1.0 INTRODUCTION

1.1 The National Park Service and NEPA

The National Park Service Organic Act (16 U.S.C. 1 et. Seq., August 25, 1916, 29 Stat. 535) (Organic Act) created the National Park Service (NPS) to oversee the national parks system. The Organic Act directs the NPS to "conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

The National Environmental Policy Act (Public L. 91-90, 42 U.S.C. 4321-4347, July 1, 1970) (NEPA) was enacted by Congress in 1969 and took effect January 1, 1970. NEPA applies to all federal agencies and most of the activities they manage, regulate, or fund that affect the environment. NEPA requires that all federal agencies disclose and consider the environmental implications of proposed actions. The NPS is responding to a request by the Frederick County Division of Utilities and Solid Waste Management (DUSWM) to construct portions of proposed underground utility improvements on NPS lands. The Frederick County DUSWM is pursuing multiple projects to improve system operations, address existing system deficiencies, and increase water and wastewater service levels to meet the demands of projected population forecasts and services within identified growth areas. The proposed improvements are entirely funded with County and City of Frederick monies; no State or Federal funding is involved.

Frederick County has proposed to construct a portion of the New Design Raw Water Main and McKinney Treated Effluent Outfall through federally owned Chesapeake and Ohio Canal National Historical Park (C&O Canal NHP), which is part of the National Park System. As part of its consideration of this request, NPS must perform an environmental assessment of the potential impacts upon resources within their jurisdiction, consistent with NEPA guidelines. NPS Special Use permits will be required for construction on the affected federal property. The Special Use permits authorize the necessary exploratory studies, the required right-of-way/easement changes, and the activities required to construct and operate the projects. Prior to issuance of the Special Use permit, the NPS must satisfy the NEPA environmental evaluation procedural and documentation requirements. The Department of the Interior (DOI) produced NEPA regulations as Part 516 of its departmental manual (DM), and the NPS has produced the DO-12 Handbook to establish the requirements and procedures of DOI and NPS NEPA evaluations.

The purpose of this document is to provide the necessary information for NPS to render a determination whether the proposed action will result in a significant adverse impact upon national parklands. This document complies with the NEPA requirements of the NPS Special Use Permit to construct the proposed public infrastructure improvements. An impact can derive from any action that may foreseeably directly or indirectly affect national parkland, resources contained on national parkland, the experiences and behavior of visitors to the Park, and NPS operations within the Park.

The proposed County system improvements also impact Waters of the United States, protected under Section 404 Clean Water Act (CWA) regulations. The U.S. Army Corps of Engineers (USACOE) authorizes Section 404 CWA regulated impacts. NEPA requirements of the USACOE authorizations require evaluation of the "whole and complete" project. The NEPA requirements of the USACOE authorizations will be satisfied through separate documentation, and are not the focus of this report.

2.0 PROJECT PURPOSE AND STATEMENT OF NEED

2.1 Background

The existing County water distribution system is insufficient to provide adequate water to meet predicted future demands. Thus, Frederick County is expanding the existing water distribution system, both in response to near-term demand and to serve long-term planned regional growth. Several important elements of the Frederick County water/wastewater system are located within the C&O Canal NHP The following public infrastructure is located within the C&O Canal NHP near Nolands Ferry:

- The existing Potomac River raw water intake and raw water transmission main, supplying raw water to the New Design Water Treatment Plant (WTP).
- An underground communications duct bank providing control and communications with the existing Potomac River Raw Water Intake structure.
- Electrical service (overhead and underground)
- The existing Eastalco treated effluent main pipeline to the diffuser.
- The existing Eastalco Potomac River treated effluent outfall diffuser

Figure 1 shows the project location. Figures 2 and 3 show the existing infrastructure, and the proposed improvements, through this region of the C&O Canal NHP. Some existing utilities were in place prior to NPS ownership of the properties and other elements were added following NPS acquisition.

