August 2019 Storm & Sanitary Sewer Activities Update Report

Patrick Frazee, Director of Wastewater Services

8/26/2019

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Storm & Sanitary Sewer Update Report

- On October 29, 2018 City Council approved the Staff Recommendations of the 2018 Storm & Sanitary Sewer Study

- Most of the work completed has been in Priority 1 & 2 areas

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Storm & Sanitary Sewer Update Report

- Priority 1 Projects are defined as those that will have the most significant impact on reducing flood potential in the City
- Priority 2 are either projects that only marginally fail the current desired Level of Service or they depend on Priority 1 (downstream) projects to be implemented first before they are feasible projects

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Storm & Sanitary Sewer Update Report

- **Storm Sewer System Staff Recommendations:**
  - Sturgeon Creek maintenance
  - Sturgeon Creek culverts
  - Snake Creek culverts
  - Jacobs Drain
  - Storm Sewer inspections

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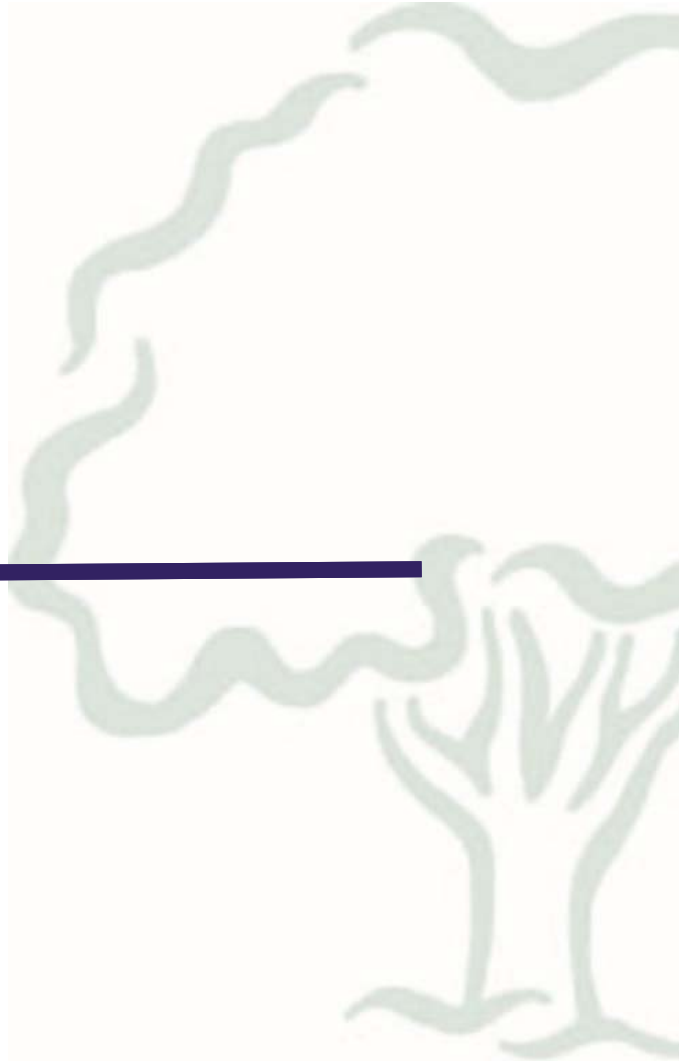
Sturgeon Creek Maintenance



