/20	0	58	0	510	0	0	0	0	0	0	0	0	2		X				
09/02/20													2						
09/09/20													2						
09/16/20																			

## Field Usage / Availability Analysis Chart

This chart below shows you week by week how many activity weighted hours per week that the turf on these fields can withstand if you convert to Hybrid Blue grass, without being decimated by wear. Note the yellow bar running across the chart is your current maintenance level 1.67 for these fields. Under excess hours of usage, you can see that currently these fields have 691 activity weighted hours of play more than the turf can withstand and it shows you which months these occur and how many hours this is per week. Since soccer which has an activity rating of 2 is played on this field, the actual excess hours would be 346 hours per year (691/2).

As you step up your maintenance on this field to level 3 you could add 133 more additional activity weighted hours per year or 67 actual hours per year more than this turf can tolerate.

City of Culver City				FIELD USAGE / AVAILABILITY ANALYSIS												
Syd Kronenthal Park Field		Square Ft.	204000	Total												
Type of Grass:	Weeks/ YR	50	Hours	Average	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Cool Weather Grasses	Weeks/ mo				4	5	4	4	5	4	4	5	4	4	4	4
Field Availability (Numbers represent activity-weighted hours per week)																
Current Maint. Level	Hours Allowed		659	13	8	9	10	13	15	16	16	16	16	16	12	7
	Hours Available								2	4		4				2
1.67	Excess hours of usage		691	14	24	23	29	27			50		11	8	8	
Maint. Level	Hours Allowed		906	18	11	13	14	18	21	22	22	22	22	21	17	10
2.00	Hours Available								7	10		10				5
	Excess hours of usage		444	9	20	19	25	22			44		5	2	4	
Maint. Level	Hours Allowed		1483	29	19	21	23	29	34	36	36	36	36	35	27	17
3.00	Hours Available		133						20	24		24	9	11	7	11
	Excess hours of usage				13	11	16	11			30					
Maint. Level	Hours Allowed		1895	37	24	27	29	37	43	46	46	46	46	45	35	21
4.00	Hours Available		545						30	34		34	19	21	14	16
	Excess hours of usage				8	5	10	3			20					
Maint. Level	Hours Allowed		2884	56	36	41	45	57	66	70	70	70	70	68	53	32
5.00	Hours Available		1534		4	8	5	17	52	58	4	58	43	44	32	27
	Excess hours of usage															
Maintenance Frequencies-Annual Requirement				Activity Weighting Scale				Determining Field Availability								
	Current		Needed	Walking on field/Softball				1.00	Use the following steps to evaluate requests for additional field time: 1. Determine the actual hours of additional use requested. 2. Multiply the total hours of proposed use by the appropriate activity weight. 3. Locate the column for the month when the proposed additional use would occur. 4. Determine if there are available hours at the current maintenance level. If there are, you can schedule the activity. 5. If not, see if sufficient hours can be made available by increasing the maint. Level. 6. If sufficient hours can be made available, and you can afford the additional mtn., you can schedule the activity.							
Maint. Level	1.67		2.9	Baseball				1.25								
				PE				1.50								
Mowings/ Yr	52		96	Parked Cars				1.50								
Aerations/Yr	2		1	Marching Band				1.75								
Top Dress/Yr	0		1	Youth Soccer Games				1.85								
Over Seed/Yr	2		1	Youth Football Games				1.85								
Fertilization/Yr	2		6	Youth Soccer & FB Prac.				2.00								
Sweeping	0		0	Adult Soccer & FB Games				2.13								
Deep Tine/Yr	2		1	Adult Soccer & FB Prac.				2.25								
Verticuttings/Yr	0		1	Lacrosse				2.25								
				Rugby				2.50								
				Sports Clinics				2.50								
				Current Wear Level				2.90								
				Current Maintenance Level				1.67								
				Needed Maint. Level-Weather Adjusted				2.9								

DATE:	SQ.FT:	40000	Culver West Alexander Park Fields																	
10/23/19			City of Culver City																	
APPLICATION SCHEDULE:			N	Fertigation	P	K	Solu-Plus	Solu-Kelp	Calfresh	Biology Boost	Con. Soil	Microbes	Gypsum	Sulfur	Mows/	Shatter	Knife	Plug	Over	Top
WEEK OF	46-0-0 LBS	32-0-0 LBS	11-52-0 LBS	0-0-50 lbs	1-0-1 GLS	1-1-4 GLS	Na Blocker GLS	Innoculant LBS	Conditioner YRDS	Starter LBS	Ca LBS	S LBS	Weeks	Time	Aerate	Aerate	Seed	Dress		
01/01/20	79	0	0	0		0	0	0	0	0	0	0	1		X					
01/08/20													1							
01/15/20													1							
01/22/20													1							
01/29/20	0	0	0	0		0	0	0	0	0	0	0	2		X					
02/05/20													2							
02/12/20													2							
02/19/20													2							
02/26/20	79	0	0	0		0	0	0	0	0	0	0	2		X					
03/04/20													2							
03/11/20													2							
03/18/20													2							
03/25/20	0	0	0	0	0	0.0	0	0	0	0	0	0	2		X					
04/01/20													2							
04/08/20													2							
04/15/20													2							
04/22/20	79	0	0	0	0	0.0	0	0	0	0	0	0	2		X					
04/29/20													2							
05/06/20													2							
05/13/20													2							
05/20/20													2							
05/27/20	0	0	0	0.0	0.23	0.5	0.0	1.0	1.00	0	0	0	2	X	X	X	X			
06/03/20													2							
06/10/20													2							
06/17/20													2							
06/24/20	79	0	0	0	0	0.0	0	0.0	0	0	0	0	2		X					
07/01/20													2							
07/08/20													2							
07/15/20													2							
07/22/20													2							
07/29/20	0	0	0	0	0	0.0	0	0	0	0	0	0	2		X					
08/05/20													2							
08/12/20													2							
08/19/20													2							
08/26/20	79	0	0	0	0	0	0	0	0	0	0	0	2		X					
09/02/20													2							
09/09/20													2							
09/16/20													2							
09/23/20	0	0	0	0	0	0.0	0	0.0	0	0	0	0	2		X					

## Field Usage / Availability Analysis Chart

This chart below shows you week by week how many activity weighted hours per week that the turf on these fields can withstand with your cool weather grasses, without being decimated by wear. Note the yellow bar running across the chart is your current maintenance level 1.50 for these fields. Under excess hours of usage, you can see that currently these fields have 1332 activity weighted hours of play more than the turf can withstand and it shows you which months these occur and how many hours this is per week. Since soccer which has an activity rating of 2 is played on these fields, the actual excess hours would be 665 hours per year (1332/2).