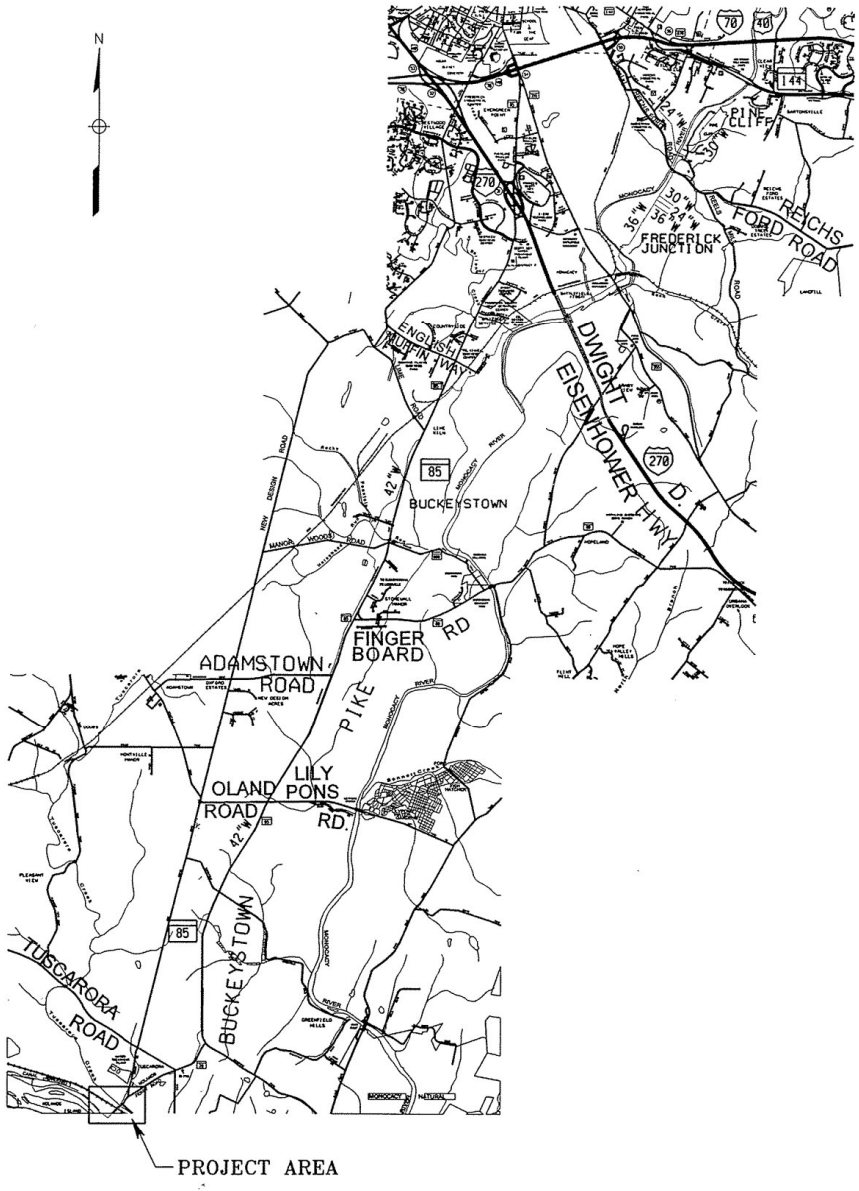
The existing Frederick County water withdrawal permit allows a maximum per day withdrawal of 16 million gallons per day (MGD). However, the existing Potomac River raw water intake and associated raw water transmission main have a transmission capacity of 10 MGD. The existing New Design WTP has a design capacity of approximately 8.0 MGD on a maximum day basis. Based on existing Frederick County development and growth patterns, the 2005 projected water demands were approximately 13.0 MGD. Frederick County is proposing to expand the existing New Design WTP and increase its capacity by 2007. In addition, Frederick County estimates that by the year 2020, population growth will create maximum day demands of 31.0 MGD. The New Design WTP is expected to serve a majority of this demand.

Current electrical service to the intake station is via two separate lines. One is overhead from the WTP to the Canal and then underground from the Canal to the intake station. The second line is underground from the WTP to the intake station. Because existing electrical lines are of insufficient size to provide primary and backup power for the larger pumps required in the near future, a new duct bank is required to accommodate new power and communication cables. In addition, communication requirements (which include voice, data, and control signals) will be increased to accommodate the new equipment in the intake pumping station. The proposed underground power lines will serve as backup power; therefore the existing overhead lines will not be eliminated.