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Sturgeon Creek Maintenance

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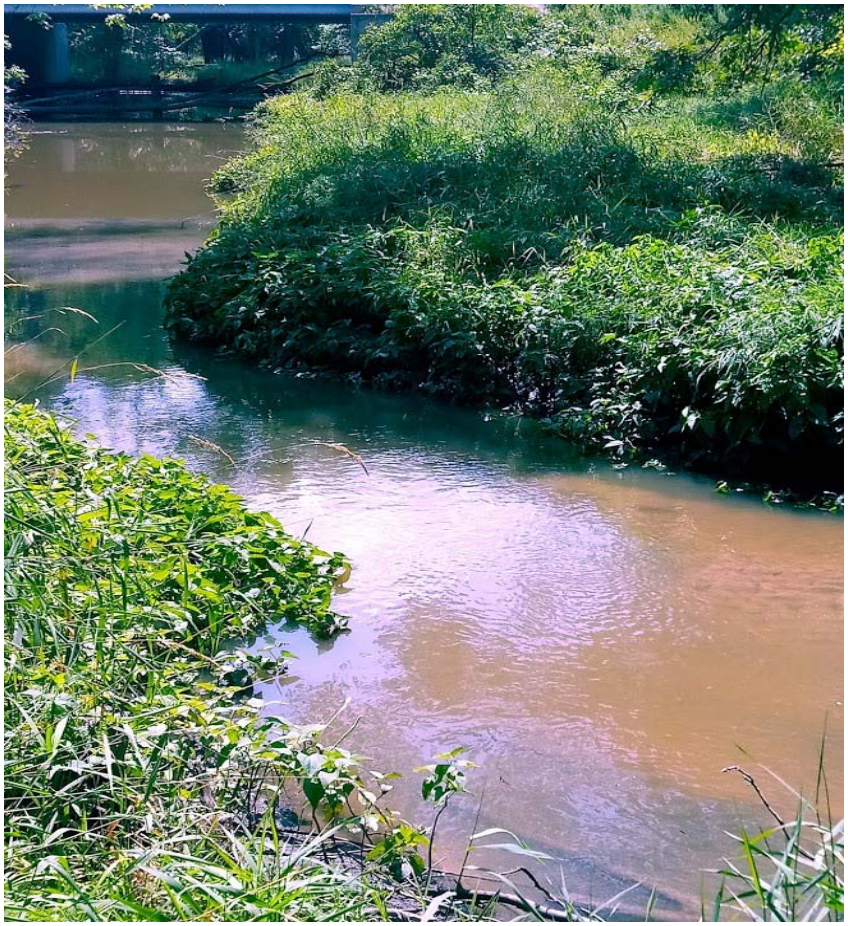

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Sturgeon Creek Maintenance

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Sturgeon Creek Maintenance

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Sturgeon Creek Maintenance

- A large scale tree/debris clearing project is being developed for next year
- The culverts along the Sturgeon Creek were verified to be sized at the 100 year flood level, which is above the City's 10 year/24 hour standard

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Snake Creek Culverts

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Snake Creek Culverts

- **Verifying the capacities of the Snake Creek Culverts at:**
  - North Saginaw Road
  - Castle Drive
  - West Wheeler Road
  - Sylvan Drive

