



SHAKER HEIGHTS

SANITARY & STORM SEWER
STATUS UPDATE & FEES DISCUSSION
March 2024

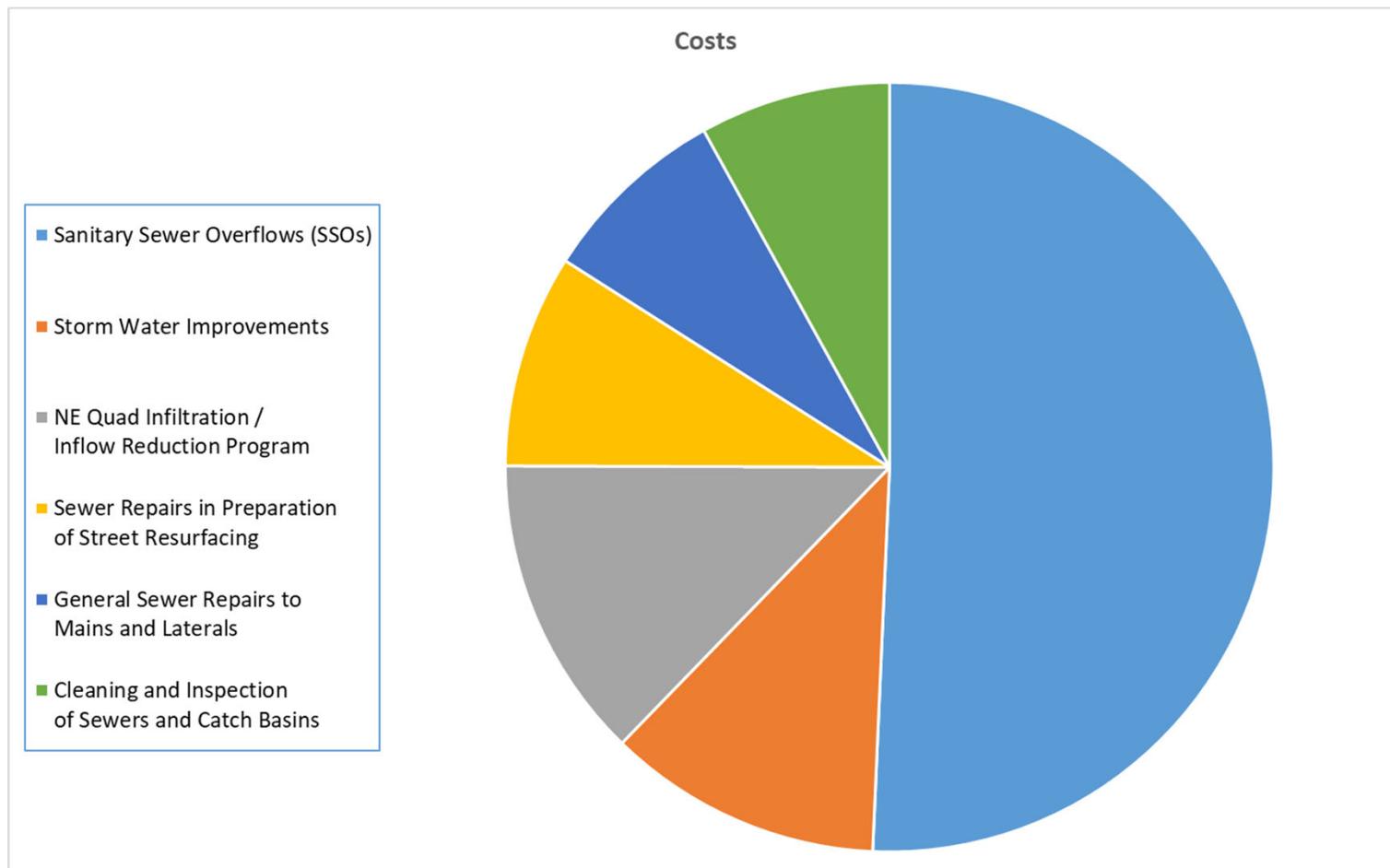
Patricia Speese, Director of Public Works
John Potts, Director of Finance
Christian Maier, Assistant Director of Public Works

A solid green horizontal bar at the bottom of the slide.