With minimal upgrades to the existing New Design WTP filtration and finished water pumping components, and with completion of the proposed 42” water transmission main, system transmission capacity will be increased to approximately 10 MGD. As Frederick County expands to meet longer-range demands, the following additional projects will be required, as shown in Table 1, Projected Water Distribution System Improvements:

Table 1
Projected Water Distribution System Improvements

Year	Capacity	Improvements
2007	10 MGD	42” Transmission Main, Minor New Design Treatment Plant upgrades
2007	13 MGD	New Design Water Treatment Plant and raw water main upgrades, booster pumping station and storage tank (Reich’s Ford Road).
2020	31 MGD	New Design Water Treatment Plant Upgrade
2040	45 MGD	New Design Water Treatment Plant Upgrade and 36-inch parallel transmission main



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NEW DESIGN RAW WATER MAIN AND
McKINNEY TREATED EFFLUENT OUTFALL

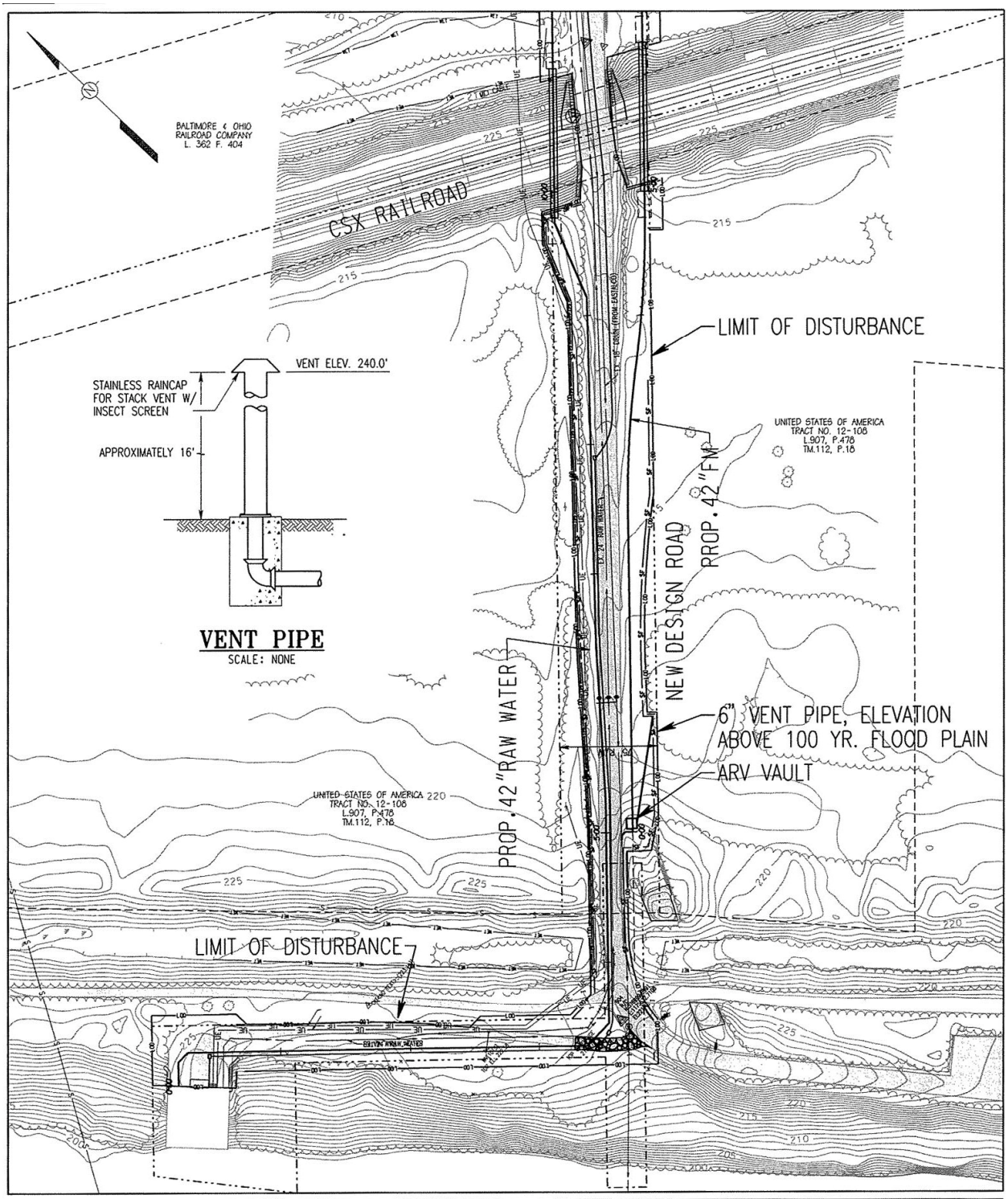
VICINITY MAP

SCALE: 1" = 8000'

DATE: November 2006

FIGURE 1

ENVIRONMENTAL ASSESSMENT



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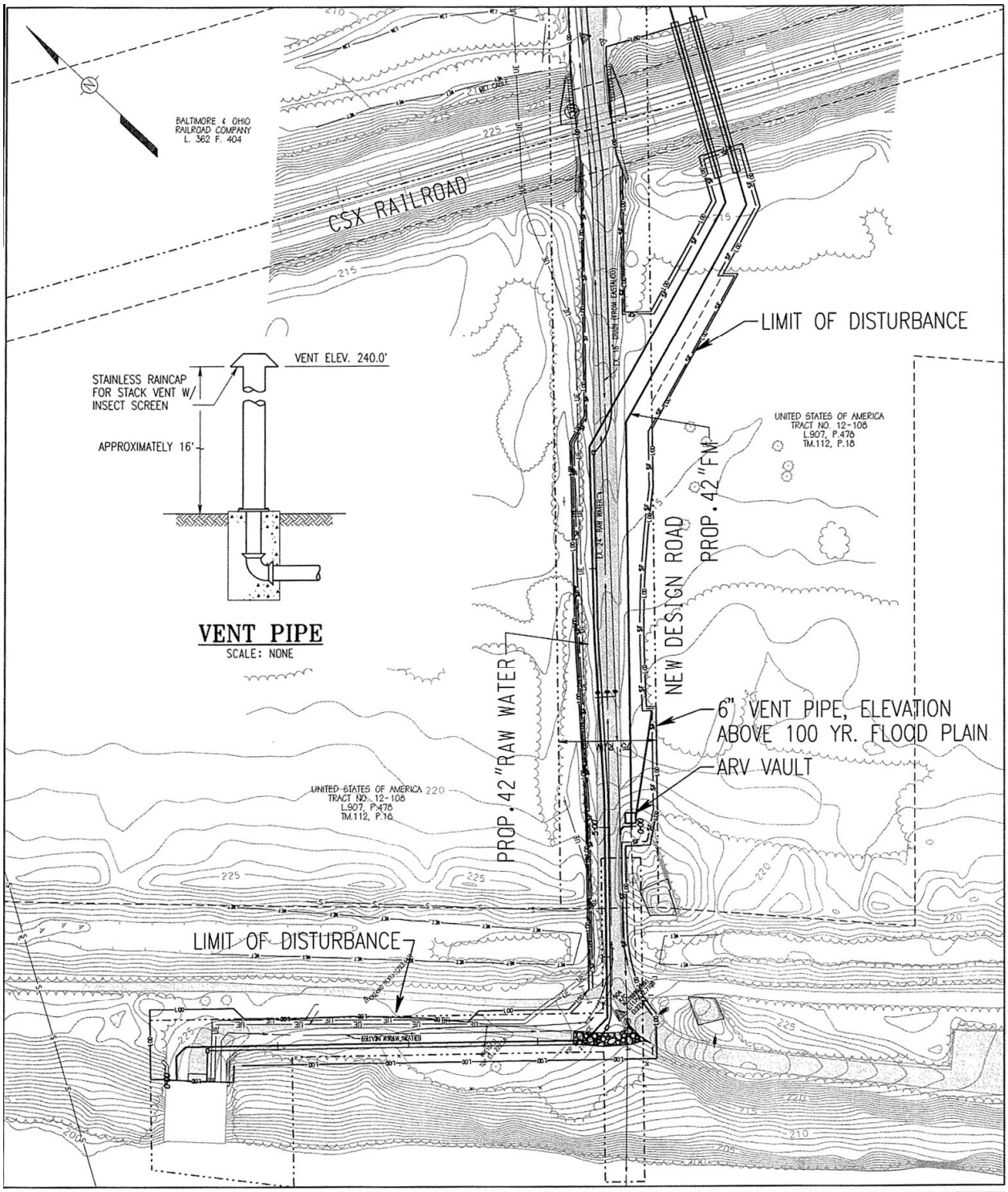
EXISTING AND ALTERNATIVE 2
WATER AND SEWER INFRASTRUCTURE
WITHIN C&O CANAL NATIONAL HISTORICAL PARK

