

# Frankfort Sewer Department



## Capital Improvement Plan

2020 – 2025

## **Project #1 – East Frankfort Interceptor and Wet Weather Storage Project**

**Project Description** - This project will execute the first step in Frankfort Sewer Department's Long Term Control Plan. The proposed project includes installation of approximately 11,000 LF of 36 inch diameter gravity sewer around the east side of the FSD service area, rehabilitation of approximately 3,000 linear feet of interceptor sewer, a 3 MG wet weather storage facility, approximately 30 manholes, two sets of double barrel siphons (one set under the Kentucky River and one set under Cove Spring Park), control gates, flow control/metering, and SCADA integration.

Farmdale SD currently has multiple failing WWTPs within their system (Coolbrook WWTP, Edgewood WWTP, Evergreen WWTP, Farmgate WWTP, Meadowbrook WWTP, and Farmdale WWTP). This project will also allow Farmdale Sanitation District to move forward in the elimination of multiple package wastewater treatment plants as cited in Farmdale SD projects SX21073029 (Phase 1) and SX21073083 (Phase 2). The East Frankfort Interceptor project opens capacity in the southern sewers of FSD's service area by redirecting the sanitary flow around the east and north of the City via the new interceptor to FSD's WWTP. Through this available capacity, Farmdale SD (through their above listed projects) can convey all sanitary flow to FSD's collection system, thus being able to decommission the listed PWWTPs and making the East Frankfort Interceptor project regional in nature.

**Project Justification** - This project 1) is the first step of the proposed Long Term Control Plan (LTCP) Frankfort Sewer Department (FSD) presented to KDOW in 2019, 2) will eliminate an anticipated three (3) sanitary sewer overflows (SSOs), see list below, and an additional four (4) manholes (MH) close to capacity/overflowing within the East Frankfort Interceptor (EFI) drainage basin, and 3) is the first step in regionalization of the Farmdale package WWTPs and providing capacity for other sewer separation projects.

The FSD Service Area consists of several Combined Sewer Systems (CSS) and Sanitary Sewer Systems (SSS) basins with most of the CSS concentrated downtown. These CSS flows take most of the capacity within the existing sanitary system and the FSD Project Implementation Schedule is highly dependent upon proper construction order of FSD projects so flows to the WWTP can be maintained and capacity can be provided as full build-out in the service area occurs.

The EFI Phase III project also adds future sanitary capacity for additional growth in east and north Frankfort and provides capacity in the sanitary system with continued increase in climate related activities including higher intense wet weather events. With the elimination of the SSOs in the EFI drainage basin, there will be a reduction in pollutant sources in Franklin County's waterbodies and eliminate existing sources of pollution within the 'cave sewer' karst areas. FSD has allocated specified funds in their budget for the EFI project as well as rehabilitation of aging

and deteriorating infrastructure. Part of the planning incorporated into the EFI wet weather facility includes the long term effects of climate change (as seen in 2018 and experiencing the most rainfall on record in one year).

**Project Cost** – The cost of this project is expected to be approximately \$20,000,000.00. The funds for this project are expected to 50% funded through the KIA Loan Program and the other 50% to come from the Sewer General Fund and Sewer Reserves. The construction is expected to last 24 months.

Expenditures	2020	2021	2022	2023	2024	Total
Design	\$200,000.00					\$200,000.00
Construction		\$10,000,000	\$10,000,000			\$20,000,000.00
<b>Total</b>						\$20,200,000.00

**Project #2 – Prevention Park Pump Station and Conveyances**

**Project Description** - This project has two primary objectives – 1) the consolidation of existing small pump stations and 2) providing additional system capacity to accommodate the future reception of the Farmdale Sanitation District (Farmdale) wastewater flows.

The Heritage, Prevention Park, Hospital, and Twilight Trail Pump Stations are existing duplex pump stations in the West Frankfort drainage area. These pump stations are relatively small and in close proximity to one another. These pump stations are proposed to be combined into a single consolidated pump station near the existing Twilight Trail Pump Station. The new pump station will be sized to accommodate the existing flows from the four (4) pump stations to be eliminated; the Twin Oaks pump station; and both the current and future sanitary sewer flows from the Farmdale Sewer District. The new pump station project will be referred to as the Prevention Park Pump Station and Conveyances (P3C).

The force main for P3C will extend approximately 11,000 feet from the new pump station site to the West Frankfort Pump Station. In correspondence with the pump station, the force main is sized to handle current flows from Frankfort Sewer Department (FSD) and Farmdale, as well as future flows due to development.

In addition, the West Frankfort Pump Station will have a new pump and a new force main added to reach its peak design capacity. The current West Frankfort Pump Station was designed to have an additional pump added in the future and a corresponding secondary force main added. The new force main will be routed to the SSS Interceptor in the Bell Point Basin.