As you step up your maintenance on this field to level 5 you will still have 934 more additional activity weighted hours per year or 467 actual hours per year more than this turf can tolerate.

City of Culver City		FIELD USAGE / AVAILABILITY ANALYSIS													
Culver West Park Field Square Ft. 40000		Total													
Type of Grass:	Weeks/ YR 52	Hours	Average	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Cool Weather Grasses	Weeks/ mo			4	5	4	4	5	4	4	5	4	4	4	4
<b>Field Availability (Numbers represent activity-weighted hours per week)</b>															
<b>Current Maint. Level 1.50</b>	Hours Allowed	618	12	8	9	10	12	14	15	15	15	15	15	11	7
	Hours Available														
	Excess hours of usage	1332		23	24	28	24	24	23	14	26	33	33	33	31
<b>Maint. Level 2.00</b>	Hours Allowed	906	18	11	13	14	18	21	22	22	22	22	21	17	10
	Hours Available														
	Excess hours of usage	1044		20	20	23	18	17	16	7	19	26	26	27	28
<b>Maint. Level 3.00</b>	Hours Allowed	1483	29	19	21	23	29	34	36	36	36	36	35	27	17
	Hours Available									7					
	Excess hours of usage	467		12	12	14	7	4	2		5	12	12	17	21
<b>Maint. Level 4.00</b>	Hours Allowed	1895	37	24	27	29	37	43	46	46	46	46	45	35	21
	Hours Available						1	5	8	17	5				
	Excess hours of usage	55		7	6	8						2	3	9	16
<b>Maint. Level 5.00</b>	Hours Allowed	2884	56	36	41	45	57	66	70	70	70	70	68	53	32
	Hours Available	934		5	8	7	20	28	32	41	29	22	21	9	
	Excess hours of usage														5
<b>Maintenance Frequencies-Annual Requirement</b>				<b>Activity Weighting Scale</b>				<b>Determining Field Availability</b>							
	Current		Needed	Walking on field/Softball				1.00	Use the following steps to evaluate requests for additional field time: 1. Determine the actual hours of additional use requested. 2. Multiply the total hours of proposed use by the appropriate activity weight. 3. Locate the column for the month when the proposed additional use would occur. 4. Determine if there are available hours at the current maintenance level. If there are, you can schedule the activity. 5. If not, see if sufficient hours can be made available by increasing the maint. Level. 6. If sufficient hours can be made available, and you can afford the additional mtn., you can schedule the activity.						
<b>Maint. Level 1.50</b>			4.6	Baseball				1.25							
				PE				1.50							
<b>Mowings/ Yr 52</b>			96	Parked Cars				1.50							
<b>Aerations/Yr 2</b>			1	Marching Band				1.75							
<b>Top Dress/Yr 0</b>			1	Youth Soccer Games				1.85							
<b>Over Seed/Yr 2</b>			1	Youth Football Games				1.85							
<b>Fertilization/Yr 2</b>			6	Youth Soccer & FB Prac.				2.00							
<b>Sweeping 0</b>			0	Adult Soccer & FB Games				2.13							
<b>Deep Tine/Yr 2</b>			1	Adult Soccer & FB Prac.				2.25							
<b>Verticuttings/yr 0</b>			0	Lacrosse				2.25							
				Rugby				2.50							
<b>Annual Costs</b>				Sports Clinics				2.50							
<b>Ann. Increase</b>				Current Wear Level				5.00							
<b>Cost/month</b>				Current Maintenance Level				1.50							
<b>Cost/week</b>				Needed Maint. Level-Weather Adjusted				5.0							

The calendar below is based on granular fertilizer applications. The product on the far left (46-0-0) is spread with a broadcast spreader. Down the left side are the dates that each fertilizer item and each task should occur including mowing and aerating

DATE:	SQ.FT:	31000	El Marino Park Fields																	
10/23/19																				
APPLICATION SCHEDULE:			City of Culver City																	
	UTLEX 46-0-0 LBS	Fertigation 32-0-0 LBS	P 11-52-0 LBS	K 0-0-50 lbs	Solu-Plus 1-0-1 GLS	Solu-Kelp 1-1-4 GLS	CalFresh Na Blocker GLS	Biology Boost Inoculant LBS	Con. Soil Conditioner YRDS	Microbes Starter	Gypsum Ca LBS	Sulfur S	Mow/ Week	Shatter Time	Knife Aerate	Plug Aerate	Over Seed	Top Dress		
01/01/19	45	194	0	0	0	0	0	0	0	0	0		1		X					
01/08/19													1							
01/15/19													1							
01/22/19													1							
01/29/19	0	0	0	0	0	0	0	0	0	0	0		2		X					
02/05/19													2							
02/12/19													2							
02/19/19													2							
02/26/19	45	0	0	0	0	0	0	0	0	0	0	0	2		X					
03/05/19													2							
03/12/19													2							
03/19/19													2							
03/26/19	0	0	0	0	0	0.0	0	0	0	0	0		2		X					
04/02/19													2							
04/09/19													2							
04/16/19													2							
04/23/19	45	0	0	0	0	0.0	0	0	0	0	0	0	2		X					
04/30/19													2							
05/07/19													2							
05/14/19													2							
05/21/19													2							
05/28/19	0	0	0	0	0.18	0.36	0.00	0.36	0.18	0	0		2	X	X	X	X	X		
06/04/19													2							
06/11/19													2							
06/18/19													2							
06/25/19	45	0	0	0	0	0.0	0	0.0	0	0	0	0	2		X					
07/02/19													2							
07/09/19													2							
07/16/19													2							
07/23/19													2							
07/30/19	0	0	0	0	0	0.0	0	0	0	0	0		2		X					
08/06/19													2							
08/13/19													2							
08/20/19													2							
08/27/19	45	0	0	0	0	0	0	0	0	0	0		2		X					
09/03/19													2							
09/10/19													2							
09/17/19													2							
09/24/19	0	0	0	0		0.0	0	0.0	0	0	0		2		X					
10/01/19													2							
10/08/19													2							
10/15/19													2							
10/22/19	45	0	0	0	0		0	0	0	0	0		2		X					
10/29/19													2							
11/05/19													2							
11/12/19													2							
11/19/19													2							
11/26/19	0	0	0	0	0	0.0	0	0	0.0	0	0		2		X					
12/03/19													1							
12/10/19													1							
12/17/19													1							
12/24/19	0	0	0	0	0	0	0	0	0	0	0		1							

