

ZONE 1 STORMWATER ALTERNATIVE SYSTEM COMPARISON

Evaluation Criterion	Decentralized – GIT	Centralized – AECOM
System Description	6 Pump stations (12 pumps) and 6 injection wells connected to new and existing pipes and catch basins	1 Central pump station (3-6 pumps) connected to entire new pipe network and discharging through upgraded outfalls.
Discharge Capacity	90 cfs (cubic feet per second) ⚠ Capacity may drop due to sediment, fouling, ground acceptance and groundwater level.	57 cfs initial , designed to be expandable to 155 cfs . ⚠ Full capacity requires approval of additional outfalls/force main.
Design Level of Service	5-yr 24-hour storm, 2050 horizon, NOAA Intermediate, partial private property ⚠ Accepted risk for outfall capacity, absorption, and property rainwater retention	10-yr 24-hour storm, 2060 horizon, NOAA Intermediate High, full private property
Modeled Flood Results	Some roads show water above the crown of the road after 3.5 hours . ⚠ Allows some water on roads by design.	Crown of the roads clear after 3.5 hours .
Drainage & Conveyance	Combination of existing stormwater pipes and targeted new piping to route water to well sites. ⚠ Performance depends on the condition of existing pipes. ⚠ Project scope may increase as unknown pipe conditions are identified.	Replaces the entire stormwater conveyance network with new, large-diameter pipes and a force main system with a 50+ year design life.
Adaptability & Future Expandability	Modular approach that can be implemented and extended in phases. System plan to extend Zone 1 from 311 to 644 parcels through additional conveyance network. ⚠ Extended Zone 1 does not have the same level of service.	The system is designed to increase its discharge capacity by adding pumps and new outfalls. Conveyance piping is sized to accommodate future capacity increases. ⚠ Extension of conveyance beyond Zone 1 service level and cost is unknown at this time.
Road Elevations	Includes targeted road regrading to improve drainage. ⚠ May require road raising in the future.	Comprehensive road raising and grading to improve drainage and protect roadway against sea-level rise and sunny day flooding.
System Reliability	Decentralized system with dual pumps per site (12 pumps total). ⚠ No permanent backup power included. ⚠ Well bypass discharges water back to street.	Redundant pumps (6 pumps total) and permanent back up generator . ⚠ There is a single point of failure at the pump station.
Water Quality	Reduce direct discharge of the bay by injecting stormwater into the ground and pretreatment at each well. The existing outfalls remain in service for localized untreated gravity discharge. ⚠ Difficult to verify water quality and time for water to reach the bay.	Treats stormwater through a centralized treatment train before discharge to Biscayne Bay, permitted by DERM. The system is designed to remove 87.2% of suspended solids, 74.1% of phosphorus, and 33.15% of nitrogen ⚠ Treatment may underperform or require future upgrades.
Regulatory Monitoring	Under FDEP requirements, each well to include pretreatment and monitoring to ensure compliance with regulations, protect groundwater quality, and minimize discharges to the bay.	Under DERM and NPDES permits, reporting required with defined monitoring and sampling locations.

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Landscaping & Trees	Localized impacts near pump stations and catch basins. ⚠ Swale/tree impacts not yet defined.	565 trees will be replaced. Palm trees replaced by shade trees to address heat resilience. ⚠ Canopy cover will be reduced until the newly planted trees reach maturity.
Aesthetics	Mostly underground; minimal visual change with exception of electrical panels at pump stations.	⚠ Driveways to be harmonized, drop curbs prevalent, significant tree and landscape changes, visible pump station at Harbor Park.
Utilities Coordination	Smaller conveyance pipe intended to limit interaction with existing and future utilities. ⚠ Deconfliction with water, sewer, power, telecom yet to be coordinated.	Coordinated with utilities with deconflictions already in design.
Interagency Coordination	⚠ Existing agreements would need revision.	Coordinated with County, utilities, School District. ⚠ WASD construction JPA needs to be finalized.
Construction Disruption	Localized, phased construction zones. Duration estimated at 24-36 months depending on phasing. ⚠ Full extent of conveyance pipe installation is unknown.	Area-wide construction for 30-36 months sequenced to minimize disruption. ⚠ Driveway, swale, and road impact may be larger and last longer than expected.
Easements	No easement requirements identified at this time. ⚠ May require easements once well locations are confirmed during design.	Easements are in place for existing and planned pump station, piping and outfalls.
Capital Cost	Zone 1: \$56.7M [Class 5 Range: \$28.7-\$99.2M] Zone 1 - Ext: \$67.3M [Class 5 Range: \$33.7-\$117.8M] ⚠ High uncertainty (+75% / -50%). ⚠ Cost may increase as design matures.	\$66.8M [Class 1 Range (-3%+15%): \$64.8 - \$76.8M] ⚠ Estimate ~1 year old; expect 3% inflation.
Funding Status	GOB and Village reserves are available funding sources. New funding and financial planning would be required. Stormwater fees to increase. ⚠ Increase in competition for grants, appropriations, and loans.	Funding is secured through grants, appropriations, and low interest SRF loans. Stormwater fees to increase. \$15.6M of grant money has been secured. ⚠ \$540k - \$1.5M of WASD JPA funding may be canceled.
Operation and Maintenance (Cost)	~\$944k/year. ⚠ Sensitive to well performance and rehab frequency.	~\$555k/year. Lower complexity for centrally located pumps and stormwater treatment unit. ⚠ High maintenance burden of basket filter sponges for water quality testing.
Procurement Considerations	Delivery method to be determined. Smaller bid packages possible for increased competition.	Procurement package is ready for release. ⚠ Set for one large contract which may reduce interest of smaller contractors.

***** The decentralized approach focuses on phased implementation and selective use of existing infrastructure, while the centralized approach emphasizes a higher level of resiliency through comprehensive system replacement, increased discharge capacity, and reduced long-term operational costs, with greater near-term construction, roadway, and landscape impacts.*****