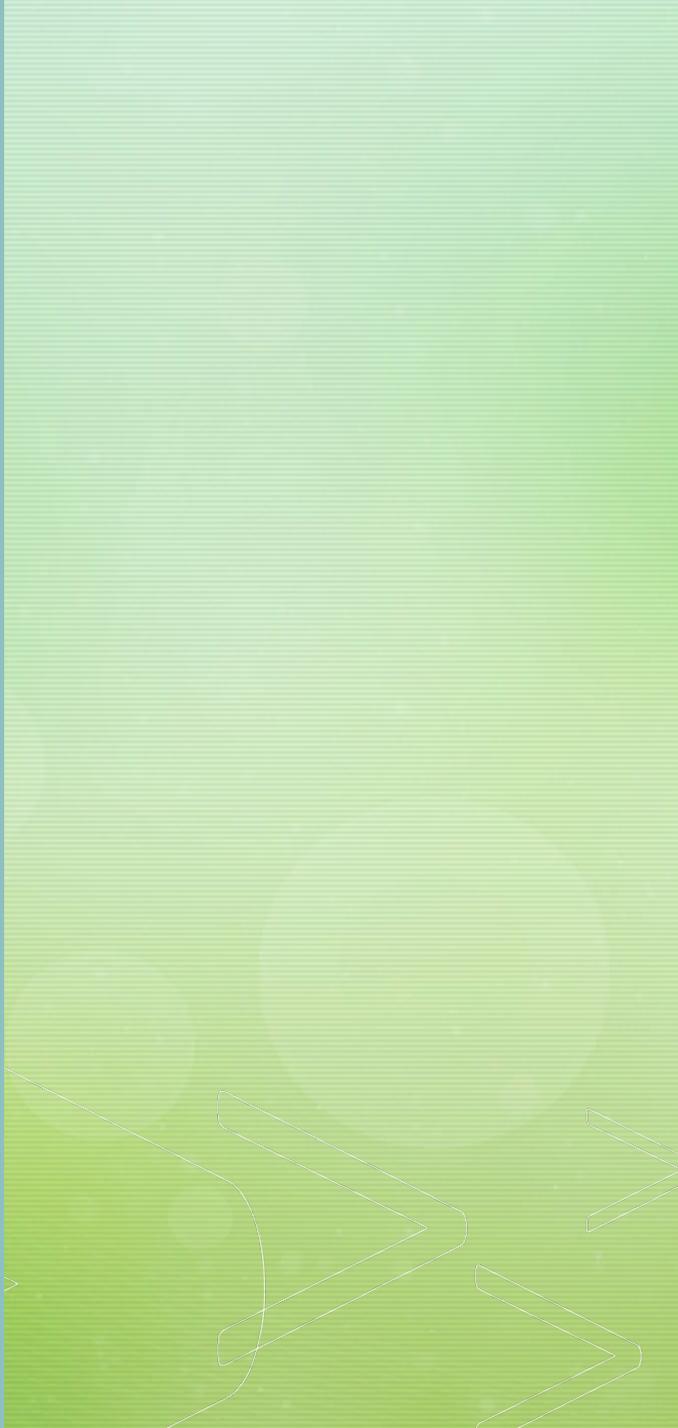




City Utility Relief Program





Who Qualifies

- You **MUST** have been impacted by COVID-19, and
 - Job Loss, reduced work hours, illness, quarantine
- You have a residential utility account with the City of Florence, and
- You participate in government programs **OR** your household Average Median Income is at or less than 80% for the last 30 days



A Partnership

- Siuslaw Outreach Services will administer the program
 - Vetting applicants
 - Providing vouchers for qualified applicants
 - Only for balances incurred from March 1 to December 30, 2020
- 



CARES Act Funding

- The City was awarded \$316,255 in funding through the CARES Act
 - The City has received 100 percent reimbursement on COVID-related expenses thus far and expects to receive 100 percent reimbursement on expenses through December 30
 - Any unused funds dedicated to the relief program will revert back to the Federal Government
- 