Sewer Capital Overview (2019-2023)

| Activity | Costs | % |
|--|----------------------|-------------|
| Sanitary Sewer Overflows (SSOs) | \$ 10,694,244 | 51% |
| Storm Water Improvements | \$ 2,439,385 | 12% |
| NE Quad Infiltration / Inflow Reduction Program | \$ 2,697,016 | 13% |
| Sewer Repairs in Preperation of Street Resurfacing | \$ 1,890,690 | 9% |
| General Sewer Repairs to Mains and Laterals | \$ 1,677,732 | 8% |
| Cleaning and Inspection of Sewers and Catch Basins | \$ 1,693,578 | 8% |
| City Sewer Funds Total | \$ 21,092,645 | 100% |

Sewer Capital Overview (Graph)



Grant Funding Received

| Grant Funding | Costs |
|--|---------------------|
| Fernway SSO | \$ 356,856 |
| Huntington SSO | \$ 425,000 |
| Fairhill CSO Rehab | \$ 50,000 |
| Lynnfield / Lomond SSO (design) | \$ 112,500 |
| Lynnfield / Lomond SSO (construction) | \$ 4,261,100 |
| - Zero Interest Loan (DOPWIC) | \$ 2,000,000 |
| South Woodland Culvert | \$ 100,000 |
| Green / Bryden Culvert | \$ 150,000 |
| Horseshoe Lake (emergency breach) | \$ 475,000 |
| Southern Moreland Traffic Calming/Green Infrastructure | \$ 221,389 |
| Total Grant Funding Received | \$ 8,151,845 |

Sanitary Sewer Overflows (SSOs)

➤ **Fernway SSO Control Project:**

- Designed in 2018
- Construction completed in 2019
- Worked in conjunction with Cuyahoga County Department of Public Works using their sewer rehab contract.
- Project consisted of making repairs to the sanitary and storm mains and laterals, installation of Cured-in-Place-Pipe (CIPP) & modifying the SSO structure.
- 95 households are positively impacted from these improvements.
- Sewers rehabilitated along:
 - Parkland Road (Fernway to Van Aken)
 - Maynard Road (Lynton to Parkland)
 - Norwood Road (Lynton to Parkland)

SSOs (continued)

➤ **Huntington SSO:**

- Designed in 2019
- Construction completed in 2020
- Project consisted of removing existing pipe and increasing the diameter to increase capacity and installing a new SSO structure.
- Limits of the project were from Onaway Road to S. Woodland.
- 103 households are positively impacted from these improvements.