SCALE: 1" = 100'
DATE: NOVEMBER 2006

FIGURE 2

ENVIRONMENTAL ASSESSMENT



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SCALE: 1" = 100'
DATE: NOVEMBER 2006

FIGURE 3

ENVIRONMENTAL ASSESSMENT

The County completed a series of studies to determine projected water and wastewater needs and to analyze system configurations to meet those needs, which are included in the above Table. These studies are discussed further in Section 2.3.

The existing treated effluent outfall consists of an 18-inch pipe originating at the Eastalco plant and running approximately 30,000 feet to the Potomac River diffuser. The County Water Treatment Plant (WTP) adds waste flow from the filter backwash lagoons located about 3,000 feet from the river. Eastalco waste flow is 0.41 MGD on average, while WTP waste flow is 0.3 MGD on average.

Discharges are handled by NPDES permits for the sources of flow. The current NPDES permit for Eastalco allows a discharge of 0.41 MGD for industrial effluent, and the current NPDES permit for the WTP allows an average discharge of 0.23 MGD for filter backwash waste with restrictions on solids, chlorine, and pH. Currently, approximately 4.2 MGD (peak) of effluent outfalls into the Potomac River (0.8 MGD from the WTP and 3.4 MGD from Eastalco). Treated industrial effluent from the Eastalco plant is the source of the existing Eastalco diffuser effluent.

The Frederick County Ballenger Creek Wastewater Treatment Plant (WWTP) discharges an annual average daily capacity of 6.0 MGD of treated wastewater into the Monocacy River. The current NPDES permit for the Ballenger Creek WWTP allows a peak discharge of 14.0 MGD to the Monocacy River. To accommodate future growth, the County is planning to build the McKinney WWTP adjacent to the existing Ballenger Creek WWTP, which will have an average daily capacity of 18.0 MGD. The Ballenger Creek and McKinney WWTPs would have projected combined average daily design flows of 24.0 MGD (45.0 MGD peak flow). Because the Monocacy River has relatively low flow volumes and lesser assimilation capacity, MDE has ruled that future discharges must release into the Potomac River, which has adequate assimilation capacity. If discharge to the Monocacy is halted completely, an estimated additional 30 MGD and 50 MGD will be discharged into the Potomac for 2020 and 2040, respectively. If discharge to the Monocacy is allowed to continue, these figures will be 16 MGD and 36 MGD, respectively. NPDES permits will be needed for all entities that discharge into the outfall line. Currently, this includes Eastalco and the County Water Plant. An additional NPDES permit would be needed for the added flow contribution when the outfall line is connected to the Ballenger Creek/McKinney WWTP.

The proposed outfall pipe improvements would convey combined flow from the New Design WTP, Ballenger Creek/McKinney WWTP, and Eastalco. This flow will be conveyed through a 24" outfall (converted from the existing 24" water main) to Tuscarora Road. At Tuscarora Road, a planned 42" outfall would carry the effluent through the C&O National Historical Park to the Potomac River. Near the Potomac River and prior to crossing the C&O Canal, the planned 42" pipe will be connected to the existing 18" diffuser, which can handle flow through year 2020. Because the upgraded 42" outfall pipe is sized to accommodate future (2040) flows, it will not need to be increased in the future. When future development flow increases exceed the capacity of the diffuser, a new diffuser will need to be constructed.

