



Nelson Wastewater Treatment Facility Improvement Project

Open House - February 22, 2024

Virtual Recording - March 1, 2024



Nelson Wastewater Treatment Facility Improvement Project

BACKGROUND INFORMATION Open House #3

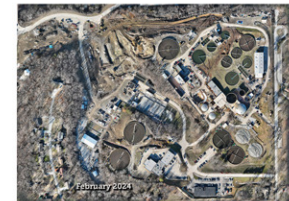
Presented at the previous Open Houses – Sept. 2021 & Oct. 2022



- **Forcemain Completed - Spring 2023**
- **Final Design Completed - Fall 2023**
- **Construction Contract Awarded by Board of County Commissioners - Winter 2023**
- **Second Low Interest Loan Secured (SRF) - Winter 2023**
- **Update site address to Foxridge Dr - Spring 2024**

There has been a massive amount of work and innovation done alongside our trusted partners to strategically phase this project, procure the best project estimates and sub-contractor bids, come up with creative cost-saving ideas and utilize financing options that provide much lower interest rates than traditional methods. The result will be a savings of more than \$210 million for the project. That's quite a win for the ratepayers in Johnson County.

- Mike Kelly, Chairman, Board of County Commissioners



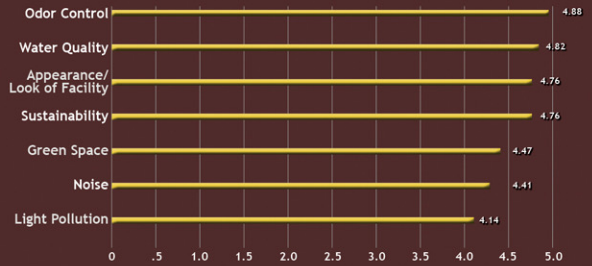


PROJECT DRIVERS

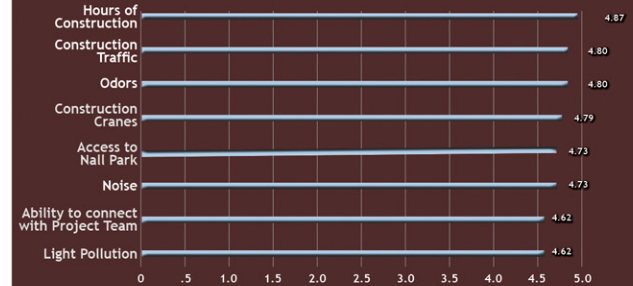
- **AGING INFRASTRUCTURE**
(Asset Renewal and Replacement)
- **COMPLIANCE WITH REGULATORY REQUIREMENTS**
 - Ammonia and nutrients
- current treatment process will not meet these limits
 - System wet-weather capacity

Public Input Received at the Open House October 6, 2022

Were your questions addressed regarding the Priorities for Proposed Improvements to the Nelson WWTF?
on a scale of 0 (still have questions) to 5 (questions addressed)



Were your questions addressed regarding Concerns During Construction at the Nelson WWTF?
on a scale of 0 (still have questions) to 5 (questions addressed)