Jacobs Drain

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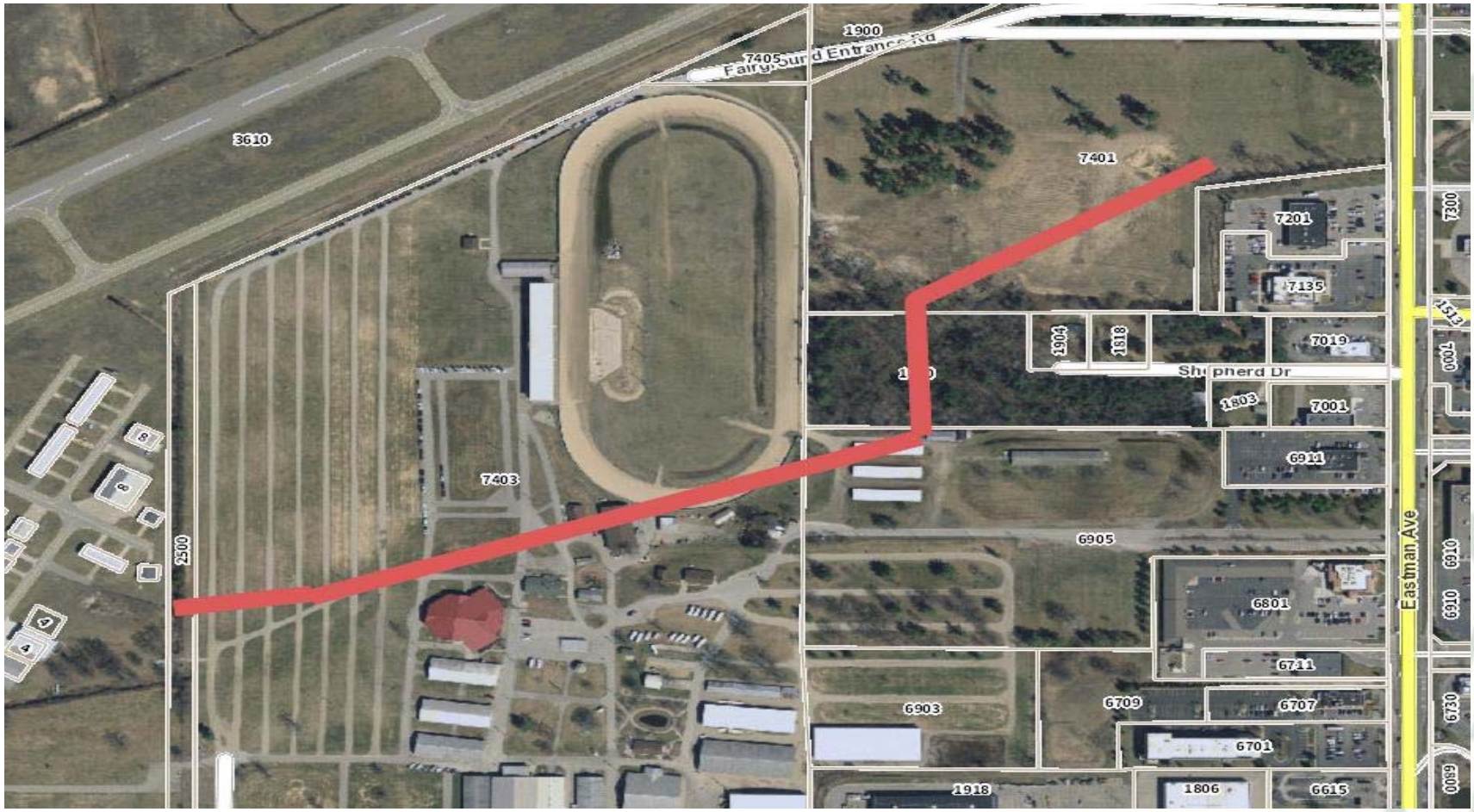
Jacobs Drain



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Jacobs Drain

- This storm drain in part runs under the Midland County Fairgrounds and was initially identified as being potentially blocked
- RedZone completed the inspection this summer and did find a blockage of trees/wood, which has since been removed

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Storm Sewer Inspections

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Storm Sewer Inspections

- **Priority 1 areas have been cleaned and inspected. Areas of concern are:**
  - Eastman Rd between Saginaw Rd and Sylvan St
  - Jefferson between Saginaw Rd and Haley St
  - Dublin Ave South of Saginaw Rd
- **Priority 2 inspections are underway**

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Sanitary Sewer Updates

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Sanitary Sewer Update

- **Sanitary Sewer System Staff Recommendations**
  - Sewer System Monitoring
  - Asset Characterization Program
  - Footing Drain Disconnection Program
  - Pump Station Supervisory Control and Data Acquisition (SCADA)

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Sanitary Sewer System Monitoring

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Sanitary Sewer System Monitoring

- Sewer System Monitoring
- Rain gauges
- Portable flow meters
- Modeling project starting in 2019

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Sanitary Sewer System Monitoring

- Baseline flow recordings have been made over the past year
- These results will be incorporated back into the model
- The model will then be recalibrated which will help staff determine the feasibility of a footing drain disconnection program