To meet the proposed project's needs, construction through the C&O Canal National Historical Park is unavoidable. Frederick County is requesting NPS approval to construct the required improvements for this project through NPS parklands.

2.1.1 Purpose and Significance of Chesapeake And Ohio (C&O) Canal National Historical Park

In 1825, the U.S. Congress chartered the Chesapeake and Ohio Canal Company to build a canal alongside the Potomac from Washington D.C. to Pittsburgh, Pennsylvania. Construction on the canal began in 1828, with President John Quincy Adams turning the first spadeful of earth at Little Falls, Maryland. By 1839, 134 miles of canal were constructed and opened, from Georgetown to near Hancock, Maryland. By 1850, the remaining fifty miles of the existing canal were constructed to reach Cumberland, Maryland. Canal construction terminated at Cumberland, Maryland.

The C&O Canal National Historical Park (C&O Canal NHP) preserves 184.5 miles of historic canal towpath and canal prism, including 11 aqueducts, 180 culverts, 74 lift locks, 52 lock houses, a 3,118-foot long tunnel and 50 waste weirs. There are a total of 1,364 structures that are managed as cultural resources in the C&O Canal NHP. To date, 215 archeological sites have been identified in the park. The museum collection hosts 6,928 artifacts, 650 natural history specimens, and 131,558 archeological objects. The C&O Canal National Monument was first established in 1961 by President Dwight D. Eisenhower, Executive Order 3391. In 1971, the C&O Canal NHP enabling legislation was enacted. The enabling legislation established the purpose of the park to preserve and interpret the historic and scenic features of the Chesapeake and Ohio Canal and to develop the potential of the canal for public recreation, including such restoration as may be needed. Subsequent legislative actions in 1977 designated the canal and towpath as a memorial to Justice William O. Douglas.

The C&O Canal General Plan states that the purpose of the park is:

- To understand the canal's reason for being, its construction, its role in transportation, economic development and westward expansion, the way of life which evolved upon it, the history of the region through which it passes and to gain an insight into the era of canal building in the country.
- to appreciate the setting in which it lies and the natural and human history that can be studied along its way; and
- to enjoy the recreational use of the canal, the parklands and the adjacent Potomac River.

The C&O Canal General Plan discusses the management objectives of the park and establishes a zoned land use management plan. The area of the proposed project within the C&O Canal NHP is identified as Section 11 Zone D (9.4 miles). Zone D refers to "Short-Term Remote Zone", valued for its remoteness, scenic character, and wilderness-like condition. A discussion on the purpose, history and significance of the C&O Canal NHP was provided by the NPS in a correspondence dated April 15, 2003. This correspondence is included in Appendix B: Interagency Correspondence.

2.2 Purpose of the New Design Raw Water Main and McKinney Treated Effluent Outfall Project

The New Design Raw Water Main and McKinney Treated Effluent Outfall projects provide infrastructure to support programmed improvements to the Frederick County water and wastewater infrastructure system [e.g., expansion of New Design WTP and future construction of the McKinney WWTP]. Both these projects occur partially within the limits of the C&O Canal National Historical Park.

The purpose of the New Design Raw Water Main improvements project is to increase raw water conveyance capacity from the existing raw water intake pumping station to the existing New Design WTP. The proposed New Design raw water main will increase the production capacity of the expanded New Design WTP (proposed expansion). The New Design WTP draws water from the Potomac River. Due to the greater flow volumes and upstream reservoir, the Potomac River provides the most reliable source of water to the County. The increased system capacity associated with the new raw water main will require mechanical upgrades within the intake structure. The proposed underground electrical and communications duct bank more or less parallels an existing underground duct bank and provides the power and communications infrastructure required for increasing capacity at the pumping station.

The purpose of the McKinney WWTP Treated Effluent Outfall improvements project is to provide a means to transport a greater capacity of treated effluent from the programmed McKinney WWTP to the existing Eastalco Potomac River Diffuser. When complete, the project may also facilitate improvements to water quality of the Monocacy River by redirecting treated effluent from the Ballenger Creek WWTP (currently discharged into the Monocacy) into the Potomac River. Frederick County is planning to build the McKinney WWTP to accommodate the forecasted wastewater flows of future County growth, and to meet the National Pollutant Discharge Elimination System (NPDES) requirements for discharge to the Monocacy River. The larger volumes of the Potomac River provide greater dilution for effluent than the Monocacy River.