New manhole being installed as part of Huntington SSO project

New sanitary pipe being installed as part of Huntington SSO project

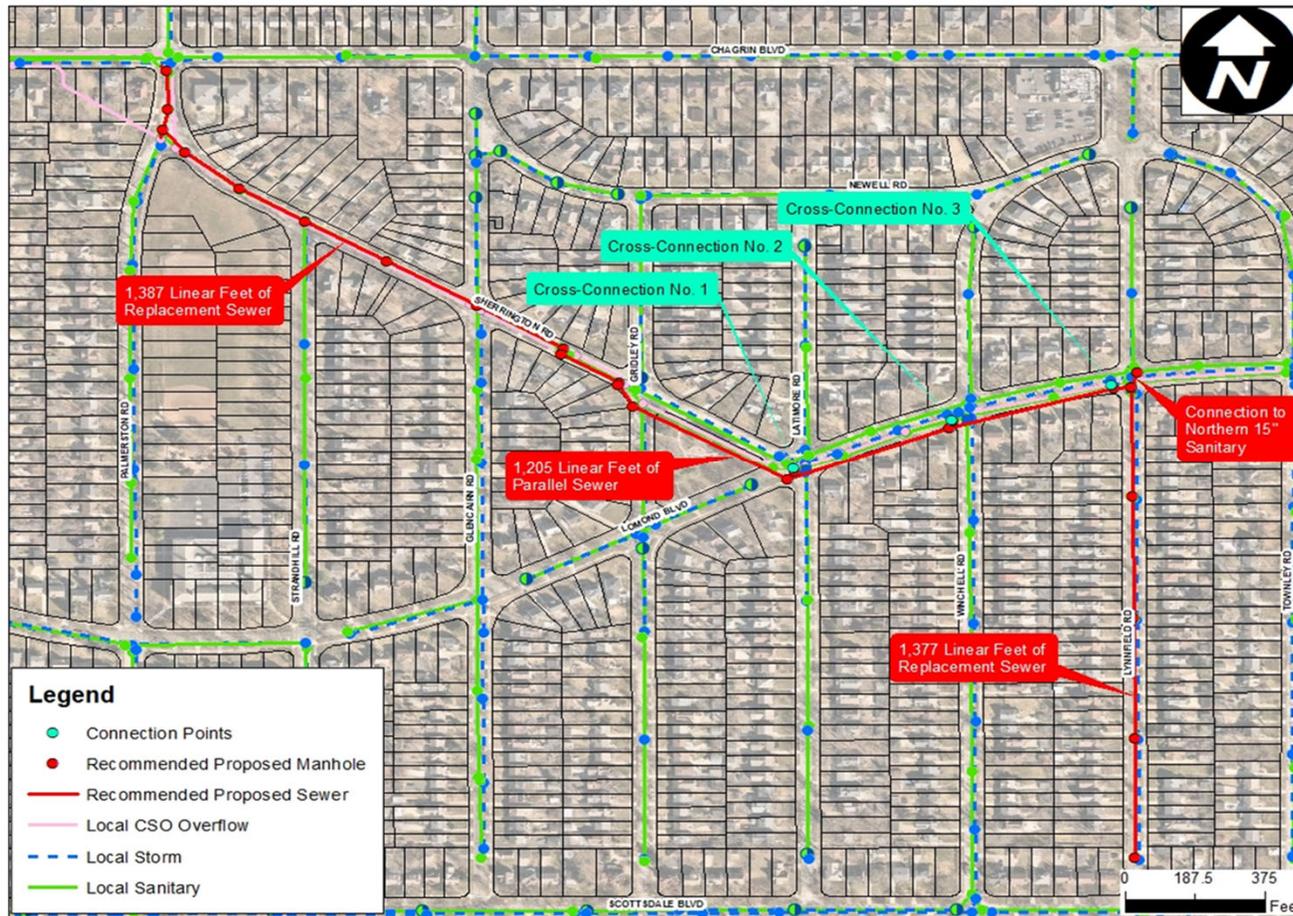


SSOs (continued)

➤ **Lynnfield / Lomond SSO:**

- Design is complete
- Required permits have been obtained from Ohio EPA & Cleveland Water
- Funding is secured
- Waiting for authorization to advertise from U.S. EPA
- Anticipate bidding the construction project in 2024
- The duration of the construction project is estimated to be 18 months
- 1,200 households will be positively impacted from these improvements

SSOs (concluded)



- Eliminate existing overflow connection to SSO-11
- 1,380 feet of 18-inch replacement sewer
- 1,205 feet of 30-inch parallel relief sewer with three cross-connections
- 1,390 feet of 36-inch replacement sewer

Stormwater Improvements

2019

- Fairhill CSO Rehabilitation project (\$77,100)
 - Project consisted of replacing existing outfall pipe, installation of new headwall and rehabilitating the existing gabion baskets.
 - Worked with Cuyahoga County Department of Public Works using their sewer maintenance contractor.
- Horseshoe Lake Emergency project (\$36,775)
 - After significant rain events in the late spring of 2019, inspections were performed by Public Works, NEORSD and ODNR revealing the observation deck had settled.
 - At the recommendation of ODNR, principal spillway was lowered an additional three feet.

2020

- South Woodland (east of Green) Culvert Replacement project (\$222,659)
 - Public Works noted the existing culvert was failing and began design in summer of 2020.
 - Project consisted of complete replacement of the culvert under S. Woodland Road.
 - Project was completed in the early winter of 2021.

Stormwater Improvements (continued)

2021

- Lower Lake Spillway Repair project (\$92,714)
 - Given the age of the spillway, water was noted as infiltrating through the masonry blocks.
 - Project consisted of removal of debris in spillway, reconstruction of both weir walls and rebuilding a portion of spillway.
- Horseshoe Lake Emergency Breach project (\$445,250)
 - After rain events in July, additional settlement was noted at the observation deck that prompted further inspections. These investigations noted significant voids under the observation deck and deterioration of the masonry walls.
 - At the direction of ODNR, the City hired a consultant to design an interim plan to reduce the probability of failure of the Class I dam.
 - Construction was completed in the beginning of 2022.