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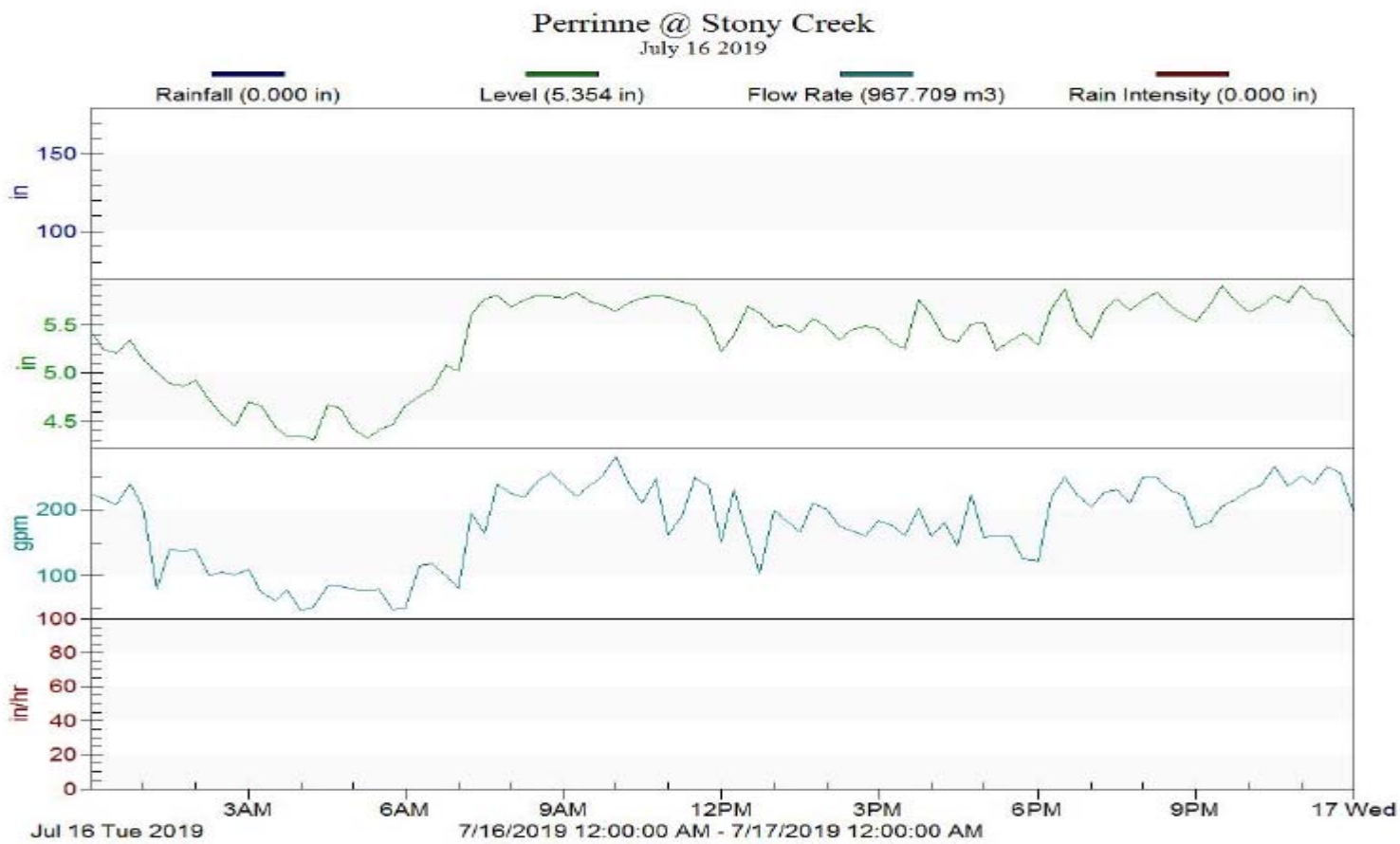