**Project Justification** - The Frankfort Sewer Department (FSD) is currently in discussions with the Farmdale Sanitation District (Farmdale) to receive all of their existing and future wastewater flow. The most practical location for FSD to receive the Farmdale flows will be the new consolidated Prevention Park Pump Station. As a result, the proposed pump station and force main are being designed with this future expansion in mind. Per the most recent wastewater facilities plan for the Farmdale Area, City of Frankfort Wastewater Facilities Plan Update for the Farmdale Area of Franklin County, KY, February 2008; the majority of the existing package wastewater treatment plants are over 30 years old and have not been adequately maintained. The HMB facility plan also identifies that per the Kentucky Division of Water many of these package treatment plants have been issued Notice of Violations for not meeting the required effluent discharge limits or bypassing sewage straight to area waterways.

These existing pump stations range in size from 100 to 250 gallons per minute. These pump stations are all nearing the end of their service life and are soon to require replacement pumps and other possible improvements. Eliminating these existing pump stations and replacing them with one larger consolidated pump station was the initial driver of this project.

**Project Cost** - The project is expected to cost \$10,000,000.00. The funds for this project are expected to 50% funded through the KIA Loan Program and the other 50% to come from the Sewer General Fund and Sewer Reserves. The construction is expected to last 24 months.

Expenditures	2020	2021	2022	2023	2024	Total
Design	\$200,000.00					\$200,000.00
Construction		\$5,000,000	\$5,000,000			\$10,000,000.00
<b>Total</b>						<b>\$10,200,000.00</b>

### **Project #3 – Capital Avenue Pump Station Separation**

#### **Project Description –**

This project will separate the sanitary sewer system (SSS) and the combined sewer system (CSS) for the South Frankfort neighborhood. Currently the SSS from the East side of town combines with the CSS in South Frankfort. This project will completely separate the two systems by providing a path around the combined system and creating separate wet wells at the Capital Avenue Pump Station. This will allow one half of the station to pump the SSS to the Kentucky Avenue collection chamber and the other half will be pumped to the Ewing Street Pump Station and completing the separation of the two systems in that area. The project will consist of installing approximately 2500' of force main from the Capital Avenue Pump Station to the

Ewing Street Pump Station. It will also include the construction of a new wet well and pumps for the SSS flow received at the Capital Avenue Pump Station.

**Project Justification** – Flows from the Old Lawrenceburg Road Basin and flows from the Fourth Street Siphon Basin are completely separate sanitary sewer flows. They do not comingle with combined sewer flows until they are delivered through a sanitary-only interceptor to the Capital Ave Pump Station. These sanitary-only flows will physically be removed from the combined sewer system at Capital Ave Pump Station site. This will be done by redirecting the CSS flow to the Capital Ave Pump Station, through a new force main, to the Ewing St Pump Station. A new sanitary only pump station or additional separate wet well at the Capital Ave Pump Station will be installed and the SSS flow will be directed to this new wet well. Flow will be sent from the new wet well to the treatment plant using the existing Capital Ave force main which is already appropriately sized for dry weather sanitary flows. The Capital Ave Pump Station existing force main will be disconnected from the CSS only interceptor leading to the WWTP in Bell Point and will be reconnected to the SSS only interceptor in Bell Point Basin. Note: The capacity in the SSS was provided by removing the East Frankfort Interceptor and re-routing it in project #1. By completing this project, the majority of the flow that passed through FSD’s combined system will have been removed from the CSS. This will have the largest impact on FSD’s LTCP and is the first key component to the LTCP.

**Project Cost** – The cost of this project will be separated into two phases. The first phase will be for the installation of the force main from Capital Avenue Pump Station to the Ewing Street Pump Station. Phase 1 is expected to cost \$1,100,000.00 and will be funded through the Sewer General Fund. Phase 2 will be to construct a new wet well to accommodate the flows that are received through the SSS. This project is expected to cost \$1,200,000.00 and will be funded through the KIA Loan Program.

Expenditures	2020	2021	2022	2023	2024	Total
Design	\$100,000.00					\$100,000.00
Construction		\$500,000	\$500,000			\$1,000,000.00
Design				\$200,000.00		\$200,000.00
Construction					\$1,000,000.00	\$1,000,000.00
Total						\$2,300,000.00

**Project #4 – Ewing Street Pump Station Upgrade and Forcemain**

**Project Description** – The Ewing Street Pump Station is almost at the end of its useful life and needs to be upgraded. This project will also upgrade approximately 800’ of forcemain that is asbestos concrete pipe that was installed in the 1950’s.