## Field Usage / Availability Analysis Chart

This chart below shows you week by week how many activity weighted hours per week that the turf on these fields can withstand with your cool weather grass, without being decimated by wear. Note the yellow bar running across the chart is your current maintenance level 1.67 for these fields. Under hours available of usage, you can see that currently you could add 477 more activity weighted hours per year or 238 actual hours

City of Culver City		FIELD USAGE / AVAILABILITY ANALYSIS													
El Marino Park Square Ft. 31000		Total													
Type of Grass:	Weeks/ YR 9	Hours	Average	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Cool Weather Grasses		Weeks/ mo		4	5	4	4	5	4	4	5	4	4	4	4
Field Availability (Numbers represent activity-weighted hours per week)															
Current Maint. Level	Hours Allowed	659	13	8	9	10	13	15	16	16	16	16	16	12	7
1.67	Hours Available	477		8	9	10	13	15		7	5	15	16	12	7
	Excess hours of usage														
Maint. Level 2.00	Hours Allowed	906	18	11	13	14	18	21	22	22	22	22	21	17	10
	Hours Available	725		11	13	14	18	21		1	21	22	21	16	10
	Excess hours of usage									1					
Maint. Level 3.00	Hours Allowed	1483	29	19	21	23	29	34	36	36	36	36	35	27	17
	Hours Available	1301		19	21	23	29	34	14	15	35	36	35	27	16
	Excess hours of usage														
Maint. Level 4.00	Hours Allowed	1895	37	24	27	29	37	43	46	46	46	46	45	35	21
	Hours Available	1713		24	27	29	37	43	24	25	45	46	45	34	21
	Excess hours of usage														
Maint. Level 5.00	Hours Allowed	2884	56	36	41	45	57	66	70	70	70	70	68	53	32
	Hours Available	2702		36	41	45	57	66	48	49	69	70	68	52	32
	Excess hours of usage														
Maintenance Frequencies-Annual Requirement															
Current			Needed												
Maint. Level 1.67			3.1												
Mowings/Yr	52		52												
Aerations/Yr	2		0												
Top Dress/Yr	0		1												
Over Seed/Yr	2		0												
Fertilization/Yr	2		6												
Sweeping	0		0												
Deep Time/Yr	2		1												
Verticuttings/yr	0		0												
Annual Costs															
Ann. Increase															
Cost/month															
Cost/week															
				Activity Weighting Scale				Determining Field Availability							
				Walking on field/Softball				1.00 Use the following steps to evaluate requests for additional field time:							
				Baseball				1.25							
				PE				1.50							
				Parked Cars				1.50							
				Marching Band				1.75							
				Youth Soccer Games				1.85							
				Youth Football Games				1.85							
				Youth Soccer & FB Prac.				2.00							
				Adult Soccer & FB Games				2.13							
				Adult Soccer & FB Prac.				2.25							
				Lacrosse				2.25							
				Rugby				2.50							
				Sports Clinics				2.50							
				Current Wear Level				3.10							
				Current Maintenance Level				1.67							
				Needed Maint. Level-Weather Adjusted				3.1							

[illegible]

## Field Usage / Availability Analysis Chart

This chart below shows you week by week how many activity weighted hours per week that the turf on these fields can withstand with your cool weather grasses, without being decimated by wear. Note the yellow bar running across the chart is your current maintenance level 1.67 for these fields. Under hours available you could add an additional 1056 activity weighted hours. Since soccer which has an activity rating of 2 is played on this field, the actual additional hours would be 528 hours per year (1056/2).

City of Culver City			FIELD USAGE / AVAILABILITY ANALYSIS														
Tellefson Park Fields	Square Ft.	31500	Total														
Type of Grass:	Weeks/ YR	9	Hours	Average	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Cool Weather Grasses	Weeks/ mo				4	5	4	4	5	4	4	5	4	4	4	4	
Field Availability (Numbers represent activity-weighted hours per week)																	
Current Maint.	Hours Allowed		1071	21	14	15	17	21	24	26	26	26	26	25	20	12	
Level	Hours Available		1056		14	15	17	21	24	26	26	26	25	24	19	12	
1.67	Excess hours of usage																
Maint. Level	Hours Allowed		1648	32	21	23	26	32	38	40	40	40	40	39	30	18	
2.00	Hours Available		1633		21	23	26	32	38	40	40	40	39	38	29	18	
	Excess hours of usage																
Maint. Level	Hours Allowed		2719	53	34	38	42	53	62	66	66	66	66	64	50	30	
3.00	Hours Available		2704		34	38	42	53	62	66	66	66	65	63	49	30	
	Excess hours of usage																
Maint. Level	Hours Allowed		3543	69	45	50	55	70	81	86	86	86	86	83	65	40	
4.00	Hours Available		3528		45	50	55	69	81	86	86	86	85	82	64	40	
	Excess hours of usage																
Maint. Level	Hours Allowed		4120	81	52	58	64	81	94	100	100	100	100	97	75	46	
5.00	Hours Available		4105		52	58	64	81	94	100	100	100	99	96	74	46	
	Excess hours of usage																
Maintenance Frequencies-Annual Requirement				Activity Weighting Scale				Determining Field Availability									
	Current		Needed	Walking on field/Softball				1.00	Use the following steps to evaluate requests for additional field time: 1. Determine the actual hours of additional use requested. 2. Multiply the total hours of proposed use by the appropriate activity weight. 3. Locate the column for the month when the proposed additional use would occur. 4. Determine if there are available hours at the current maintenance level. If there are, you can schedule the activity. 5. If not, see if sufficient hours can be made available by increasing the maint. Level. 6. If sufficient hours can be made available, and you can afford the additional mtn., you can schedule the activity.								
Maint. Level	1.67		1.6	Baseball				1.25									
Mowings/ Yr	52		52	PE				1.50									
Aerations/Yr	2		1	Parked Cars				1.50									
Top Dress/Yr	0		0	Marching Band				1.75									
Over Seed/Yr	2		0	Youth Soccer Games				1.85									
Fertilization/Yr	2		6	Youth Football Games				1.85									
Sweeping	0		0	Youth Soccer & FB Prac.				2.00									
Deep Tine/Yr	2		0	Adult Soccer & FB Games				2.13									
Verticuttings/yr	0		0	Adult Soccer & FB Prac.				2.25									
				Lacrosse				2.25									
				Rugby				2.50									
				Sports Clinics				2.50									
				Current Wear Level				1.60									
				Current Maintenance Level				1.67									
				Needed Maint. Level-Weather Adjusted				1.6									



The calendar below is based on granular fertilizer applications. The product on the far left (46-0-0) is spread with a broadcast spreader. Down the left side are the dates that each fertilizer item and each task should occur including mowing and aerating.

