1. INTRODUCTION

The City of Port Lavaca would like to apply for funding associated with public infrastructure and flood mitigation measures within the Corporation Drainage System. Corporation Drainage System is the primary drainage feature for the City of Port Lavaca, Texas. Throughout the years, this area of the City has experienced street and building flooding during more frequent larger storm events. This scope-of-work outlines the recommended improvements to the Corporation Drainage System to reduce the risk of flooding of roadways and properties that drain in the Corporation Drainage System.

The City is requesting funding to mitigate flood and storm impacts through construction of a new stormwater pond facility, and enhancements to the concrete and grass/overgrown ditch. The funding would be used for data collection, design, permitting, preparation of construction documents. This proposed infrastructure project is expected to help mitigate flooding in the drainage basin. The project will be one of the main actions needed to mitigate the flooding risks of low-income communities in Port Lavaca. Additionally, the design of stormwater pond facility will enhance water quality and remove pollutions from the more urbanized area before ultimately draining into the bay.

2. Existing Conditions

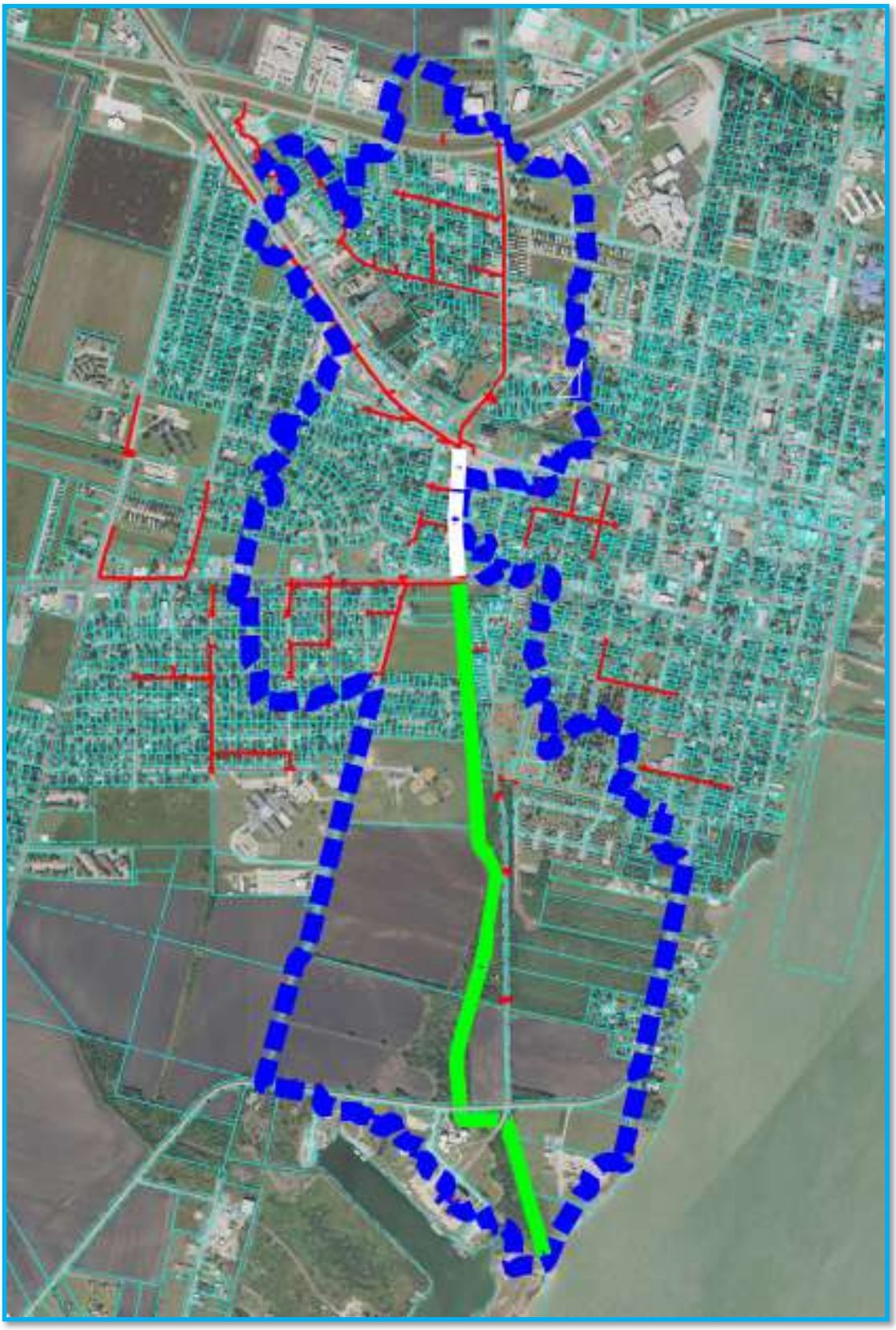
The Corporation Drainage System begins near Texas 35, where runoff is collected in the drainage inlets along Half League Road and piped into the concrete section of Corporation Ditch. The concrete ditch flows south between Main Street and Austin Street**.** South of Austin Street, Corporation Ditch is comprised of areas with grass and overgrown vegetation. The ditch drains south crossing Virginia Street and railroad tracks before ultimately discharging into Lavaca Bay. **Photo 2.1, 2.2, 2.3, and 2.4** shows the Half League Road, existing concrete ditch, grassed ditch, and the overgrown ditch. The total drainage basin for the Corporation Drainage System is approximately 645 acres (See Figure 1.1).