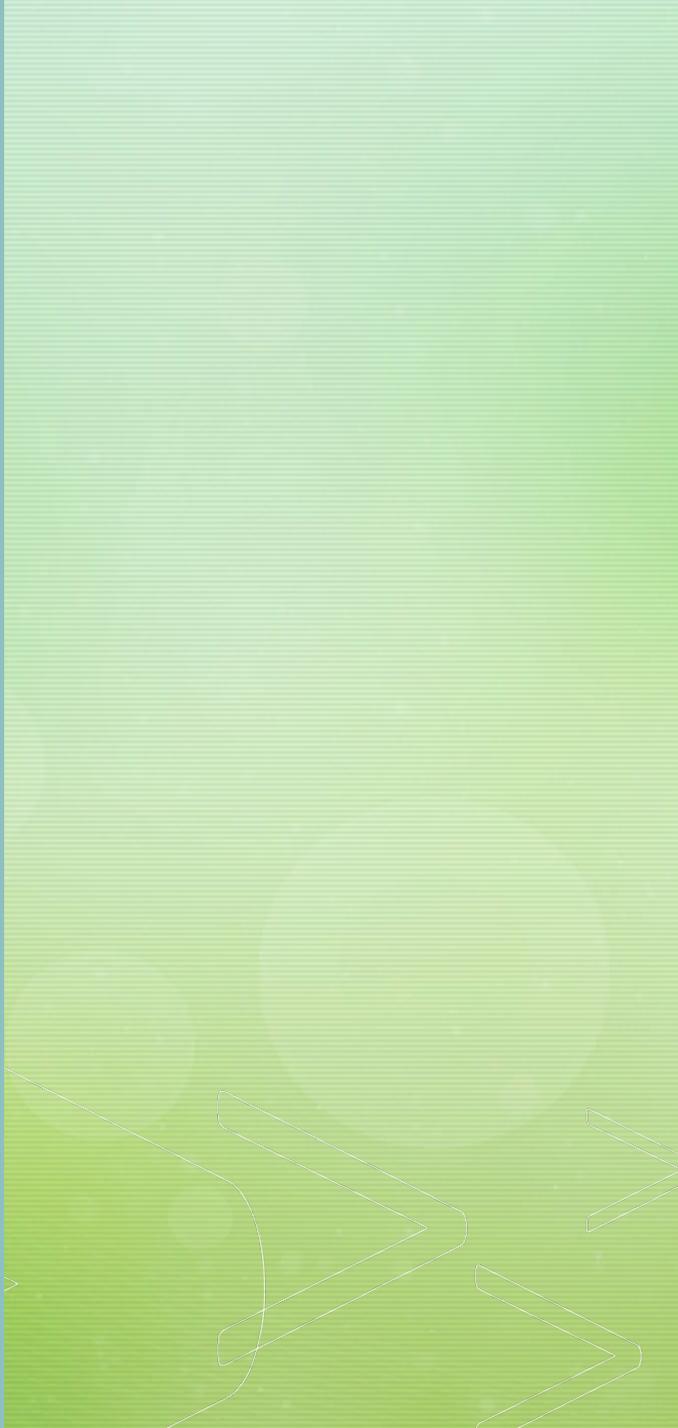


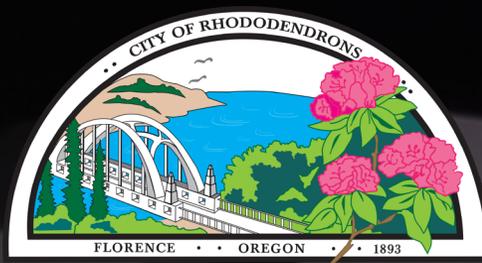
Actions

1. Approve Resolution 24, Series 2020 approving the allocation of \$40,000 in CARES Act funds for the proposed Utility Relief Plan, or;
 2. Review and recommend changes to Resolution 24, Series 2020 and approve as amended, or;
 3. Not approve Resolution 24, Series 2020
- 



Questions?





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City of Florence **Waste Water Treatment Plant**

Single Source Authorization Purchase of Aerzen Delta Hybrid
Screw Blower Package

Mike Miller
Director
City of Florence Public Works



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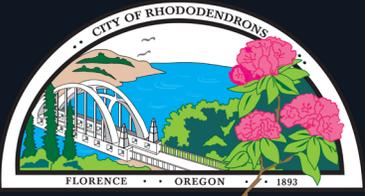
Wastewater Treatment

It isn't just one "thing", but rather, a process.

Part of the process includes:

- The use of large mechanical blowers to provide air to the aeration basins
- Blowers provide aeration, keep bacteria suspended, allow solids to be separated from liquids (flocculation)
- All of this is essential for proper wastewater treatment