DATE:	SQ.FT:	110000		Lindberg Park Fields															
10/23/19																			
APPLICATION SCHEDULE:				City of Culver City															
WEEK OF	UFLEX 46-0-0 LBS	Fertigation 32-0-0 LBS	P 11-52-0 LBS	K 0-0-50 lbs	Solu-Plus 1-0-1 GLS	Solu-Kelp 1-1-4 GLS	Calfresh Na Blocker GLS	Biology Boost Inoculant LBS	Con. Soil Conditioner YRDS	Microbes Starter	Gypsum Ca LBS	Sulfur S	Mows/ Week	Shatter Time	Knife Aerate	Plug Aerate	Over Seed	Top Dress	
01/01/20	218	0	0	275		0	0	0	0	0	0	0	1		X				
01/08/20													1						
01/15/20													1						
01/22/20													1						
01/29/20	0	0	0	275		0	0	0	0	0	0	0	2		X				
02/05/20													2						
02/12/20													2						
02/19/20													2						
02/26/20	218	0	0	275		0	0	0	0	0	0	0	2		X				
03/04/20													2						
03/11/20													2						
03/18/20													2						
03/25/20	0	0	0	275	0	0.0	0	0	0	0	0	0	2		X				
04/01/20													2						
04/08/20													2						
04/15/20													2						
04/22/20	218	0	0	275	0	0.0	0	0	0	0	0	0	2		X				
04/29/20													2						
05/06/20													2						
05/13/20													2						
05/20/20													2						
05/27/20	0	0	0	275	1	1.3	0	1.3	1.26	0	0	0	2	X	X	X	X	X	
06/03/20													2						
06/10/20													2						
06/17/20													2						
06/24/20	218	0	0	275	0	0.0	0	0.0	0	0	0	0	2		X				
07/01/20													2						
07/08/20													2						
07/15/20													2						
07/22/20													2						
07/29/20	0	0	0	275	0	0.0	0	0	0	0	0	0	2		X				
08/05/20													2						
08/12/20													2						
08/19/20													2						
08/26/20	218	0	0	275	0	0	0	0	0	0	0	0	2		X				
09/02/20													2						
09/09/20													2						
09/16/20													2						
09/23/20	0	0	0	275	0	0.0	0	0.0	0	0	0	0	2		X				
09/30/20													2						
10/07/20													2						
10/14/20													2						
10/21/20	218	0	0	275	0		0	0	0	0	0	0	2		X				
10/28/20													2						
11/04/20													2						
11/11/20													2						
11/18/20													2						
11/25/20	0	0	0	275	0	0.0	0	0	0.0	0	0	0	2		X				
12/02/20													1						
12/09/20													1						
12/16/20													1						
12/23/20	0	0	0	0	0	0	0	0	0	0	0	0	1						

## Field Usage / Availability Analysis Chart

This chart below shows you week by week how many activity weighted hours per week that the turf on these fields can withstand with cool weather grasses, without being decimated by wear. Note the yellow bar running across the chart is your current maintenance level 1.67 for this field. Under hours available you can see that currently these fields could have 77 activity weighted hours of play more. Since soccer which has an activity rating of 2 is played on these fields, the actual excess hours would be 39 hours per year (77/2).

City of Culver City			FIELD USAGE / AVAILABILITY ANALYSIS														
Lindberg Park Fields	Square Ft.	110000	Total														
Type of Grass:	Weeks/ YR	18	Hours	Average	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Cool Weather Grasses	Weeks/ mo				4	5	4	4	5	4	4	5	4	4	4	4	
Field Availability (Numbers represent activity-weighted hours per week)																	
Current Maint.	Hours Allowed		659	13	8	9	10	13	15	16	16	16	16	16	12	7	
Level	Hours Available		77		8	9	10	6	15	16	16					1	
1.67	Excess hours of usage											15	15	16	19		
Maint. Level	Hours Allowed		906	18	11	13	14	18	21	22	22	22	22	21	17	10	
2.00	Hours Available		324		11	13	14	11	21	22	22					4	
	Excess hours of usage											9	9	10	15		
Maint. Level	Hours Allowed		1483	29	19	21	23	29	34	36	36	36	36	35	27	17	
3.00	Hours Available		901		19	21	23	23	34	36	36	5	5	4		10	
	Excess hours of usage														4		
Maint. Level	Hours Allowed		1895	37	24	27	29	37	43	46	46	46	46	45	35	21	
4.00	Hours Available		1313		24	27	29	31	43	46	46	15	15	13	3	15	
	Excess hours of usage																
Maint. Level	Hours Allowed		2884	56	36	41	45	57	66	70	70	70	70	68	53	32	
5.00	Hours Available		2302		36	41	45	50	66	70	70	39	39	37	21	26	
	Excess hours of usage																
Maintenance Frequencies-Annual Requirement				Activity Weighting Scale				Determining Field Availability									
	Current		Needed	Walking on field/Softball				1.00	Use the following steps to evaluate requests for additional field time:  1. Determine the actual hours of additional use requested. 2. Multiply the total hours of proposed use by the appropriate activity weight. 3. Locate the column for the month when the proposed additional use would occur. 4. Determine if there are available hours at the current maintenance level. If there are, you can schedule the activity. 5. If not, see if sufficient hours can be made available by increasing the maint. Level. 6. If sufficient hours can be made available, and you can afford the additional mtn., you can schedule the activity.								
Maint. Level	1.67		1.2	Baseball				1.25									
Mowings/ Yr	52		96	PE				1.50									
Aerations/Yr	2		1	Parked Cars				1.50									
Top Dress/Yr	0		0	Marching Band				1.75									
Over Seed/Yr	2		0	Youth Soccer Games				1.85									
Fertilization/Yr	2		6	Youth Football Games				1.85									
Sweeping	0		0	Youth Soccer & FB Prac.				2.00									
Deep Tine/Yr	2		0	Adult Soccer & FB Games				2.13									
Verticuttings/yr	0		0	Adult Soccer & FB Prac.				2.25									
				Lacrosse				2.25									
				Rugby				2.50									
Annual Costs				Sports Clinics				2.50									
Ann. Increase				Current Wear Level				1.20									
Cost/month				Current Maintenance Level				1.67									
Cost/week				Needed Maint. Level-Weather Adjusted				1.2									

The calendar below is based on granular fertilizer applications. The product on the far left (46-0-0) is spread with a broadcast spreader. Down the left side are the dates that each fertilizer item and each task should occur including mowing and aerating.