Stormwater Improvements (continued)

2022

- Van Aken District (Phase 2 Apartments) Culvert Replacement project (\$411,234)
 - Given the proximity of the Van Aken District Phase 2 (apartments) footprint to the existing culvert, it was determined to replace culvert to minimize potential conflicts in the future.
- Southern Moreland Traffic Calming and GI project (\$542,490)
 - In partnership with the Planning Department, the project consisted of construction of bio swales which were integrated into traffic calming features along Scottsdale Blvd (Lee Rd. to the western City Limit) and at Chelton Park.
 - Construction was completed in the beginning of 2023.

2023

- Green / Bryden Culvert Improvements (\$521,538)
 - This was a joint project with Beachwood and Shaker Heights. During heavy rain events, the intersection would frequently flood causing a safety hazard for motorists. A parallel culvert was installed for additional capacity. Construction was completed in the fall of 2023.

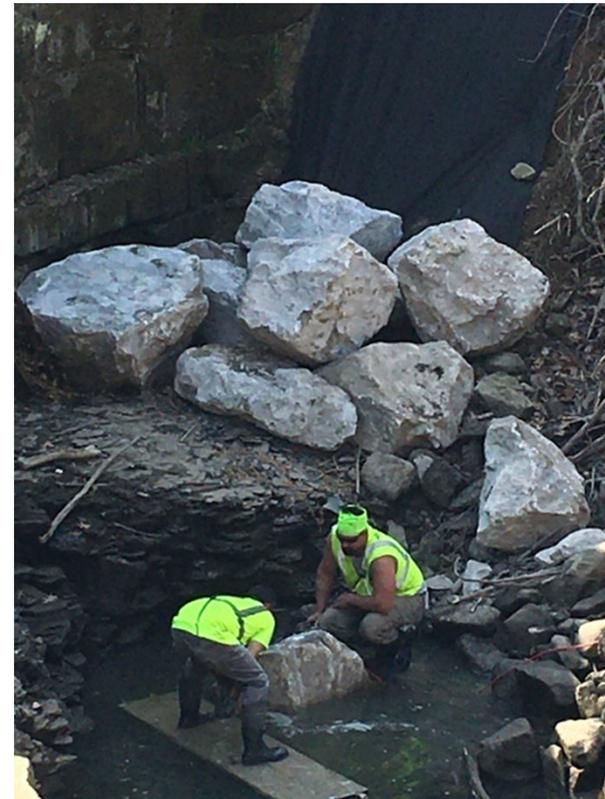
Stormwater Improvements (continued)

South Woodland Culvert Replacement



Stormwater Improvements (continued)

Lower Lake Spillway Rehab Project



Stormwater Improvements (continued)



Horseshoe Lake Interim Risk Reduction (IRR) Project

Horseshoe Lake – grouting rip rap stone



Stormwater Improvements (concluded)



Green / Bryden Culvert – reinforcing existing culvert roof

Green / Bryden Culvert – installing parallel culvert



Northeast Quadrant Infiltration & Inflow Reduction Program

- Program consists of inspection of sewer mains & laterals within the right of way. After review of the data, repairs are made as required and then the sewer mains are lined with cured-in-place-pipe (CIPP). When this is completed, the manholes are rehabilitated.
- New storm sewer installed on Claythorne Road (Brantley to Shelburne).
- All sewer mains have been inspected within the sewer shed.
- Project was suspended in 2020 due to COVID and resumed CIPP in summer of 2021
- Total cost date = \$2,697,016

Sewer Repairs in Preparation of Street Resurfacing

- Prior to resurfacing streets, sanitary and storm mains and laterals are inspected.
- All laterals are inspected by Public Works personnel. Since 2019, over 2,000 laterals have been cleaned & inspected.
- After review of the data, task orders are developed to make required repairs:
 - 2019 - \$660,180
 - 2020 - \$233,647
 - 2021 - \$185,466
 - 2022 - \$248,212
 - 2023 - \$563,186
- Repairs are made by contractors or Public Works crews.