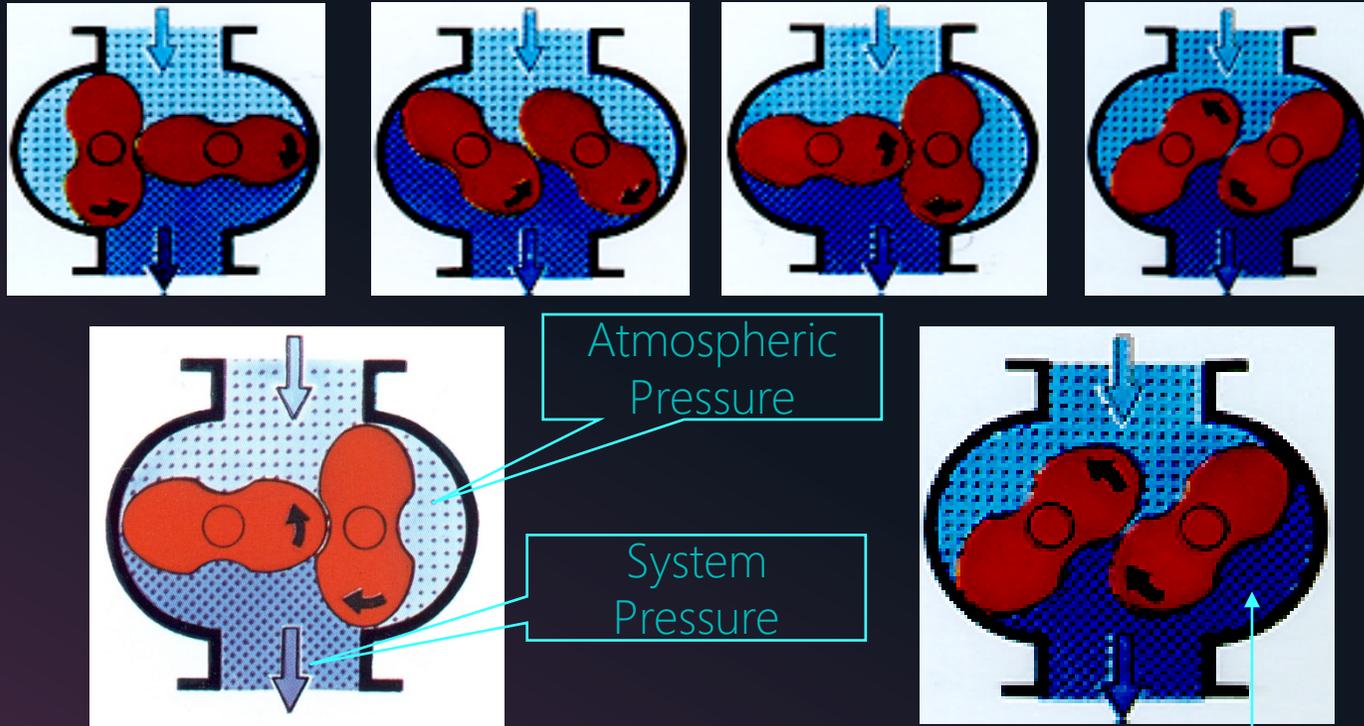


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Current Equipment

Roots rotary twin lobe positive displacement blowers:

- Straight or twisted lobe rotors without internal compression
- Effective for the City of Florence Wastewater Treatment Plant, however, are very noisy & consume large amounts of energy
- Turndown rate (ability to reduce air flow to meet demand) not as efficient as hybrid (a.k.a. screw blowers) blowers
- Noise complaints from neighbors



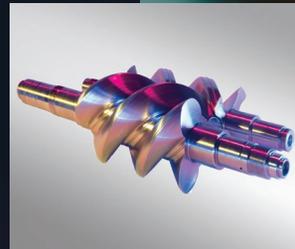
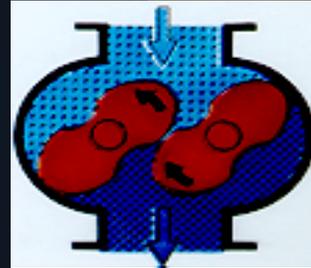
Abrupt pressure equalization causes noise and shocks (pulsations) 4 times per revolution.



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Recommendation: Installation of hybrid blower

- Hybrid blowers (a.k.a. screw blowers) use a low-pressure screw motor
- Are more efficient than rotary lobe blowers due to low-pressure screw motor
- Have no internal compression during a 360° rotation
- Can achieve rates as little as 25% of original design point in applications with large variations in flow & pressure (such as the case at COF WWTP)



Speed RPM	No. of Pulses per Revolution	Pulse Frequency Hz	Noise Level - No Enclosure	Noise Level - With Enclosure
840	4	56	105	N/A
3778	6	378	103	76
7096	4	473	98	78



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Delta Hybrid Concept

Kennedy-Jenks Engineering Team completed technical specifications and has selected the Aerzen Delta Hybrid Screw Blower package

References



Positive feedback from other municipalities
Positive maintenance track record
Favorable reviews from other WWTP's in the Pacific Northwest

Performance Record



Launched the first positive displacement blower in 1868
World market leader for blower technologies

