ms consultants, inc.
engineers, architects, planners

FRANKLIN COUNTY CORRECTIONS CENTER

CHALLENGE

FRANKLIN COUNTY WANTED A NEW CORRECTIONAL FACILITY THAT ALSO EMBODIED GREEN DESIGN AND SUSTAINABLE PRACTICES.

SERVICES INVOLVED

- Site Civil Engineering
- Survey
- Environmental Permitting
- Water/Wastewater
- Green Infrastructure
- Sustainable Design

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ms consultants provided site civil design and permitting for a new, multiphase correctional facility for Franklin County, Ohio. The 340,000-square-foot facility, located on 23 acres, can house 850 to 2,800 beds. The ms team worked with the County's developers, construction managers, and architects, developing a complete set of construction documents. The ms team also assisted Franklin County through the public bidding phase and performed construction administration.

To meet the sustainable design requests, ms provided a permeable-paver design that effectively met the criteria while also taking into account the existing site constraints. That criteria included having three detention basins and a large permeable pavement for parking areas to meet the water quantity and quality control requirements as outlined in the City of Columbus Stormwater Drainage Manual.

STORMWATER BASIN

From the beginning, Franklin County emphasized sustainable practices. ms presented a stormwater management design that optimized the sizes of the detention basins and took into account green infrastructure and a permeable-paver design that took into account the existing site constraints.

GREEN INFRASTRUCTURE SOLUTION

Post-construction stormwater best management practices (BMPs) for the Franklin County Correctional Facility were evaluated by comparing life-cycle costs of traditional stormwater management to low impact development using green infrastructure. The total life-cycle costs included capital construction costs, plus operations and maintenance costs for the next 30 years.

The traditional infrastructure option would have including a detention basin would've required a significant stormwater network to collect and convey stormwater to the detention basin.

The green infrastructure option included using permeable-pavers in place of a traditional asphalt parking lot would meet the water quality and water quantity treatment requirements.

Permeable-pavers work by:

- Allowing stormwater runoff to infiltrate through the surface and into an aggregate base
- The stormwater is stored here until infiltrating into the soil or discharging into a sewer

Benefits of permeable-pavers:

- Reduces the quantity of stormwater collection and conveyance system required
- Reduction in storm sewer quantities offsets the slightly higher material cost when compared to traditional asphalt pavement

PROJECT SAVINGS

The other major contributor to project cost savings was the City of Columbus Stormwater Utility Fee. The City of Columbus charges a stormwater utility fee based on the amount of impervious area added and the property's contribution to stormwater runoff. Because of this, the permeable surface and the use of the stormwater basin, the utility fee charge to the facility is relatively low.

Additionally, a green infrastructure credit is available to property owners who install and maintain green infrastructure as part of the stormwater management system. Using the permeable-pavers for the parking lot resulted in a 100% credit toward the stormwater utility fee, leading to the green infrastructure option being cheaper than the traditional option.