

# Cameron Park Airport District Mowing Trades, Recommendation and Plans

Manager Couches and Director Eagar

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# Problem Statement

- Do not have a consistent, reliable means to mow airport acreage
  - Flail mower requires tractor with 30 HP at PTO
  - Rental tractor ~\$2000/week, needed 2-3 times a year minimum
  - Swisher is good for smooth grass areas, not rough and tough weeds
    - Lawn mower type blades, do not swing from rocks
    - Eats drive belts
    - Requires multiple passes at slow speed to be effective
    - Cannot mow rough areas with rocks and brush
    - Best use is along edges of taxiways, runways, and airport entrances
- Precision mowing around signs and lights a separate problem and will not be addressed in this presentation
  - Have solutions with walk behinds but need to address in future

# Airport Mowing Area



Approximate Areas						
Airport Area		Runway		Mowing Area		
				Area	Sq-Ft	Acres
Length (Ft)	6,050	Length (Ft)	4,051	Airport Area	1,966,250	45.1
Width (Ft)	325	Width (Ft)	50	Runway Area	202,550	4.6
Area (Sq Ft)	1,966,250	Area (Sq Ft)	202,550	<b>Mow Area</b>	<b>1,763,700</b>	<b>40.5</b>

# Airport Mowing Area - North

- Mow 7.3 Acres



# Airport Mowing Area – Mid Field

- Mow 25.6 Acres



# Airport Mowing Area – South

- Mow 7.6 Acres



# CPAD Owned Mowing Equipment

- Pickup Truck – Out of airport errands, transport people and equipment
- John Deer ATV – Pull Swisher Mower, transport people and equipment, pull trailer for debris collection, tow weed sprayer
- Swisher Mower, towed by ATV
  - 60-inch, lawn mower type blades
- Tow behind, PTO driven Flail Mower
  - 71-inch, requires minimum 30 HP at PTO
- Walk behind Mowers - x2
- Weed sprayers (backpack and tow behind)
- Weed Trimers (weed wackers) x2, gas

# Mowing Options

	Option 1	Option 2	Option 3	Option 4
Mowing along Runway and around Runway Lights	Walk behind and Swisher pulled with ATV	Walk behind and Swisher pulled with ATV	Walk behind and Swisher pulled with ATV (consider purchase of zero turn riding lawn mower for lights and signs)	Walk behind and Swisher pulled with ATV (consider purchase of zero turn riding lawn mower for lights and signs)
Mowing large areas	Swisher pulled with ATV	Flail mower with rented tractor with PTO	Contractor with tractor and mower, or airport Flail mower	Flail mower and/or Rotary Cutter with airport tractor PTO
Weed cutting around Runway lights	String Trimmer			
Weed cutting in Wind Tee Circle	String Trimmer and/or walk behind			
Weed cutting around shed	String Trimmer			
Weed control along runway and lights	Tow behind sprayer pulled with ATV			
Weed cutting next to fences	String Trimmer and/or walk behind			
Weed cutting in ditches	Walk behind			Walk behind and/or Sickle Bar mower
Weed cutting and control on pavement	String Trimmer and backpack sprayer			
Notes 10/22/2023	Recently did. Takes a long time, with repairs to Swisher, mostly broken belts and dulled blades.	Could rent from John Deere. Rental tractors not always available	Contracted with tractor owner and airport flail in August for fixed price. Contractor will not do it again.	With owned tractor, option for Sickle mower for ditches





## Rotary-Cutters



Make the cut on property perimeters and pastures. For light-duty rotary cutting like grass and weeds, try the RC models. Or take up to 2-in. diameter brush with the medium-duty MX Series.

1026R, 1025R, 2320, 2520, 2720, 2025R, 2032R, 3032E, 3038E, 3320, 3520, 3720, 4105\*, 4120, 4320, 4520 48-in. cutting width



## Flail Mowers

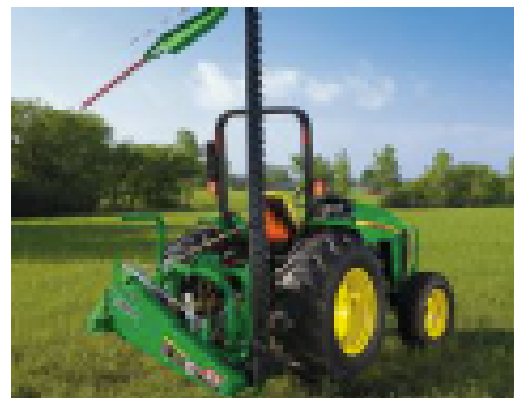


On the road again, tackle heavy weeds, grass and light brush with these durable, high-performing mowers. Designed for field edges, roadsides and other demanding environments where minimal debris is important.