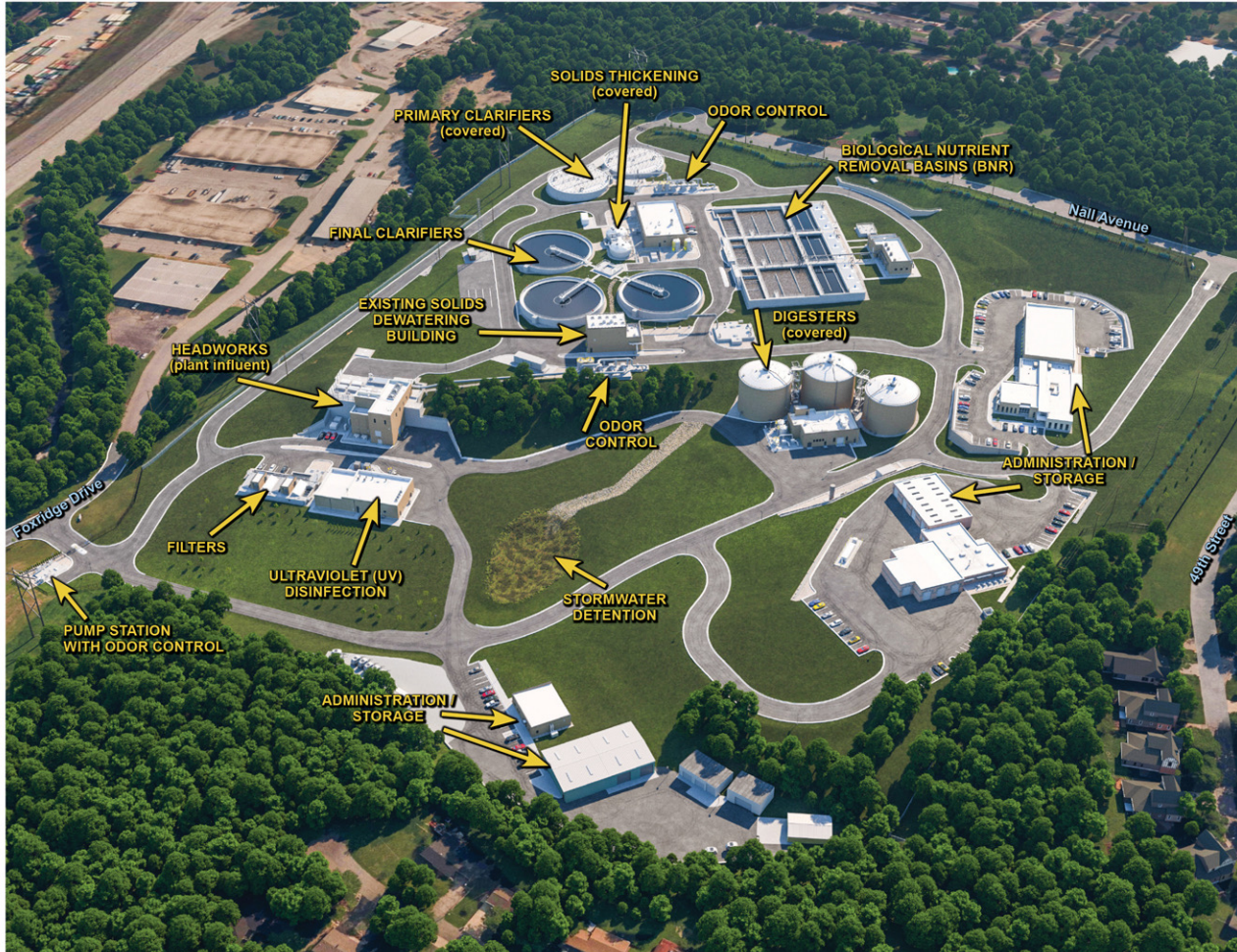


JOHNSON COUNTY
KANSAS
Wastewater

Flyover Video Rendering of Completed Nelson Wastewater Facility

JOHNS  N COUNTY
KANSAS

Wastewater



Design Considerations Addressing Priorities for Completed Facility

- **ODOR CONTROL**
 - see *Odor Control board*
- **WATER QUALITY**
 - nutrient removal
 - filtration
 - UV disinfection
 - reaeration
- **APPEARANCE/LOOK OF FACILITY**
 - lowered facilities
 - landscaping
 - trees & vegetation along berm for screening and appearance
 - brick buildings
- **SUSTAINABILITY**
 - reduced site footprint
 - efficiency
 - minimize energy consumption
- **GREEN SPACE**
 - reduced site footprint
 - trees & vegetation along berm for screening and appearance
- **NOISE**
 - reduced site footprint
 - layout and traffic flow
 - post-construction noise levels similar to current
 - hours of construction per City of Mission code (see *Noise During Construction board*)
- **LIGHT POLLUTION**
 - reduced site footprint
 - lighting study (see *Lighting Board*)
- **ADDRESS CHANGE**
 - from Nall to Foxridge Drive, aligning site address with construction entrance
 - reduce traffic impact to neighborhoods

Odor Control

Pre-Construction Nelson Facility



Updated Rendering of New Nelson Facility



- Existing Facilities with Odor Generation Potential
- Existing Facilities with Odor Control Systems
- Existing Administration/Storage Facilities