The purpose of the project does not require changes to the existing wastewater diffuser, nor the intake within the Potomac River. Work within the Potomac River is not required by this project.

2.3 Need for the New Design Raw Water Main and McKinney Treated Effluent Outfall Project

The system requirements for the McKinney WWTP Treated Effluent Outfall and New Design Raw Water Transmission Main project are based on the evaluations outlined in the following documents:

- *McKinney Wastewater Treatment Plant Treated Effluent Outfall / New Design Water Transmission Main Corridor Alignment Report*, Whitman, Requardt & Associates (WR&A), November 2001
- *McKinney Wastewater Treatment Plant Treated Effluent Conveyance System Study Initial Alternatives Analysis*, WR&A, November 20, 1996
- *McKinney Wastewater Treatment Plant Alternatives Analysis Treated Effluent Conveyance System,* WR&A, March 1999

Appendix A provides a technical summary of the system requirements of the New Design Raw Water Main and McKinney Treated Effluent Outfall.

By the year 2040, the Ballenger Creek WWTP and the proposed McKinney WWTP will have projected combined average daily design flows of 24.0 MGD (45.0 MGD peak flow). Due to the lower flow of the Monocacy River, it is unlikely that the Maryland Department of the Environment (MDE) will increase the effluent discharge limits into the Monocacy River. MDE has ruled that future discharges must release into the Potomac River, due to the Potomac's larger assimilation capacity. The McKinney WWTP Treated Effluent Outfall project will allow the McKinney WWTP to serve the future Frederick County wastewater requirement of 45.0 MGD (Year 2040 build-out). The treated effluent outfall pipe, through the Park, will be designed to provide an increased capacity between the existing 18-inch outfall pipe and the diffuser, through the boundaries of the C&O Canal National Park.

The New Design raw water main will allow the New Design WTP to supply potable water to the Frederick County and City of Frederick service areas from the existing Potomac River raw water source to satisfy Year 2020, 31 MGD average daily volume projections. Completion of the raw water main will provide a connection between the existing Intake Pumping Station and the New Design WTP, parallel to the existing 24-inch piping through the boundaries of the C&O Canal NHP.

The second electric feed will provide an additional electric feed duct bank to the intake pumping station; allow the intake pumping station to operate more reliably and at a sufficient capacity to serve the New Design WTP. The new communications duct bank will facilitate the integration of the intake pumping station control system with the New Design Road WTP system.

2.4 Separate, but Related Actions

Frederick County is expanding the County water/wastewater infrastructure, both in response to existing demands and to serve planned regional growth. The water and wastewater infrastructure improvements that Frederick County is considering are in response to near-term (year 2006) and long-range (year 2020) demand projections. Although only projects that impact National Park Lands are the subject of this evaluation, these projects are elements of the Frederick County regional water and wastewater infrastructure improvements that are under consideration for implementation within the next 10-years. Frederick County also has data on extended long-range demand projections through year 2040. The Frederick County proposals in evaluation address 2020 projections; however some elements are sized for compatibility with extended long-range conditions (year 2040). The range of related actions that Frederick County is currently considering includes:

- A new treated water transmission main conveying water from the New Design WTP to connections with the City of Frederick and Frederick County service areas, including:
    - Ballenger Tank 3 water storage tank to serve the Ballenger service area, and
    - East County Pumping Station to convey water from the Ballenger Tank 3 to the East County service area and City of Frederick.

- Improving the pumping capacity and screening at the existing New Design raw water pumping station and transmission main, from the existing Potomac River intake to the New Design WTP.
- Expansion of the existing New Design WTP to increase production capacity.
- A new McKinney Wastewater Treatment Plant (WWTP).
- A new McKinney WWTP Treated Effluent Outfall pipeline to convey effluent from the proposed McKinney WWTP to a proposed junction box located near the existing diffuser in the Potomac River.