Performance Record

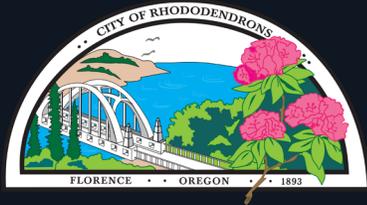


First class customer service
Outstanding product support

Support



Engineering Support
Package Testing
Field Service
Replacement Parts



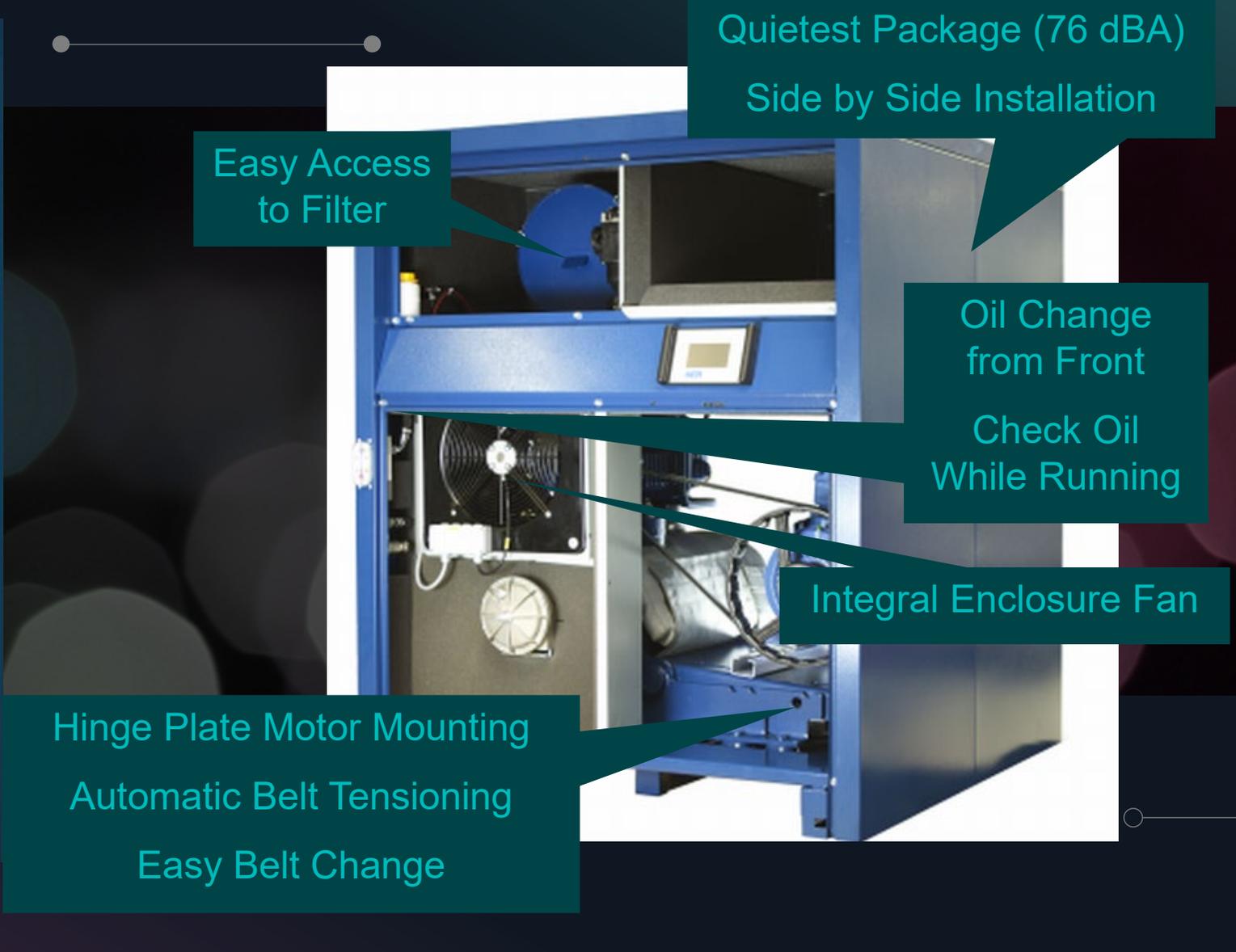
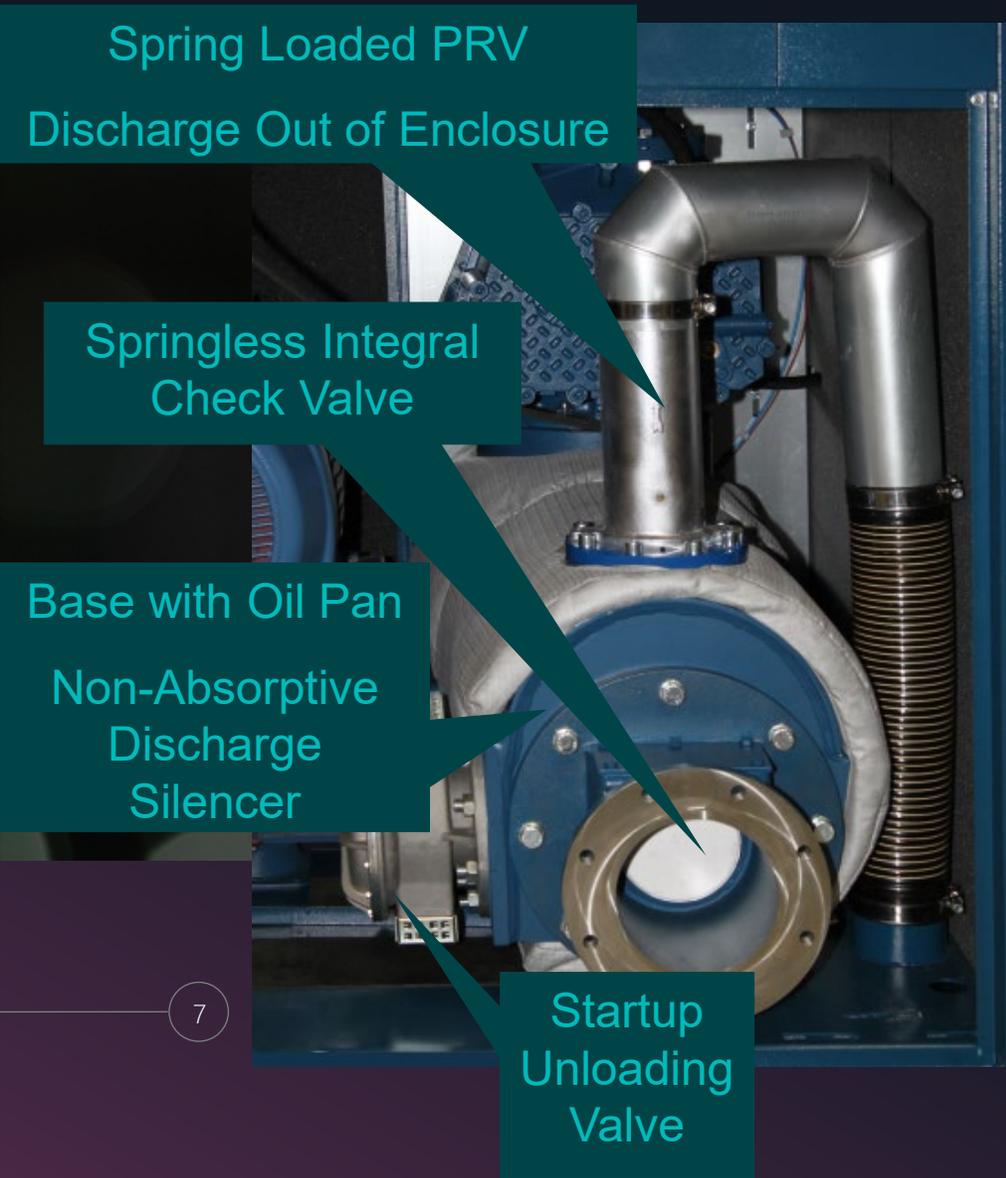
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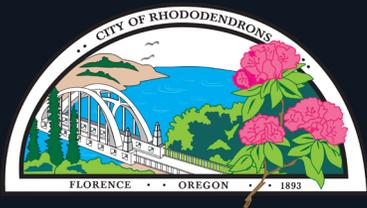
Hybrid Rotor Profiles