ADDRESSING ODOR CONCERNS

- Proven Technology
 - Air treated by filtering through activated carbon
- Facilities Consolidated
 - Reduced footprint
 - Increased buffer between proposed facilities with odor control systems and residential structures

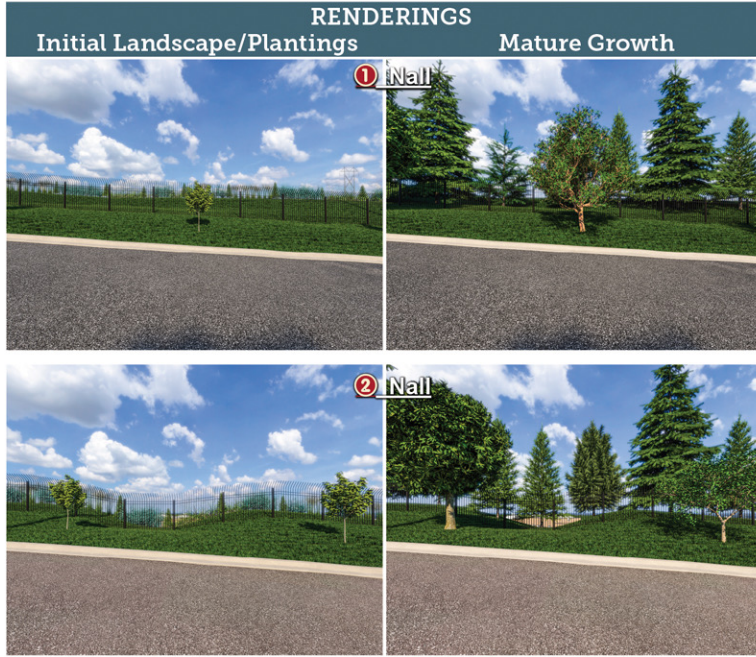
- Proposed Facilities with Odor Control Systems
- Proposed Administration/Storage Facilities

Odor control facilities are mechanical systems, and mechanical systems can fail. JCW has operations and maintenance staff dedicated to the upkeep and maintenance of such systems, and will respond to mechanical failures in a timely manner, should they occur.



- New treatment facility will be at a lower elevation than the current facility.
- Raised berm with trees and landscaping





Lighting Considerations



Lighting design follows the 5 principles of outdoor lighting

Advancing Responsible Outdoor Lighting | DarkSky International

USEFUL

All light should have a clear purpose. Consider how the use of light will impact the area, including wildlife and their habitats.

- ✓ We meet this by placing roadway lights primarily at entrances, intersections, or bends in the road. Lights are placed at entrances to structures and at important equipment.

TARGETED

Use shielding and careful aiming to target the direction of the light beam so that it points downward and does not spill beyond where it is needed.

- ✓ We have provided some shielding on certain lights to focus the light to specific area so that it limits the amount of light pollution outside the intended area.

LOW LEVEL

Use the lowest light level required. Be mindful of surface conditions, as some surfaces may reflect more light into the night sky than intended.

- ✓ We removed substantial amounts of lights and have switched off a majority of structure lights to bring the overall light level of the plant down. This will significantly reduce the overall lighting levels of the plant while allowing the operators to turn on lights when needed for maintenance or repairs.

CONTROLLED

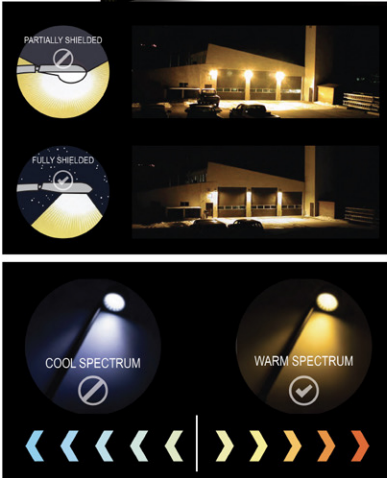
Use controls such as timers or motion detectors to ensure that light is available when it is needed, dimmed when possible, and turned off when not needed.