General Sewer Repairs to Mains and Laterals

- Combination of emergency repairs and after reviewing sewer data.
- Work can be lateral or main repairs and replacement of existing pipe.
- Almar Sewer Improvement project (\$277,487)
 - Redirecting of sanitary flow to mitigate basement backup in the businesses at Almar & Warrensville Center Road.
 - Project was completed in the early spring of 2021
- Brantley Sewer Improvement project (\$461,664)
 - Due to the location in the tree lawns, the sewers were significantly deteriorated.
 - The project consisted of sewer repairs and installation of CIPP lining and the sanitary and storm.
 - Relocation of sewer was not possible because of utility conflicts.
 - The project completed in summer of 2022

General Sewer Repairs to Mains and Laterals (concluded)

Trench Repair on Almar Sewer Improvement project



Almar Sewer Improvement project



Repair of sanitary main on Berwyn Road

Cleaning & Inspection of Sewers & Catch Basins

- Sewer main cleaning and inspection is a vital component of our overall sewer capital program.
- Since 2019, we have cleaned and inspected 408,481 feet (77.4 miles) of sanitary and storm mains. There is approximately 586,290 feet (111 miles) of sanitary sewer mains in Shaker Heights.
- Work is completed using a contractor and Public Works crews
- 3,548 out of 3,875 catch basins were cleaned in the past 5 years.

Longitudinal Fracture



Multiple Fractures & Broken Pipe



Multiple Fractures



2024 Sewer Projects

- Lynnfield / Lomond SSO 11 Construction
- Van Aken Blvd (west of Lee) sanitary & storm repairs – \$425,000
- South Park (west of Lee) sanitary Cured In Place Pipe (CIPP) – \$75,000
- Continuation of N.E. Quad I/I Reduction program; construction estimate – \$1.5 million.

Future Sewer Capital Projects

- Lee / S. Park SSO project
 - \$6.0 Million
 - Design – 2026
 - Construction – 2027
- Lomond Sewer Improvement project (Gridley to Lee Road)
 - \$4.0 Million
 - Design – complete but need to reapply for EPA Permit to Install
 - Construction – 2028
- Winslow/Avalon Sanitary Relocation
 - \$4.5 Million
 - Design – 2028
 - Construction – 2029



SHAKER HEIGHTS

Questions/Comments

Sewer Fees – Background

- Sewer Maintenance Fund No. 204
 - The City levies a fixed fee and a variable fee (per MCF) on all users of the City sewer system.
 - These sewer fees pay for sewer system maintenance, replacement and repair.
 - Funds can be spent on storm and sanitary sewers and lakes management.
 - The sewer fees are levied in addition to the treatment and disposal rate set by the NEORSD.
 - Prior to the sewer fee increases put in effect in late 2019, GF was covering \$2.8 million/year in sewer operations and debt service.
 - As of 2023 year end, the unencumbered balance in the Sewer Maintenance Fund is approximately \$292,283.
 - The current 10 Year Capital Plan for Sewers (2024 – 2033) is \$28M.

Sewer Fees – Background (continued)

- Section 159.07 of the Administrative Code was amended in December 2019 (Ord 19-105) to gradually increase sewer usage fees over a period of four years, from 2020 to 2023.

| <u>Monthly Fixed Fee</u> | | <u>Monthly Variable Fee</u> | |
|--------------------------|---------|-----------------------------|---------|
| May 2020 (per customer) | \$2.50 | May 2020 (per MCF) | \$11.00 |
| May 2021 (per customer) | \$5.00 | May 2021 (per MCF) | \$11.50 |
| May 2022 (per customer) | \$7.50 | May 2022 (per MCF) | \$12.00 |
| May 2023 (per customer) | \$10.00 | May 2023 (per MCF) | \$12.50 |

- From 2020 to 2023 the City obtained \$8 Million in debt financing for capital sewer projects.
- This fund is currently responsible for \$677K in annual debt service.

Sewer Fees – Background (concluded)

- The increase in sewer fees over the 4 year period enabled the City to bring in enough revenues to cover operational expenses and increased debt service (from sewer financings).
- With the end of the annual increases in May of 2023, the fund will begin to go negative by 2025 and will not be able to cover repairs, maintenance or additional debt service, thus not allowing for additional debt financed sewer projects to continue without a subsidy from the General Fund.

| | 2020 | 2021 | 2022 | 2023 |
|--|------------------|------------------|----------------|------------------|
| Sewer Fees - Revenue | 1,208,599 | 1,416,982 | 1,717,310 | 1,971,817 |
| Personal Services Expenditures | (368,486) | (420,220) | (544,029) | (669,685) |
| Other Expenditures | (825,495) | (1,066,657) | (841,657) | (1,077,181) |
| Debt Service | (212,338) | (277,813) | (207,288) | (677,038) |
| Surplus/(Deficit) | (197,720) | (347,708) | 124,336 | (452,087) |
| Beginning Fund 204 Cash Balance | 1,399,138 | 1,201,418 | 853,710 | 978,047 |
| Current Year Activity (above) | (197,720) | (347,708) | 124,336 | (452,087) |
| Ending Fund 204 Cash Balance | 1,201,418 | 853,710 | 978,047 | 525,959 |