Photo 2.1 Half League Road with inlets and underground storm pipes

Photo 2.2 Section of Concrete Corporation Ditch

Photo 2.3 Section of Grassed Corporation Ditch

Photo 2.4 Section of Overgrown Corporation Ditch

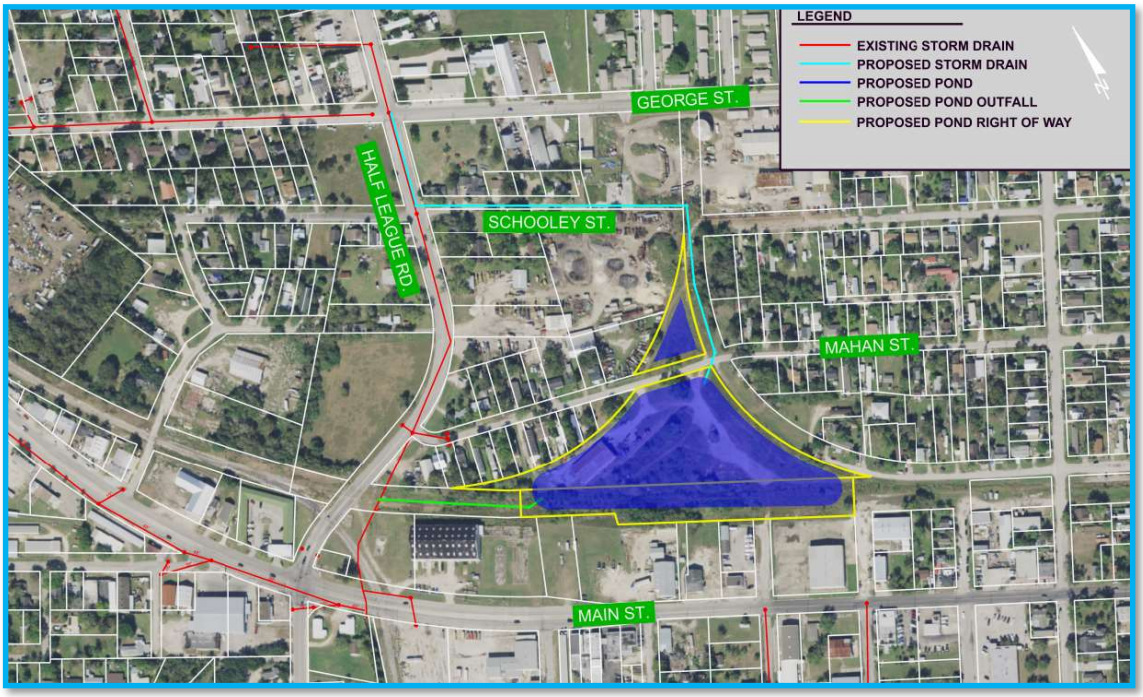


3. Proposed Improvements

The proposed improvements to the Corporation Drainage System will help reduce flooding of streets and properties. These improvements will include the following items:

1. **Construction of a new stormwater pond facility** will include some upgrades to the existing stormdrain system on half League and a new stormwater pond to treat and attenuate runoff. Currently, the proposed pond site is owned by the railroad, which is not utilized for railroad operations. The City would need to acquire the property from the railroad. Figure 3.1 depicts the proposed stormwater pond and stormdrain improvements.

Figure 3.1 Proposed Stormwater Pond and drainage improvements.

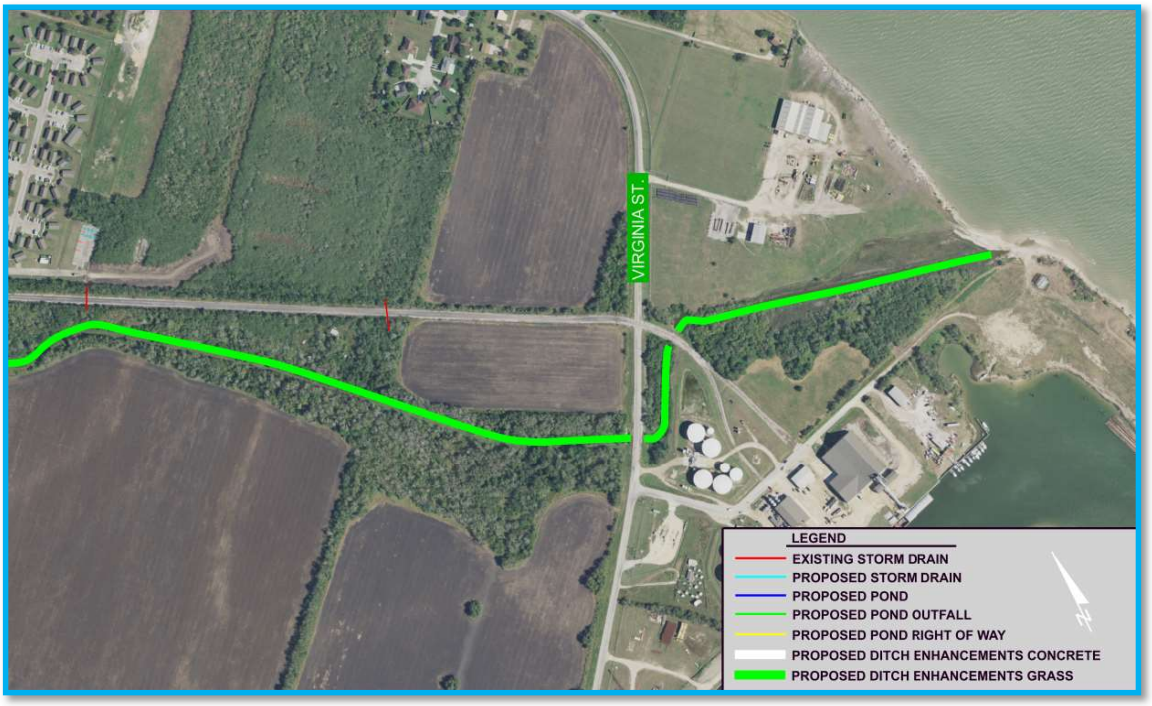


2. **Enhancement of the concrete ditch** will include replacement of the existing concrete ditch from Main Street to Austin Street. No additional right of way is proposed for these improvements.

3. **Enhancement of the grass/overgrown ditch** will include standardizing the ditch geometry, regrading of the ditch, and removal of overgrown vegetation. No additional right of way is proposed for these improvements. However, permitting may be required for land clearing or other impacts. Figure 3.2 and 3.3 depicts the location of the proposed concrete ditch enhancements.

Figure 3.2 Proposed concrete ditch enhancements.