**Project Justification** - With the flow from the sanitary-only areas removed from the combined system at Capital Ave, the only flows remaining in the Capital Ave service area are the combined sewers (approximately 20 city blocks). The flows from this area will be directed through the existing combined sewer wet well at Capital Ave through a new forcemain to the Ewing St Pump Station a few blocks away. As a result, the pump station capacity at Ewing St will be sized based on the additional CSS flows from Capital Ave Pump Station and the existing flows in the Ewing St Pump Station service area. Once the required capacity of the Ewing St Pump Station has been determined, the existing asbestos concrete forcemain will be replaced to the beginning of Taylor Avenue where the forcemain has already been replaced.

**Project Cost** – The cost for this project is expected to cost approximately \$2,000,000.00. The funding will come from the Sewer General Fund and will be supplemented by a KIA Loan.

Expenditures	2020	2021	2022	2023	2024	Total
Design			\$250,000.00			\$250,000.00
Construction				\$1,000,000.00	\$750,000.000	\$1,750,000.00
<b>Total</b>						<b>\$2,000,000.00</b>

**Project #5 – Home Depot / Poplar Creek Pump Station Consolidation**

**Project Description** – This project has two main objectives – the consolidation of two pump stations and to prevent downstream SSO’s from the Home Depot Pump Station. This project will be completed in two phases. Phase 1 will be tying in the existing Poplar Creek Pump Station into the gravity basin of the Home Depot Pump Station. This phase will also include extending the force main for the Home Depot Pump Station to prevent downstream SSO’s. Phase two will include extending the gravity main to include two parcels of land adjacent to the existing pump station. This phase will upgrade the pump station to include the flows from the Poplar Creek Pump Station and the additional flow from the adjacent properties.

**Project Justification** – The Poplar Creek Pump Station has outlived its useful life and is in dire need of an upgrade. When staff evaluated the project it was determined that the best option was to combine the two stations that were very close in proximity to one another. The option presented itself with the development of an empty lot in the Home Depot basin that allowed the line to be installed. Also by extending the force main over to the West Frankfort Pump Station basin, it will eliminate downstream SSO’s and also remove the flow from the combined sewer system (CSS). Once the final location of the new Home Depot Pump Station is determined, Phase two can begin which will consist of a new pump station to handle the flows

from the old Poplar Creek and Home Depot Pump Stations along with the adjacent properties as well.

**Project Cost** – The cost of this project is expected to be approximately \$2,000,000.00 and will be split into 2 phases. The first phase will gravity flow the Poplar Creek pump station to the Home Depot Basin and demolish the existing Poplar Creek pump station. Phase 2 will be to upgrade and move the existing Home Depot pump station down to provide sewer access to two adjacent properties. Both phases are budgeted in the Sewer General.

Expenditures	2020	2021	2022	2023	2024	Total
Design	\$100,000.00					\$100,000.00
Construction		\$500,000	\$500,000			\$1,000,000.00
Design				\$100,000.00		\$100,000.00
Construction					\$750,000.00	\$750,000.00
<b>Total</b>						<b>\$1,950,000.00</b>

The projects listed in this Capital Improvement Plan (CIP) are the top priority projects for the Frankfort Sewer Department and all of these project are essential to meet the needs of FSD’s Consent Judgement and the LTCP accepted and approved by the KY DOW. As seen in the attached budget spreadsheet these are only part of the projects that the Sewer Department is planning for but the projects highlighted in this CIP are the top priority

If there are any questions about these projects or any of the other projects listed in the budget sheet please forward those to the attention of Kenny Hogsten.