- S & H Series
- 3 + 4 Screw Rotor
- Pressure Range:
 - S: 7-15 PSIG
 - H: 16-22 PSIG



Delta Hybrid Packaging





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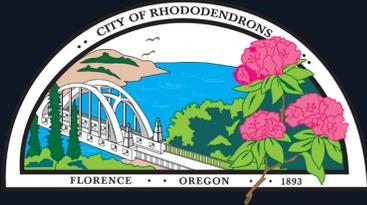
Delta Hybrid Maintenance

- Oil changes at 16,000 hours
- Filter changes at 2- 4 months
- Belt changes at 12 -18 months

No adjustments

Raise Hinge Plate



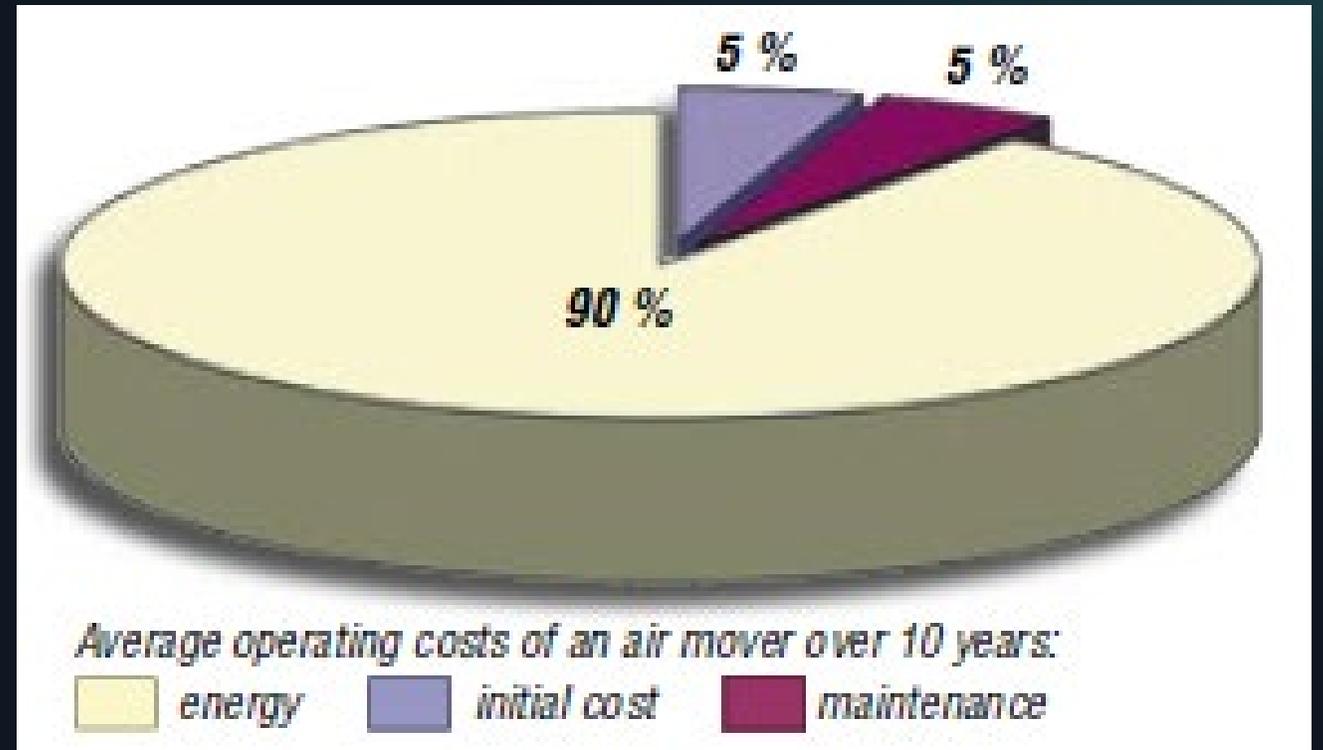


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Life Cycle Costs

Energy costs are the most significant factor in aeration blower evaluations.

- 60% of WWTP energy use is for aeration
- 80% - 90% of Life cycle cost is energy



Comparison Example



Performance Comparison:

<u>Design Data</u>		<u>Existing</u>	<u>Proposed</u>	<u>Aerzen Advantages</u>
Flow (SCFM)		1259	1259	
Discharge Pressure (PSIG)		11.1	11.1	
Discharge Temp	°F	257	219	15% Cooler Operations
Power at Blower Shaft	bHP	96.3	73.3	23% More Efficient
Power at Blower Shaft	kW	71.8	54.7	
Turndown	Hz	50	24	Greater flow control, less wasted power