- ✓ We utilize photocells for a majority of the lights to make sure they only come on during the evening. We also use switches to turn off most of the structure lights limiting the lighting levels of the plant.

WARM-COLORED

Limit the amount of shorter wavelength (blue-violet) light to the least amount needed.

- ✓ All of the exterior lights are specified at 3000K colors (a warm color) rather than 5000K (a cooler color). This will cause the plant to be less viewable at night time compared to the cooler color lights.



What is happening now.....





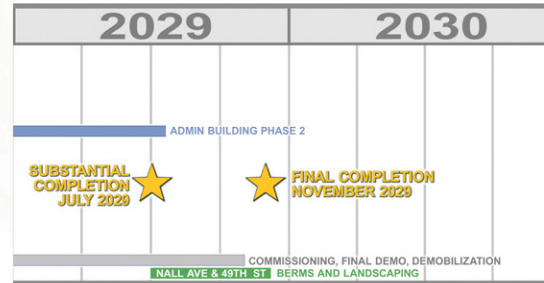
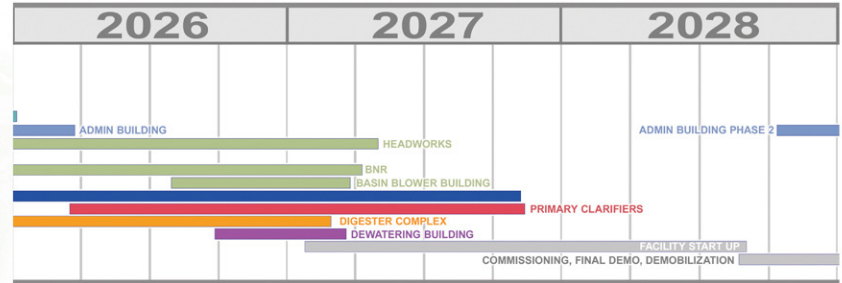
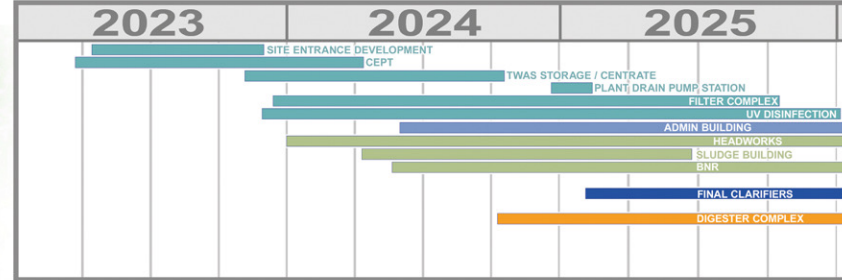


RECENT AND ONGOING ACTIVITY

Additional Trickling filters decommissioned and demolished. Early 2024
New UV/Filter - Pad Preparation & Drilled Piers August thru April 2024
Temporary Waste Activated Sludge - Excavation & Structure Construction - August thru May 2024
Trickling filter 1 to be decommissioned and demolished. ✓ COMPLETED DECEMBER 2023
New Road Paving ✓ COMPLETED NOVEMBER 2023
Chemically Enhanced Primary Treatment - Commissioning ✓ COMPLETED SEPTEMBER 2023
Lower Site Yard Pipe, Utilities, Ductbanks and Grading ✓ COMPLETED AUGUST 2023
Existing UV Demo ✓ COMPLETED JULY 2023

2024-25 ACTIVITY

CEPT Unloading Area / Nail Ave Closure March 2024-2028
Temporary Site Roads March 2024 - July 2027
UV & FILTER Concrete Structure June 2024-Feb 2025
Construction Trailer Replacement
Headworks Concrete Structure July 2024-May 2026
Road C Paving Spring 2024
Mass Excavation May 2024-Completed 2024
Digester Area Excavation, Shoring & Tank Construction April 2024 - Aug 2025
Administration Building (Phase 1) - Structure Enclosed July 2024-April 2025
Yard Pipe and Electrical Ductbanks to Continue Across Site in 2024



Nelson Wastewater Treatment Facility Improvements Project
Dust & Noise During Construction





PARTNERSHIP OF:



PROJECT DRIVERS:

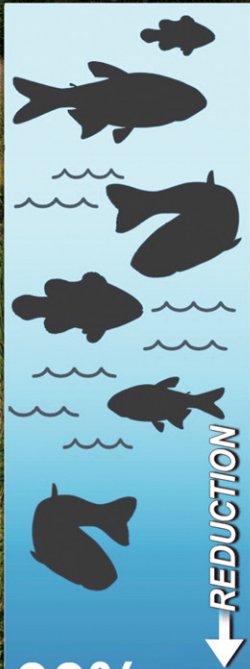
- Nelson WWTF Infrastructure Upgrades Needed
- Planned Mission Project to Address Foxridge Drive
- Address Construction Traffic

RESULTS OF PARTNERSHIP:

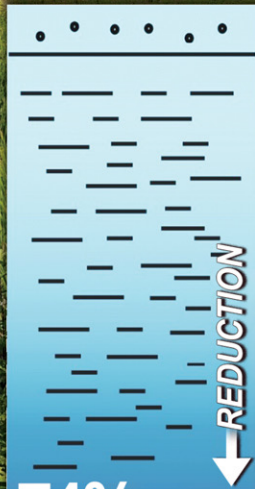
- Disturb area one time
- Allow construction traffic/ material deliveries in timely fashion
- Signal provides community benefit even after construction activities
- Coordinating on cost share agreements

PROTECTING THE ENVIRONMENT

Meeting new higher effluent standards will improve water quality and protect the environment.



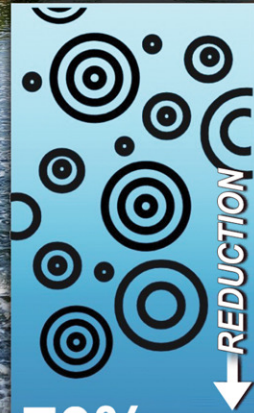
93%
Ammonia
Presence



74%
Suspended
Solids



74%
Phosphorus
Presence

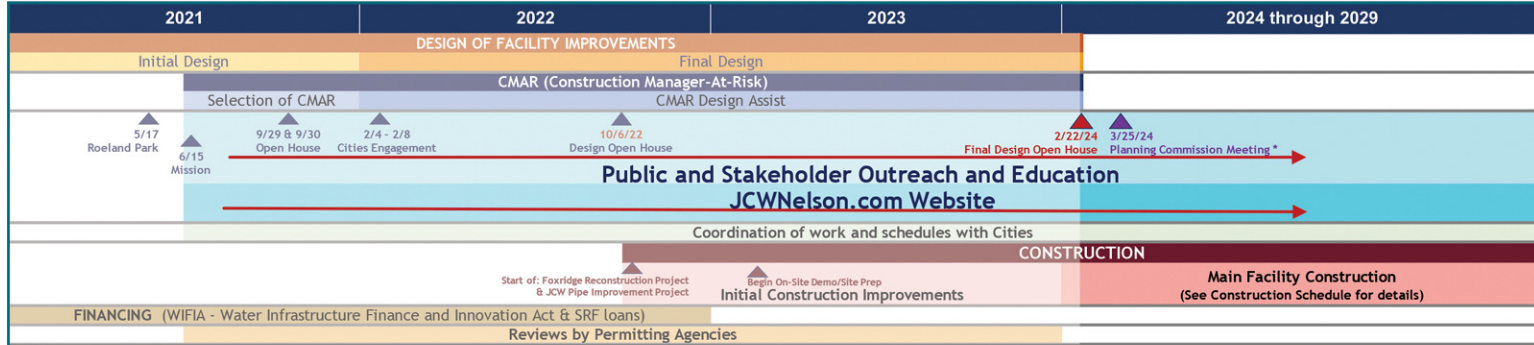


70%
Nitrogen
Presence



54%
Oxygen
Depletion

Reduction percentage based on future average projected effluent requirements vs current facility average effluent. Nelson facility is meeting current standards.



* March 25, 2024 - City of Mission, Planning Commission Meeting - open to the public

As the project continues, check the website for notices and monthly schedule updates and sign-up for email notices on the project:

JCW Nelson.com