Figure 3.3 Proposed grass/overgrown ditch enhancements.



An estimated construction cost was prepared for the proposed improvements to Corporation Drainage System. The construction cost estimate was $6,988,000.00 which includes labor/material cost and right of way cost for the pond. Table 3.1 estimated construction cost for these improvements.

Table 3.1 Construction Cost Estimate

Material/Facilities/Services	$/Unit	Unit	Quantity	Construction	Acquisition	Total
Mobilization and Demobilization	$628,320	LS	1	$628,320		$628,320.00
Traffic Control	$177,990	LS	1	$177,990		$177,990.00
Erosion Control	$89,000	LS	1	$89,000		$89,000.00
Clear and Grubbing	$20,000	AC	8	$160,000		$160,000.00
Earthwork	$18	CY	65000	$1,170,000		$1,170,000.00
Subgrade	$8	SY	1830	$14,640		$14,640.00
Base (10")	$30	SY	1610	$48,300		$48,300.00
Asphalt 2.75"	$250	TN	240	$60,000		$60,000.00
Corporation Ditch Enhancements	$50	SY	45540	$2,277,000		$2,277,000.00
Corporation Ditch Concrete Enhancements	$100	SY	3340	$334,000		$334,000.00
HPDE 36-inch Storm Pipe	$230	LF	500	$115,000		$115,000.00
HPDE 48-inch Storm Pipe	$280	LF	310	$86,800		$86,800.00
HPDE 60-inch Storm Pipe	$400	LF	2720	$1,088,000		$1,088,000.00
Manhole Junction Box (Small)	$15,000	EA	1	$15,000		$15,000.00
Manhole Junction Box (Large)	$30,00	EA	6	$180,000		$180,000.00
Pond Outfall Structure	$25,000	EA	1	$25,000		$25,000.00
Endwall Dbl. 60"	$40,000	EA	1	$40,000		$40,000.00
Chainlink Fence (6' High)	$50	LF	2845	$142,250		$142,250.00
Fence 6' High Gate (DBL, 12' Total)	$3,000	EA	1	$3,000		$3,000.00
Pond Right of way Acquisition (Railroad Parcel ID 38326, 4.81 acres)	$96,200	LS	1		$96,200	$96,200.00
Pond Right of way Acquisition (Railroad Parcel ID NA, 2.34 acres)	$46,800	LS	1		$46,800	$46,800.00
Pond Sod	$7	SY	16400	$114,800		$114,800.00
Seeding Pond Bottom	$2	SY	19200	$38,400		$38,400.00
Driveways (Concrete)	$185	SY	100	$18,500		$18,500.00
Traffic Signs and Pole	$1,000	EA	4	$4,000		$4,000.00
As-Builts	$15,000	LS	1	$15,000		$15,000.00
					Total Estimated Construction Cost =	**$6,988,000.00**

4. Project Scope of Work

The project scope of work details the engineering and construction task necessary for completion of the project. These tasks will include data collection, design and construction documentation, permitting and coordination, Construction Administration, and Construction. The following details the scope of work for this project:

Project scope of work:

Phase 1 Development of Engineering Design and Regulatory Approval (Engineer):

1. Data Collection
    a. Topographic Survey
    b. Geotechnical
    c. Cultural Resources Investigation
    d. Environmental Investigation
2. Design and Construction Documentation (Engineer):
    a. Design of the stormdrain, pond, and ditch improvements
    b. Develop Construction documents (30%. 60%. 90%, 100%)
3. Permitting and Coordination
    a. Permit with City, State, and Federal Agencies.
    b. Coordinate with Utility Owners on any possible utility impacts.

Phase 2 Construction Administration (work for Engineer)

1. Bidding phase services – assist with acquisition of a construction contractor.
2. Construction Phase services – provide construction administration and inspection to review construction with compliance with the project contract documents.
3. Construction close out – review as-builts and construction completion documentation

Construction (work for Construction Contractor)

1. Mobilization to the project site
2. Construct stormwater pond and drainage system upgrades
3. Construct enhancements to the concrete and grassed ditch
7. Final completion surveying for As-built
8. Project close-out