Comparison Example, cont'd

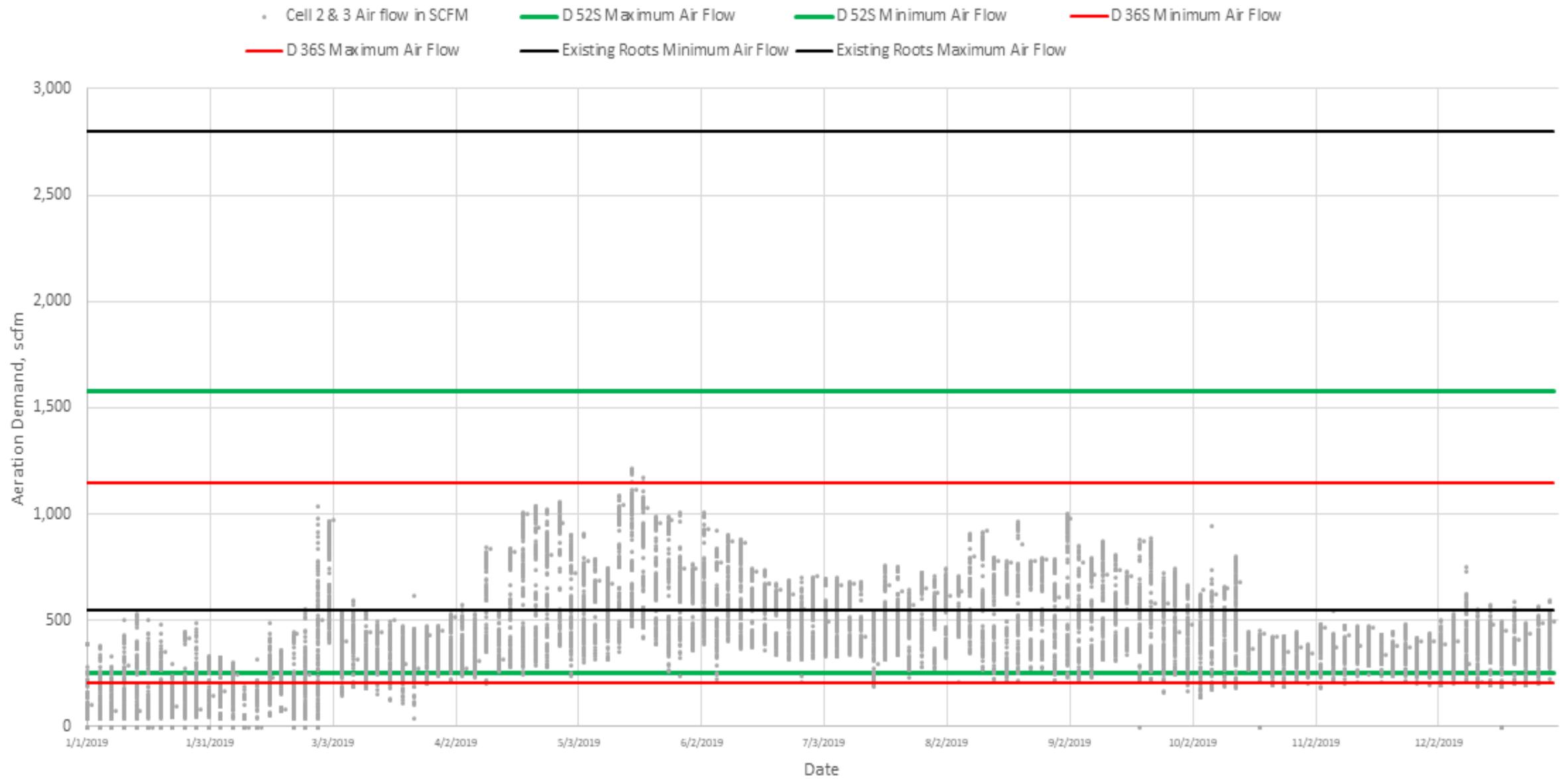


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Performance Comparison:

<u>Power Comparison (Design Point Data)</u>	<u>Existing</u>	<u>Proposed</u>	<u>Aerzen Advantages</u>
Total Calculated Daily kWh (continuous)	3446.9	2623.7	
Annual Power Consumption (kWh)	1,258,127	957,640	
Annual Power Cost (\$.19/kWh)	\$239,044	\$181,952	Savings: \$57,093 per year

NOTE: Power cost is an estimate. The ability to turn down capacity gives Aerzen even greater savings. Machine startup current would be reduced on Aerzen blower due to startup unloading valve.





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Aerzen Summary

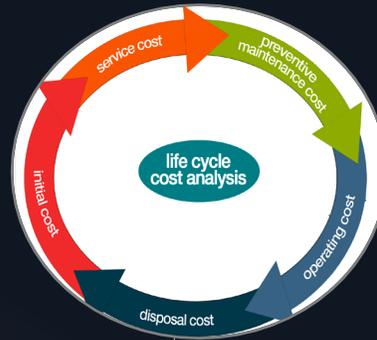
Whenever and wherever air and gases are conveyed, compressed or measured, machines made by Aerzen are likely to be found.



**Accurate Energy
Cost Evaluation**



Serviceability



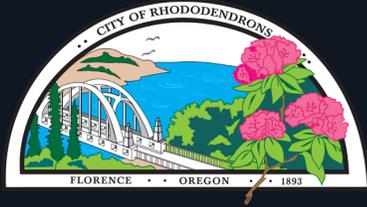
Life Cycle Costs



Proven Technology



**Manufacturer
Accountability**



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Review of Costs & Delivery Time Line

Includes the blower package, noise test, factory testing, seismic calculations (anchorage design), startup and training.

\$71,956

Proposal

Council approval of the single source resolution will allow the City to enter into a purchase agreement and prepare for the project.