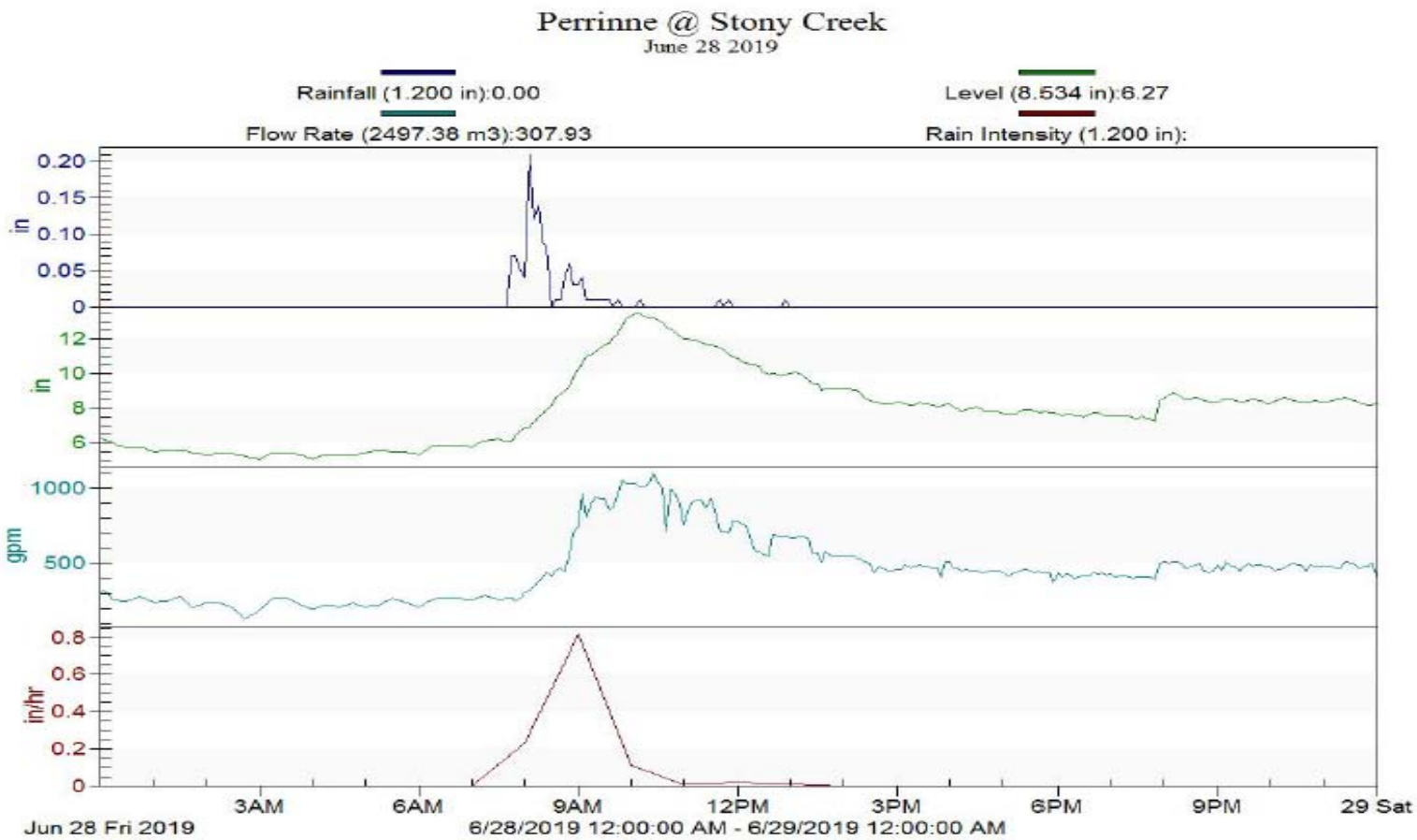
Sanitary Sewer System Monitoring