DATE:	SQ.FT:	106000	Blanco Park Fields																
10/23/19																			
APPLICATION SCHEDULE:			City of Culver City																
WEEK OF	UFLEX 46-0-0 LBS	UAN 32 32-0-0 LBS	P 11-52-0 LBS	K 0-0-50 lbs	Solu-Plus 1-0-1 GLS	Solu-Kelp 1-1-4 GLS	Calfresh Na Blocker GLS	Biology Boost Innoculant LBS	Con. Soil Conditioner YRDS	Microbes Starter	Gypsum Ca LBS	Sulfur S	Mow/ Week	Shatter Time	Knife Aerate	Plug Aerate	Over Seed	Top Dress	
01/01/20	230	60	0	0		0	0	0	0	0	0	0	1		X				
01/08/20													1						
01/15/20													1						
01/22/20													1						
01/29/20	0	0	0	0		0	0	0	0	0	0	0	2		X				
02/05/20													2						
02/12/20													2						
02/19/20													2						
02/26/20	230	0	0	0		0	0	0	0	0	0	0	2		X				
03/04/20													2						
03/11/20													2						
03/18/20													2						
03/25/20	0	0	0	0	0	0.0	0	0	0	0	0	0	2		X				
04/01/20													2						
04/08/20													2						
04/15/20													2						
04/22/20	230	0	0	0	0	0.0	0	0	0	0	0	0	2		X				
04/29/20													2						
05/06/20													2						
05/13/20													2						
05/20/20													2						
05/27/20	0	0	0	0	1	1.2	0	1.2	1.22	0	0	0	2	X	X	X	X	X	
06/03/20													2						
06/10/20													2						
06/17/20													2						
06/24/20	230	0	0	0	0	0.0	0	0.0	0	0	0	0	2		X				
07/01/20													2						
07/08/20													2						
07/15/20													2						
07/22/20													2						
07/29/20	0	0	0	0	0	0.0	0	0	0	0	0	0	2		X				
08/05/20													2						
08/12/20													2						
08/19/20													2						
08/26/20	230	0	0	0	0	0	0	0	0	0	0	0	2		X				
09/02/20													2						
09/09/20													2						
09/16/20													2						
09/23/20	0	0	0	0	0	0.0	0	0.0	0	0	0	0	2		X				
09/30/20													2						
10/07/20													2						
10/14/20													2						
10/21/20	230	0	0	0	0		0	0	0	0	0	0	2		X				
10/28/20													2						
11/04/20													2						
11/11/20													2						
11/18/20													2						
11/25/20	0	0	0	0	0	0.0	0	0	0.0	0	0	0	2		X				
12/02/20													1						
12/09/20													1						
12/16/20													1						
12/23/20	0	0	0	0	0	0	0	0	0	0	0	0	1						

This chart below shows you week by week how many activity weighted hours per week that the turf on these fields can withstand with cool weather grasses, without being decimated by wear. Note the yellow bar running across the chart is your current maintenance level 1.67 for these fields. Under excess hours of usage, you can see that currently these fields have 1269 activity weighted hours of play more than the turf can withstand and it shows you which months these occur and how many hours this is per week. Since soccer which has an activity rating of 2 is played on this field, the actual excess hours would be 635 hours per year ( $1269/2$ ).

As you step up your maintenance on this field to level 5 you will still have 571 more additional activity weighted hours per year or 285 actual hours per year more.

City of Culver City			FIELD USAGE / AVAILABILITY ANALYSIS													
Blanco Park Fields	Square Ft.	106000	Total													
Type of Grass:	Weeks/ YR	50	Hours	Average	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Cool Weather Grasses	Weeks/ mo				4	5	4	4	5	4	4	5	4	4	4	4
Field Availability (Numbers represent activity-weighted hours per week)																
Current Maint.	Hours Allowed		1022	20	13	15	16	20	24	25	24	24	25	24	19	12
Level	Hours Available									20	20					
1.67	Excess hours of usage		1269		32	33			22			32			43	14
Maint. Level	Hours Allowed		1431	28	18	20	22	28	33	35	34	34	35	34	26	16
2.00	Hours Available									30	29					
	Excess hours of usage		860	17	27	28	32	38	13			22	27	28	35	9
Maint. Level	Hours Allowed		1192	36	23	26	29	36	42	45	44	44	45	44	34	21
3.00	Hours Available									40	39					
	Excess hours of usage		1099	22	22	22	26	30	3			12	17	18	28	4
Maint. Level	Hours Allowed		2249	44	29	32	35	45	52	55	53	53	54	53	41	25
4.00	Hours Available								6	50	49					0
	Excess hours of usage		42	1	17	16	20	22				3	7	8	20	
Maint. Level	Hours Allowed		2862	56	36	41	45	57	66	70	68	68	69	68	53	32
5.00	Hours Available		571						20	65	63	12	8	6		7
	Excess hours of usage				9	7	10	10							9	
Maintenance Frequencies-Annual Requirement						Activity Weighting Scale				Determining Field Availability						
Maint. Level	Current			Needed					Walking on field/Softball	1.00	Use the following steps to evaluate requests for additional field time:  1. Determine the actual hours of additional use requested.  2. Multiply the total hours of proposed use by the appropriate activity weight.  3. Locate the column for the month when the proposed additional use would occur.  4. Determine if there are available hours at the current maintenance level. If there are, you can schedule the activity.  5. If not, see if sufficient hours can be made available by increasing the maintenance level.  6. If sufficient hours can be made available, and you can handle and afford the additional maintenance, you can schedule the activity.					
	1.67			4.8					Baseball	1.25						
									PE	1.50						
Mowings/ Yr	52			96					Parked Cars	1.50						
Aerations/Yr	2			0					Marching Band	1.75						
Top Dress/Yr	0			1					Youth Soccer Games	1.85						
Over Seed/Yr	2			1					Youth Football Games	1.85						
Fertilization/Yr	2			6					Youth Soccer & FB Prac.	2.00						
Sweeping	0			0					Adult Soccer & FB Games	2.13						
Deep Tine/Yr	2			1					Adult Soccer & FB Prac.	2.25						
Verticuttings/yr	0			0					Lacrosse	2.25						
									Rugby	2.50						
Annual Costs									Sports Clinics	2.50						
Ann. Increase									Current Wear Level	4.75						
Cost/month									Current Maintenance Level	1.67						
Cost/week									Needed Maint. Level-Weather Adjusted	4.8						

The calendar below is based on granular fertilizer applications. The product on the far left (46-0-0) is spread with a broadcast spreader. Down the left side are the dates that each fertilizer item and each task should occur including mowing and aerating.