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CAPITAL PROJECTS	Project #											
Admin Building (Permanent Space for Records Storage)			.68	56555	ADMIN		\$15,000					\$15,000
Energy Modifications	68038-20		.68	56555	ADMIN	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000		\$75,000
Paving	68154-20		.68	56555	ADMIN	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000		\$125,000
Renovate Admin Restrooms & Locker Room Area	68088		.68	56555	ADMIN	\$100,000	\$0					\$100,000
Security Upgrades	68155-20		.68	56555	ADMIN	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000		\$75,000
CSO Evaluation/Modification	68052-20		.72	56555	COLL							\$0
Emergency Repairs Collections FY 2019-2020	68150-20		.72	56555	COLL	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000		\$500,000
Manhole Rehabilitation	68144		.72	56555	COLL	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000		\$1,250,000
Sewer Rehabilitation (In House Projects)	68053-20		.72	56555	COLL	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000		\$375,000
Flow Data and Hydraulic Model Update	68156-20		.72	56555	COLL	\$176,000						\$176,000
Miami Trail Pump Station Replacement	68061		.71	56555	PUMP	\$100,000	\$500,000					\$600,000
East Frankfort Interceptor (To be Funded 50% with KIA Funds)	68087		.72	56555	COLL	\$10,000,000	\$10,000,000					\$20,000,000
Prev. Park PS Consolidation (To be Funded 50% with KIA Loans)	68044		.71	56555	PUMP	\$5,000,000	\$5,000,000					\$10,000,000
Capitol Ave. Pump Station Force Main			.72	56555	COLL	\$100,000	\$500,000	\$500,000	\$200,000	\$1,000,000		\$2,300,000
Ewing Street Pump Station Upgrade	68147-2		.71	56555	PUMP			\$250,000	\$1,000,000			\$1,250,000
Two Creeks Upper/Blanton Acres I & I Reduction **	68137		.72	56555	COLL	\$50,000						\$50,000
Wilkinson Street Line Replacement (SSO 21) (LTCP)	68020		.72	56555	COLL	\$25,000						\$25,000
Arlington Heights Sewer Rehabilitation	68180		.72	56555	COLL			\$50,000				\$50,000
Capital Avenue Collector			.72	56555	COLL							\$0
Capital Avenue and 2nd Street Sewer Separation			.72	56555	COLL	\$500,000						\$500,000
Capital Avenue River Interceptor (LTCP)			.72	56555	COLL							\$0
CSO #7 Ewing Street Repair			.72	56555	COLL	\$100,000	\$250,000					\$350,000
Signal Ridge/Buttimer Hill Interceptor (MH 7-2289 to MH 7-2205)	68161		.72	56555	COLL				\$150,000			\$150,000
Virginia Avenue Sewer Project	68125		.72	56555	COLL							\$0
West Frankfort Interceptor Rehabilitation (MH 7-91 to MH 7-2205)	68163		.72	56555	COLL		\$250,000					\$250,000
WWDF at Willow Street Pump Station (LTCP)			.72	56555	COLL			\$250,000	\$4,000,000			\$4,250,000
Emergency Repairs Pumps FY 2019-2020	68151-20		.71	56555	PUMP	\$100,000	\$100,000					\$200,000
Fort Boone Pump Station Replacement ****	68112		.71	56555	PUMP	\$500,000	\$50,000					\$550,000
Access to Buena Vista Pump Station	68046		.71	56555	PUMP	\$30,000						\$30,000
Capital Ave Pump Station Separation (LTCP)	68166		.71	56555	PUMP	\$250,000	\$250,000	\$1,000,000				\$1,500,000
Home Depot Pump Station Replacement	68104		.71	56555	PUMP	\$100,000	\$500,000	\$500,000	\$100,000	\$750,000		\$1,950,000
Mero Pump Station Replacement	68168		.71	56555	PUMP					\$50,000		\$50,000
Old Lawrence Road Pump Station Replacement *	68126		.71	56555	PUMP				\$150,000	\$1,200,000		\$1,350,000
Overhaul Jim Beam Pump Station	68181		.71	56555	PUMP		\$50,000					\$50,000
Pump Station Transfer Switches	68090		.71	56555	PUMP	\$50,000						\$50,000
Pump Station Hot Taps	68089		.71	56555	PUMP	\$50,000						\$50,000
Ravencrest Pump Station Overhaul	68182		.71	56555	PUMP				\$40,000	\$150,000		\$190,000
Silverlake Pump Station Replacement **	68074		.71	56555	PUMP	\$75,000	\$100,000	\$1,200,000				\$1,375,000
Scrubber Repair West Frankfort Pump Station			.71	56555	PUMP							\$0
SCADA for Pump Station			.71	56555	PUMP	\$50,000	\$25,000	\$25,000	\$25,000	\$25,000		\$150,000
Emergency Repairs WWTP FY 2019-2020	68152-20		.69	56555	WWTP	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000		\$1,000,000
New Belt Press Pumps and Wasting Pumps		2019	.69	56555	WWTP							\$0
Ditch 3 Motor VFD's and Gearbox Replacement	68177		.69	56555	WWTP	\$500,000						\$500,000
Oxidation Ditch Site Repairs			.69	56555	WWTP	\$30,000						\$30,000
Digester 1 & 2 Blower Replacement			.69	56555	WWTP		\$200,000					\$200,000
Safety Hatches for Equipment Access			.69	56555	WWTP	\$20,000						\$20,000
Headworks (New Barscreens)			.69	56555	WWTP	\$1,000,000						\$1,000,000
Grit System Replacement			.69	56555	WWTP		\$100,000	\$1,500,000				\$1,600,000
Addition of 2 Clarifiers			.69	56555	WWTP	\$150,000	\$2,000,000					\$2,150,000
Belt Press Replacement / Class A Biosolids Production			.69	56555	WWTP			\$150,000	\$1,500,000			\$1,650,000
Plant Pump Station Upgrades			.69	56555	WWTP				\$200,000	\$2,000,000		\$2,200,000
<b>CAPITAL PROJECTS TOTAL</b>				<b>56555</b>		<b>\$10,996,000</b>	<b>\$15,290,000</b>	<b>\$15,095,000</b>	<b>\$9,030,000</b>	<b>\$5,735,000</b>		<b>\$54,776,000</b>