Sewer Fees – Do Nothing

➤ The following projection assumes no new sewer fee increases.

| | 2024 | 2025 | 2026 | 2027 |
|--|------------------|------------------|------------------|------------------|
| Sewer Fees - Revenue | 2,231,184 | 2,231,184 | 2,231,184 | 2,231,184 |
| Personal Services Expenditures | (622,575) | (641,252) | (660,490) | (680,305) |
| Other Expenditures | (1,171,048) | (1,206,179) | (1,242,365) | (1,279,636) |
| Debt Service | (680,000) | (676,345) | (770,225) | (768,355) |
| Surplus/(Deficit) | (242,439) | (292,593) | (441,896) | (497,111) |
| Beginning Fund 204 Cash Balance | 525,959 | 283,520 | (9,073) | (450,968) |
| Current Year Activity (above) | (242,439) | (292,593) | (441,896) | (497,111) |
| Ending Fund 204 Cash Balance | 283,520 | (9,073) | (450,968) | (948,080) |

Sewer Fees – Proposed Increases

- Amend Section 159.07 of the Administrative Code to gradually increase sewer usage fees from 2024 to 2027.
- Monthly Fixed Fee would increase by \$0.50 per customer, per year.
- Monthly Variable Fee would increase by \$2.00 per MCF, per year.

Proposed Addt'l Monthly Fixed Fee

| | |
|-------------------------|---------|
| May 2024 (per customer) | \$10.50 |
| May 2025 (per customer) | \$11.00 |
| May 2026 (per customer) | \$11.50 |
| May 2027 (per customer) | \$12.00 |

Proposed Addt'l Monthly Variable Fee

| | |
|--------------------|---------|
| May 2024 (per MCF) | \$14.50 |
| May 2025 (per MCF) | \$16.50 |
| May 2026 (per MCF) | \$18.50 |
| May 2027 (per MCF) | \$20.50 |

Sewer Fees – Additional Financings

- The projection on the next slide assumes the following:
 - Sewer financings begin again in 2025.
 - 2025 – \$1M Bond Anticipation Notes (BANS)
 - 2026 – \$2M Bond Anticipation Notes
 - 2027 – \$2M (likely wrap up all years into one Bond)
\$5M

- Additional Debt Service from above financings:
 - 2026 – \$50K from 2025 BANS
 - 2027 – \$150K from 2025 and 2026 BANS
 - 2028 – \$325K after bonding up the 2025 to 2027 financings
\$525K

- The projection on the next slide also assumes an additional \$100K in annual debt service beginning in 2026 for the \$2M 20-year, no interest loan from DOPWIC for the Lynnfield/Lomond SSO.

Sewer Fees – Proposed Increases

➤ The following projection assumes new increases from 2024 to 2027.

| | 2024 | 2025 | 2026 | 2027 |
|---|------------------|----------------|----------------|----------------|
| Sewer Fees - Revenue | 2,284,619 | 2,530,096 | 2,775,574 | 3,021,051 |
| Personal Services Expenditures | (622,575) | (641,252) | (660,490) | (680,305) |
| Other Expenditures | (1,171,048) | (1,206,179) | (1,242,365) | (1,279,636) |
| Debt Service | (680,000) | (676,345) | (820,225) | (918,355) |
| Surplus/(Deficit) | (189,004) | 6,319 | 52,494 | 142,756 |
| Beginning Fund 204 Cash Balance | 525,959 | 336,955 | 343,274 | 395,768 |
| Current Year Activity (above) | (189,004) | 6,319 | 52,494 | 142,756 |
| Ending Fund 204 Cash Balance | 336,955 | 343,274 | 395,768 | 538,524 |
| Fund Reserve (Ending Fund Balance divided by Annual Expenditures) | 14% | 14% | 15% | 19% |

Note: The fund should have a reserve in the event of unexpected repairs.



SHAKER HEIGHTS

Questions/Comments