DATE:	SQ.FT:	130000	Fox Hills Park Fields																
10/23/19																			
APPLICATION SCHEDULE:			City of Culver City																
WEEK OF	UFLEX 46-0-0 LBS	Gran N 16-7-7 LBS	P 11-52-0 LBS	K 0-0-50 lbs	Solu-Plus 1-0-1 GLS	Solu-Kelp 1-1-4 GLS	Calfresh Na Blocker GLS	Biology Boost Innoculant LBS	Con. Soil Conditioner YRDS	Microbes Starter	Gypsum Ca LBS	Sulfur S	Mow/ Week	Shatter Time	Knife Aerate	Plug Aerate	Over Seed	Top Dress	
01/01/20	283	73	0	325		0	0	0	0	0	0	0	1		X				
01/08/20													1						
01/15/20													1						
01/22/20													1						
01/29/20	0	0	0	0		0	0	0	0	0	0	0	2		X				
02/05/20													2						
02/12/20													2						
02/19/20													2						
02/26/20	283	0	0	325		0	0	0	0	0	0	0	2		X				
03/04/20													2						
03/11/20													2						
03/18/20													2						
03/25/20	0	0	0	0	0	0.0	0	0	0	0	0	0	2		X				
04/01/20													2						
04/08/20													2						
04/15/20													2						
04/22/20	283	0	0	325	0	0.0	0	0	0	0	0	0	2		X				
04/29/20													2						
05/06/20													2						
05/13/20													2						
05/20/20													2						
05/27/20	0	0	0	0	1	1.5	0	1.5	1.49	0	0	0	2	X	X	X	X	X	
06/03/20													2						
06/10/20													2						
06/17/20													2						
06/24/20	283	0	0	325	0	0.0	0	0.0	0	0	0	0	2		X				
07/01/20													2						
07/08/20													2						
07/15/20													2						
07/22/20													2						
07/29/20	0	0	0	0	0	0.0	0	0	0	0	0	0	2		X				
08/05/20													2						
08/12/20													2						
08/19/20													2						
08/26/20	283	0	0	325	0	0	0	0	0	0	0	0	2		X				
09/02/20													2						
09/09/20													2						
09/16/20													2						
09/23/20	0	0	0	0	1	0.0	0	0.0	0	0	0	0	2		X				
09/30/20													2						
10/07/20													2						
10/14/20													2						
10/21/20	283	73	0	325	0		0	0	0	0	0	0	2		X				
10/28/20													2						
11/04/20													2						
11/11/20													2						
11/18/20													2						
11/25/20	0	0	0	0	0	0.0	0	0	0.0	0	0	0	2		X				
12/02/20													1						
12/09/20													1						
12/16/20													1						
12/23/20	0	0	0	0	0	0	0	0	0	0	0	0	1						

## Field Usage / Availability Analysis Chart

This chart below shows you week by week how many activity weighted hours per week that the turf on these fields can withstand if you convert to Hybrid Blue grass, without being decimated by wear. Note the yellow bar running across the chart is your current maintenance level 1.67 for these fields

As you step up your maintenance on this field to level 2 you can have 1068 more additional activity weighted hours per year 534 actual hours per year of additional play.

FIELD USAGE / AVAILABILITY ANALYSIS																							
Fox Hills Park Fields	Square Ft.	130000	Total																				
Type of Grass:	Weeks/ YR	28	Hours	Average	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.							
Cool Weather Grasses	Weeks/ mo				4	5	4	4	5	4	4	5	4	4	4	4							
Field Availability	(Numbers represent activity-weighted hours per week)																						
Current Maint.	Hours Allowed		1022	20.00	13.00	14.50	16.00	20.25	23.50	25.00	24.25	24.25	24.75	24.25	18.75	11.50							
Level 1.67	Hours Available				13.00	14.50	15.96	20.25	23.50	18.88	18.13	4.79	5.29	10.92	5.42	3.50							
	Excess hours of usage																						
Maint. Level 2.00	Hours Allowed		1431	28.00	18.20	20.30	22.40	28.35	32.90	35.00	33.95	33.95	34.65	33.95	26.25	16.10							
	Hours Available		1068		18.20	20.30	22.36	28.35	32.90	28.88	27.83	14.49	15.19	20.62	12.92	8.10							
	Excess hours of usage																						
Maint. Level 3.00	Hours Allowed		1840	36.00	23.40	26.10	28.80	36.45	42.30	45.00	43.65	43.65	44.55	43.65	33.75	20.70							
	Hours Available		1477		23.40	26.10	28.76	36.45	42.30	38.88	37.53	24.19	25.09	30.32	20.42	12.70							
	Excess hours of usage																						
Maint. Level 4.00	Hours Allowed		2249	44.00	28.60	31.90	35.20	44.55	51.70	55.00	53.35	53.35	54.45	53.35	41.25	25.30							
	Hours Available		1886		28.60	31.90	35.16	44.55	51.70	48.88	47.23	33.89	34.99	40.02	27.92	17.30							
	Excess hours of usage																						
Maint. Level 5.00	Hours Allowed		2862	56.00	36.40	40.60	44.80	56.70	65.80	70.00	67.90	67.90	69.30	67.90	52.50	32.20							
	Hours Available		2499		36.40	40.60	44.76	56.70	65.80	63.88	61.78	48.44	49.84	54.57	39.17	24.20							
	Excess hours of usage																						
Maintenance Frequencies-Annual Requirement					Activity Weighting Scale					Determining Field Availability													
	Current			Needed	Walking on field/Softball					Use the following steps to evaluate requests for additional field time:  1. Determine the actual hours of additional use requested. 2. Multiply the total hours of proposed use by the appropriate activity weight. 3. Locate the column for the month when the proposed additional use would occur. 4. Determine if there are available hours at the current maintenance level. If there are, you can schedule the activity. 5. If not, see if sufficient hours can be made available by increasing the maintenance level. 6. If sufficient hours can be made available, and you can handle and afford the additional maintenance, you can schedule the activity.													
Maint. Level	1.67			1.3	Baseball																		
Mowings/ Yr	52			96	PE																		
Aerations/ Yr	2			0	Parked Cars																		
Top Dress/ Yr	0			0	Marching Band																		
Over Seed/ Yr	2			1	Youth Soccer Games																		
Fertilization/ Yr	2			6	Youth Football Games																		
Sweeping	0			0	Youth Soccer & FB Prac.																		
Deep Tine/ Yr	2			0	Adult Soccer & FB Games																		
Verticuttings/ yr	0			0	Adult Soccer & FB Prac.																		
					Lacrosse																		
Annual Costs	\$17,101				Rugby																		
Ann. Increase					Sports Clinics																		
Cost/month	\$330				Current Wear Level																		
Cost/week	\$82				Current Maintenance Level																		
					Needed Maint. Level-Weather Adjusted																		