16 Weeks

Delivery

Estimated delivery date of the Aerzen Delta Hybrid Screw Blower package is 16 weeks from the placement of the order



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Fiscal Impact

Funding included in the Financial Budget & Forecast report dated June 8, 2020

- Adequate funding is available for the:
 1. Engineering services
 2. Direct purchase of equipment
 3. Installation
- 2019-21 biennium
 1. Specifically targeted \$350,000 for blower replacement
 2. Engineering services have been deducted
 3. Funds available: \$262,395

<u>Specific Available Funds</u>	<u>Budget</u>
Wastewater Equipment Capital Outlay	\$350,000
<u>Less engineering services</u>	<u><\$87,605></u>
<i>Available for Equipment & Install</i>	<i>\$262,395</i>

<u>Items</u>	<u>Costs</u>
Aerzen Delta Hybrid Screw Blower Package	\$71,956
Variable Frequency Drive (reserve estimate)	\$39,000
<u>Installation and building modifications (reserve estimate)</u>	<u>\$150,000</u>
<i>Cost of blower, VFD & Install</i>	<i>\$260,956</i>

Staff is currently working with our automation control vendor & the estimated cost to purchase the VFD for \$39,000 – through value engineering the actual cost maybe several thousand dollars less.

With an installation and building modification budget of \$150,000, we are under the available funds for equipment & installation.

Relevance to Adopted City Work Plan

City Service Delivery

Improve
Maintain
Enhance

Infrastructure

Livability & Quality of Life

Efficient
Effective
Sustainable

Service Delivery

Economic Development

Enhance
Quality
Development

Community
Needs &
Investment

Communication & Trust

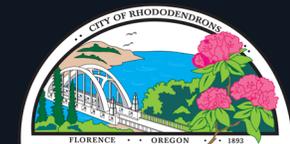
Strengthen
Trust
Cooperation

Citizens

Financial & Organizational Sustainability

Support
Current Needs
Future Needs

Construction
Infrastructure





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Alternatives

Accept

Proposal from Aerzen USA Corporation

Reject

Proposal from Aerzen USA Corporation

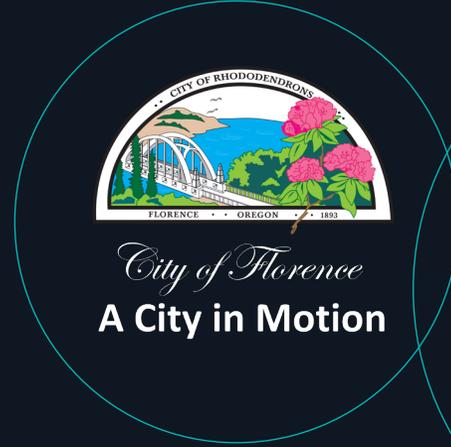
Direct

Staff to prepare formal Request for Proposals for a hybrid screw blower package



Staff Recommendation

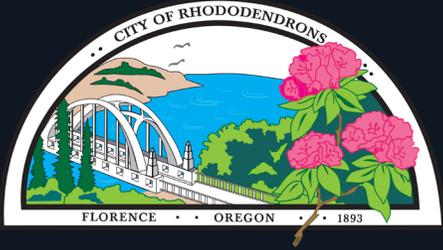
APPROVAL OF RESOLUTION



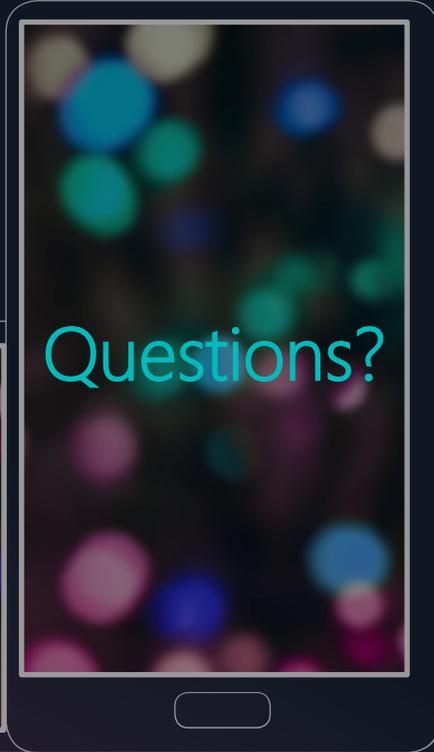
Approve

Resolution
No. 25
Series 2020

Staff recommends that the City Council approve Resolution No. 25, Series 2020 authorizing the City Manager to enter into a single source agreement with Aerzen USA Corporation for an Aerzen Delta Hybrid Screw Blower Package.



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Thank You!

Mike Miller
Director
Public Works Department
City of Florence