Sanitary Sewer System Monitoring



Asset Characterization Program

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Asset Characterization Program

Description	Linear Feet To Be Videoed & Coded Per Contract Estimate	Total Video Completed	Percent of Total Video Completed	Percent of Completed Video That Has Also Been Coded
8-12" Sewer Pipe	877,500	332,656	37.91%	77.20%
15-18" Sewer Pipe	104,771	104,771	100.00%	77.16%
21-30" Sewer Pipe	63,100	68,883*	109.16%*	83.13%
36-48" Sewer Pipe	26,100	25,877	99.15%	85.60%
Manhole inspection	4,580	0	0.00%	NA

*Overages of video complete vs contract estimate occur due to differences in pipe sizes from what is in place or additional pipe found by RedZone than what is noted in our GIS system. We have a variance built into our contract to cover costs associated with these situations.

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Asset Characterization Program

- November 30, 2019
- 584,500 ft. completed
- 4,580 manholes to be inspected

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Asset Characterization Program

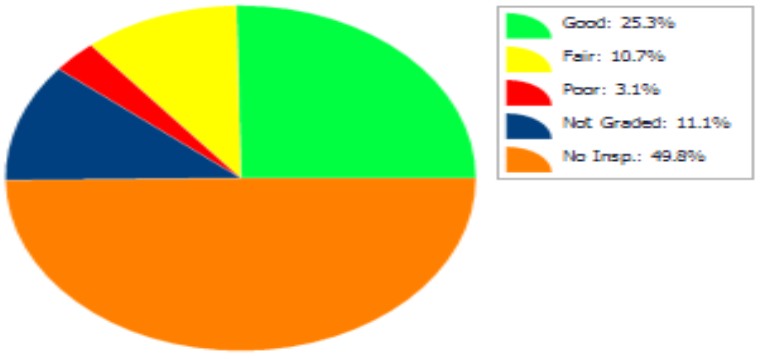
Asset Condition Report: Apr 01, 2019 - Aug 23, 2019

RedZone ROBOTICS

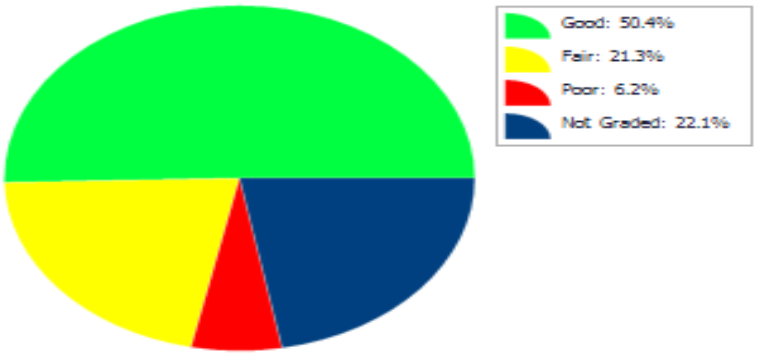
Structural Condition Summary

Structural Grade (1-5)	Assets (Count)	Length	% of System
1-2 (Good)	1,153	272,736	25.3%
3 (Fair)	448	115,017	10.7%
4-5 (Poor)	127	33,780	3.1%
Not Graded	519	119,595	11.1%
No Inspection (Unknown)	2,187	537,874	49.8%
Total	4,434	1,079,001	100%