3520, 3720, 4005, 4105, 4120, 4320, 4520, 4720 78-in. cutting width 30-75 hp 25A

3520, 3720, 4105, 4120, 4320, 4520, 4720 58-in. cutting width 30-75 hp 360

\*IMatch conversion kit and clear front chain shield required for tractors with R3/R4 Tires



## Sicklebar Mowers



Rough cuts made easy. Double-action cutting bar makes quick work of ditches, hay fields and varying terrain. These Category 1 hitch-compatible mowers include hydraulic-lift cylinders for the cutting bar.

3320, 3520, 3720, 3032E, 3038E, 4005, 4105, 4120, 4320, 4520, 4720, 4044M/R 69-in. cutting width 25-50 hp

3320, 3520, 3720, 3032E, 3038E, 4005, 4105, 4120 81-in. cutting width 25-50 hp

# Frontier 20 Series Rotary Cutters

## Cut through the roughest conditions.

### SPECIFICATIONS

Model	RC2048	RC2060	RC2072	RC2084
Cutting Width, in. (mm)	48 (1220)	60 (1524)	72 (1830)	84 (2134)
Cutting Height, in. (mm)	1.5 to 9 (38 to 229)	1.5 to 9 (38 to 229)	1.5 to 9 (38 to 229)	1.75 - 11 (44.45 - 279.4)
Brush Cutting Capacity, in. (mm)	0 to 1 (0 to 25)	0 to 1 (0 to 25)	0 to 1 (0 to 25)	0 to 1 (0 to 25)
Cutting Chamber Depth, in. (mm)	7.5 (190)	7.5 (190)	7.5 (190)	9.75 (248)
Tractor PTO HP Range	18 - 45	20 - 65	25 - 65	45 - 90
Tractor PTO	540	540	540	540
Hitch	Lift-Type Cat 1, adaptable to 2, iMatch, & AutoHitch Compatible	Lift-Type Cat 1, adaptable to 2, iMatch, & AutoHitch Compatible	Lift-Type Cat 1, adaptable to 2, iMatch, & AutoHitch Compatible	Lift-Type 2, Cat. 2 Quick-Hitch Compatible
Overall Width, in. (mm)	51 (1291.4)	63 (1600.2)	75 (1905)	88 (2235)
Overall Length, in. (mm)	86.6 (2199.6)	101.2 (2570.5)	111.5 (2832.1)	124 (3150)
Approx. Weight, lb. (kg)*	516 (234)	590 (267.6)	694 (314.8)	1,100 (449)
Deck Thickness, gauge (mm)	11 (3)	11 (3)	11 (3)	10 (3.4)
Skirt Thickness, gauge (mm)	11 (3)	11 (3)	11 (3)	10 (3.4)
Driveline Protection	Shear Bolt or Slip Clutch	Shear Bolt or Slip Clutch	Shear Bolt or Slip Clutch	Slip Clutch
Gear Case Power Rating	45	65	65	90
Blades	Heat Treated, Suction	Heat Treated, Suction	Heat Treated, Suction	Heat Treated, Suction
Blade Tip Speed, ft./min. (m/s)	13,090 (66.5)	14,335 (72.8)	14,955 (76)	14,380 (73)
Blade Holder	Round pan-type	Round pan-type	Round pan-type	Round Pan-Type
Laminated Tire	15 (381), 3.75 (95.25)	15 (381), 3.75 (95.25)	15 (381), 3.75 (95.25)	15 (381), 3.75 (92.25)
Solid Rubber Tire	15 (381), 3.75 (95.25)	15 (381), 3.75 (95.25)	15 (381), 3.75 (95.25)	—
Front Deflector	Foot Guard/Belting or Chain	Foot Guard/Belting or Chain	Foot Guard/Belting or Chain	Foot Guard/Belting or Chain
Rear Deflector	Metal or Chain	Metal or Chain	Metal or Chain	Metal or Chain

# Rental Options

- Approximately \$1000 per week to tow 48 inch rotary cutter
  - Rental usually without rotary cutter, have not found rotary cutter for rent yet, would need to purchase (~\$2500.00)
- Approximately \$2000 per week for tractor with at least 30 HP at PTO to tow Flail Mower (71 inch)
- In wet years, could have to do 3-4 mowings
  - \$4000 with 48 inch
  - \$8000 with Flail
- Rental tractors and mowers not always available
- In dry years, 2 mowings
- Purchase vs rental approximate break even
  - MF 1825E about 3 ½ years
    - Annual payments less than rental during financing