## Field Usage / Availability Analysis Chart

This chart below shows you week by week how many activity weighted hours per week that the turf on these fields can withstand if you convert to Hybrid Blue grass, without being decimated by wear. Note the yellow bar running across the chart is your current maintenance level 1.67 for these fields. Under hours available, you can see that currently these fields could have 1010 additional activity weighted hours of play per year and it shows you which months these occur and how many hours this is per week. Since soccer which has an activity rating of 2 is played on this field, the actual excess hours would be 505 hours per year (1010/2).

City of Culver City				FIELD USAGE / AVAILABILITY ANALYSIS															
Carlson Park Fields		Square Ft.	115000	Total															
Type of Grass:		Weeks/ YR	9	Hours	Average	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		
Cool Weather Grasses		Weeks/ mo				4	5	4	4	5	4	4	5	4	4	4	4		
Field Availability				(Numbers represent activity-weighted hours per week)															
Current Maint. Level 1.67	Hours Allowed		1022	20.00	13.00	14.50	16.00	20.25	23.50	25.00	24.25	24.25	24.75	24.25	18.75	11.50			
	Hours Available		1010		13.00	14.50	16.00	20.25	23.50	25.00	23.05	24.05	24.38	23.88	18.19	11.20			
	Excess hours of usage																		
Maint. Level 2.00	Hours Allowed		1431	28.00	18.20	20.30	22.40	28.35	32.90	35.00	33.95	33.95	34.65	33.95	26.25	16.10			
	Hours Available		1419		18.20	20.30	22.40	28.35	32.90	35.00	32.75	33.75	34.28	33.58	25.69	15.80			
	Excess hours of usage																		
Maint. Level 3.00	Hours Allowed		1840	36.00	23.40	26.10	28.80	36.45	42.30	45.00	43.65	43.65	44.55	43.65	33.75	20.70			
	Hours Available		1828		23.40	26.10	28.80	36.45	42.30	45.00	42.45	43.45	44.18	43.28	33.19	20.40			
	Excess hours of usage																		
Maint. Level 4.00	Hours Allowed		2249	44.00	28.60	31.90	35.20	44.55	51.70	55.00	53.35	53.35	54.45	53.35	41.25	25.30			
	Hours Available		2237		28.60	31.90	35.20	44.55	51.70	55.00	52.15	53.15	54.08	52.98	40.69	25.00			
	Excess hours of usage																		
Maint. Level 5.00	Hours Allowed		2862	56.00	36.40	40.60	44.80	56.70	65.80	70.00	67.90	67.90	69.30	67.90	52.50	32.20			
	Hours Available		2850		36.40	40.60	44.80	56.70	65.80	70.00	66.70	67.70	68.93	67.53	51.94	31.90			
	Excess hours of usage																		
Maintenance Frequencies-Annual Requirement				Activity Weighting Scale				Determining Field Availability											
Maint. Level	Current			Needed	Walking on field/Softball				Use the following steps to evaluate requests for additional field time:										
	1.67			0.0	Baseball				1. Determine the actual hours of additional use requested.										
Mowings/ Yr	52			52	PE				2. Multiply the total hours of proposed use by the appropriate activity weight.										
	2			0	Parked Cars				3. Locate the column for the month when the proposed additional use would occur.										
Aerations/Yr	0			0	Marching Band				4. Determine if there are available hours at the current maintenance level. If there are, you can schedule the activity.										
Top Dress/Yr	2			0	Youth Soccer Games				5. If not, see if sufficient hours can be made available by increasing the maintenance level.										
Over Seed/Yr	2			1	Youth Football Games				6. If sufficient hours can be made available, and you can handle and afford the additional maintenance, you can schedule the activity.										
Fertilization/Yr	2			6	Youth Soccer & FB Prac.														
Sweeping	0			0	Adult Soccer & FB Games														
Deep Tine/Yr	2			0	Adult Soccer & FB Prac.														
Verticuttings/yr	0			0	Lacrosse														
					Rugby														
					Sports Clinics														
Annual Costs					Current Wear Level														
Ann. Increase					Current Maintenance Level														
Cost/month					Needed Maint. Level-Weather Adjusted														
Cost/week																			



# Addendum B

## Soil Analysis

On the next page, are the soil analyses of the root zones of the Culver City sports fields. Your location is close enough to the coast that you have sandy soils which generally have better drainage. Your highest sand content is Blanco at 83% with Culver West the lowest at 52.6. The silt and clay particles (18-48%) are the fine materials that when combined with high moisture and heavy play, can cause these soils to be compacted. For turf grasses to be sustainable with your play, you need 8" of roots. We are addressing this and other issues in the maintenance recommendations.