Structural Condition Summary



Inspected Asset Structural Condition



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Video: Pre-lining

Video: Post-lining

Pump Station Supervisory Control

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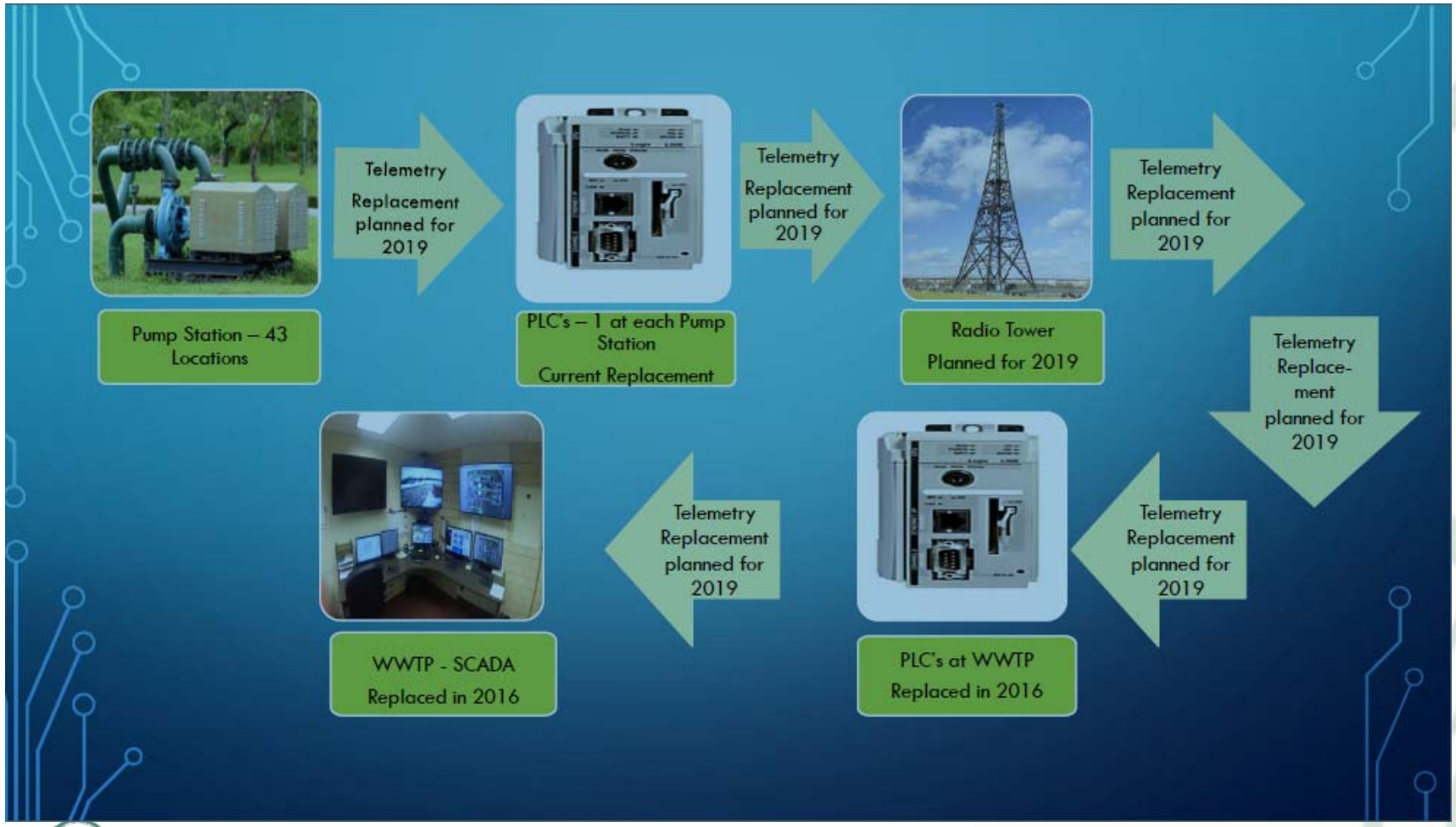
Pump Station Supervisory Control



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Pump Station Supervisory Control

- 42 pump station upgrade
- Existing equipment is outdated and not supported
- Eliminates cost of landlines
- Uses existing infrastructure for antenna placement
- Accelerated monitoring and processing of real time data including pump station operations & flow data and rainfall amounts

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Conclusion

- **We will come back with another update when sufficient progress is made.**