Purchase Options:

# John Deere

2023E Sub-compact Tractor

# Massey Ferguson

1723E Sub-compact Tractor

1825E Compat Tractors



Massey Ferguson 1723E

John Deere 1023E



# MF 1825E



# Comparison

	John Deere		MASSEY FERGUSON	
	1023E	1025R	1723E	1825E
Discription	Sub-Compact	Sub-Compact	Sub-Compact	Compact
Engine HP	21.5	23.9	22.5	24.0
PTO HP	Hydrostatic transmission 14.9	Hydrostatic transmission 17.2	18.3	Mech: 20.4   HST: 19.2
Engine	Yanmar 3TNM74F-CJT	Yanmar 3TNV80F-CJT	Iseki 1.1-liter, 3-cylinder, liquid-cooled diesel	Iseki, 1.49 L, 3-cyl diesel
Emision Controls	meets state standards		meets state standards - EGR, DOC, DPF	
Transmission - Mechanical	NA		NA	8x8 Synchro Shuttle, mechanical shuttle lever, left side of steering column
Transmission - Hydrostatic	Hydrostatic - 2 range		2-range hydrostatic transmission with side-by-side foot pedals and cruise control	3-Range Hydrostatic
Tarnsmission				
Wheelbase	57.1 in		57.1	larger tractor
Tires - Front	18X8.5-10 R4			
Tires - Rear	18X8.5-10 R4			Big
Operator Station				
Deluxe Lighting Package	No	Yes		
Deluxe Seat, Tilt Steering, & Floor Mat	No	Yes		
Toolbox	No	Yes		
12V Outlet	No	Yes		
Cruise Control	No	Yes	Yes	
Weight (lbs)	1,433	1,557		2,668
<b>Offer Price, without tax</b>	<b>\$21,590.84</b>	<b>\$22,480.51</b>	<b>\$19,156.00</b>	<b>\$26,950.00</b>
Includes				
<b>Rotary Cutter</b>	<b>Frontier RC2048</b>	<b>Frontier RC2048</b>	<b>RC48-20 4-ft</b>	<b>RC60-20 5-ft</b>
<b>Cut Width (nches)</b>	<b>48</b>	<b>48</b>	<b>48</b>	<b>60</b>
IMATCH QUICK HITCH CATEGRY 1	Included	Included	NA	NA
Front Loader	120R W/BUCKET	120R W/BUCKET	Included	Included
<b>Financing</b>				
Down Payment Precent	10%	10%	10%	10%
<b>Down Payment</b>	<b>\$2,159.08</b>	<b>\$2,248.05</b>	<b>\$1,915.60</b>	<b>\$2,695.00</b>
Months financed	60	60	72	72
Interest rate	0%	0%	0%	0%
Loan	\$19,431.76	\$20,232.46	\$17,240.40	\$24,255.00
<b>Monthly payment</b>	<b>\$323.86</b>	<b>\$337.21</b>	<b>\$239.45</b>	<b>\$336.88</b>
Annual Payments	\$3,886.35	\$4,046.49	\$2,873.40	\$4,042.50

No Sales Tax as CPAD is a government agency



# Storage and Maintenance

- Storage – Out of the Sun and Weather
  - Carport type enclosure
  - Need to purchase pop up near term and carport roof structure long term
- Maintenance – yearly service and inspection
  - Both John Deere and Massey Ferguson will do maintenance under warranty
    - 5 yrs drive train, 2 years full coverage
  - Local shops (Shingle Springs and Placerville)

# Funding

- Budget change to capitalize purchase
  - Board vote
- Initial fund down payment from mowing expenses if needed
  - Both dealers have offered zero down and zero interest
  - Use this years mowing budget for first years pmt or down payment

# Recommendation

- Purchase Tractor
  - Allows complete and spot mowing as needed and over time when operators are available
  - Used for general field work i.e. digging up and removing rocks, leveling, removing debris
- Purchase MF1825 Tractor
  - 60" Rotary cutter better suited for airport acreage weeds and terrain
  - Front loader will be used for removing rocks and moving dirt
  - Large tires better in wet conditions
  - Break even compared to rental in 3-4 years
- Storage
  - Possible start with low cost pop-up type enclosure – simple to set up
  - Site location for carport type structure and install

# Backup & Supplemental Information