SOIL ANALYSIS COMPARISON																
RECOMMENDED LEV	S.LOAM	3%+				50 PPM	212 PPM	15 PPM	1300 PPM	200 PPM	35 PPM	3 PPM	25 PPM	3 PPM	>1 %	14-16
Culver City Park					Sand%	58.0%	Silt%	28%	Clay%	14.3%	% Passing #200 Screen			42.0%		
pH	Salt	Lime	Texture	Organ	Nit.	Phos.	Potas.	Sulf	Calc.	Magn.	Sod.	Zinc	Iron	Mang.		CEC
mmms	%			%	N ppm	P ppm	K ppm	S ppm	Ca ppm	Mg ppm	Na ppm	Zn ppm	Fe ppm	Mn ppm	%NA	
7.2	0.3	No	S.Loam	5.4	7	91	330	17	2165	379	52	67	30	2	1.5%	15.1
Veterans Park-Fields					Sand%	58.7%	Silt%	29%	Clay%	12.1%	% Passing #200 Screen			41.4%		
pH	Salt	Lime	Texture	Organ	Nit.	Phos.	Potas.	Sulf	Calc.	Magn.	Sod.	Zinc	Iron	Mang.		CEC
mmms	%			%	N ppm	P ppm	K ppm	S ppm	Ca ppm	Mg ppm	Na ppm	Zn ppm	Fe ppm	Mn ppm	%NA	
6.9	0.5	No	Sandy Loam	9.5	19	66	228	22	2631	532	91	28	61	2	2.1%	18.6
Syd Kronenthal Park Fields					Sand%	67.4%	Silt%	25%	Clay%	8.0%	% Passing #200 Screen			32.6%		
pH	Salt	Lime	Texture	Organ	Nit.	Phos.	Potas.	Sulf	Calc.	Magn.	Sod.	Zinc	Iron	Mang.		CEC
mmms	%			%	N ppm	P ppm	K ppm	S ppm	Ca ppm	Mg ppm	Na ppm	Zn ppm	Fe ppm	Mn ppm	%NA	
7.6	0.3	Low	Sandy Loam	2.5	16.00	59	265	16	2430	296	39	9	27	3	1.03%	16.5
RECOMMENDED LEV	S.LOAM	3%+				50 PPM	212 PPM	15 PPM	1300 PPM	200 PPM	35 PPM	3 PPM	25 PPM	3 PPM	>1 %	14-16
Culver West Park Field					Sand%	52.6%	Silt%	36%	Clay%	10.9%	% Passing #200 Screen			46.4%		
pH	Salt	Lime	Texture	Organ	Nit.	Phos.	Potas.	Sulf	Calc.	Magn.	Sod.	Zinc	Iron	Mang.		CEC
mmms	%			%	N ppm	P ppm	K ppm	S ppm	Ca ppm	Mg ppm	Na ppm	Zn ppm	Fe ppm	Mn ppm	%NA	
7.4	0.3	Low	SandLoam	9.0	31	99	276	15	2398	323	31	14	32	1	0.9%	15.5
El Marino Park Field					Sand%	69.4%	Silt%	24%	Clay%	7.7%	% Passing #200 Screen			31.3%		
pH	Salt	Lime	Texture	Organ	Nit.	Phos.	Potas.	Sulf	Calc.	Magn.	Sod.	Zinc	Iron	Mang.		CEC
mmms	%			%	N ppm	P ppm	K ppm	S ppm	Ca ppm	Mg ppm	Na ppm	Zn ppm	Fe ppm	Mn ppm	%NA	
8.0	0.8	Lo	Sandy Loam	5.2	32	116	168	96	3000	293	237	5	28	2	5.45%	18.9
Tellefson Park Field					Sand%	68.0%	Silt%	23%	Clay%	9.0%	% Passing #200 Screen			32.0%		
pH	Salt	Lime	Texture	Organ	Nit.	Phos.	Potas.	Sulf	Calc.	Magn.	Sod.	Zinc	Iron	Mang.		CEC
mmms	%			%	N ppm	P ppm	K ppm	S ppm	Ca ppm	Mg ppm	Na ppm	Zn ppm	Fe ppm	Mn ppm	%NA	
7.7	0.7	Hi	Sloam	9.5	24	312	454	74	3174	454	168	8	30	2	3.4%	21.5
Lindberg Park Field					Sand%	61.5%	Silt%	28%	Clay%	10.6%	% Passing #200 Screen			38.4%		
pH	Salt	Lime	Texture	Organ	Nit.	Phos.	Potas.	Sulf	Calc.	Magn.	Sod.	Zinc	Iron	Mang.		CEC
mmms	%			%	N ppm	P ppm	K ppm	S ppm	Ca ppm	Mg ppm	Na ppm	Zn ppm	Fe ppm	Mn ppm	%NA	
8.0	0.8	Hi	S.Loam	8.9	28	208	360	103	3878	417	171	6	23	2	3.0%	24.5
RECOMMENDED LEV	S.LOAM	3%+				50 PPM	200.00	12 PPM	1300 PPM	135 PPM	35 PPM	.5 PPM	15 PPM	2 PPM	.4 PPM	14-16
Blanco Park Field					Sand%	83.3%	Silt%	13%	Clay%	5.3%	% Passing #200 Screen			18.5%		
pH	Salt	Lime	Texture	Organ	Nit.	Phos.	Potas.	Sulf	Calc.	Magn.	Sod.	Zinc	Iron	Mang.		CEC
mmms	%			%	N ppm	P ppm	K ppm	S ppm	Ca ppm	Mg ppm	Na ppm	Zn ppm	Fe ppm	Mn ppm	%NA	
7.9	0.4	Lo	Sandy Loam	5.7	20	75	135	58	2402	237	119	7	23	1	3.5%	16.0
Fox Hills Park Field					Sand%	79.8%	Silt%	16%	Clay%	17.5%	% Passing #200 Screen			33.3%		
pH	Salt	Lime	Texture	Organ	Nit.	Phos.	Potas.	Sulf	Calc.	Magn.	Sod.	Zinc	Iron	Mang.		CEC
mmms	%			%	N ppm	P ppm	K ppm	S ppm	Ca ppm	Mg ppm	Na ppm	Zn ppm	Fe ppm	Mn ppm	%NA	
7.6	0.4	LO	Siltyloam	7.5	27	200	164	43	1777	285	83	10	41	1	3.0%	12.0
Carlson Park					Sand%	66.4%	Silt%	22%	Clay%	11.9%	% Passing #200 Screen			33.7%		
pH	Salt	Lime	Texture	Organ	Nit.	Phos.	Potas.	Sulf	Calc.	Magn.	Sod.	Zinc	Iron	Mang.		CEC
mmms	%			%	N ppm	P ppm	K ppm	S ppm	Ca ppm	Mg ppm	Na ppm	Zn ppm	Fe ppm	Mn ppm	%NA	
8.05	0.70	Hi	Sloam	8.60	20.00	66.00	367.50	90.00	2953.00	343.50	170.50	4.70	11.00	1.00	3.8%	19.31

This concludes the assessment for Culver City Parks