

## Affected Environment

This chapter describes the existing environmental conditions in and around the site. Organized by resource topic, this chapter lists the resources that potentially could be impacted by the proposed action. Resources examined in detail include natural resources (soil, topography, soundscape and lightscape), cultural resources (historic structures and cultural landscape), visual resources, visitor use, traffic and circulation, and park operations.

The project site includes the P.C. Knox house, the surrounding side and rear yards, the reflecting pond, and portions of Library Lane. The project site extends up a sloped hill adjacent to Library Lane to include a greenhouse ruin and two crumbling walls of a former garden that will roughly form the boundaries of the parking area. The project site also includes a ten foot wide section cut through some trees that will serve as an access lane (see Figure 3).

### NATURAL RESOURCES

#### Soil

The immediate project site is dominated by Conestoga silt loam with 3-8% slopes, Conestoga silt loam with 8-15% slopes, and Lindside silt loam. All Conestoga soils are very deep and well-drained on uplands, formed in residuum mostly from micaceous limestone and calcareous schist. Lindside silt loam is found in the area close to Valley Creek, is deep, and is moderately well drained (USDA 2010). Well drained soils remove water from the surface, avoiding excessive runoff and providing a secure base for physical development. This promotes dryer, more stable conditions for soil stability, vegetative growth, and physical development (USDA 1963). Because the site is a developed area not managed for agriculture, it is not considered to be Prime Farmland.

#### Topography

Valley Forge NHP is located in the Piedmont physiographic province. The topography of the park is flat to rolling with elevations ranging from 60 feet above mean sea level (AMSL) near the Schuylkill River to approximately 546 feet AMSL on Mount Misery. Mount Misery and the adjacent Mount Joy form the eastern terminus of a several-mile long ridge that forms the northern rim of Pennsylvania's Great Valley. To the east of these hills, the 'Grand Parade' is a broad valley edged by prominent ridgelines. From a historical perspective, the hills and ridgelines found at Valley Forge NHP were critical to George

Washington's selection of the site for the encampment, as they provided excellent defensive position for the Continental Army (NPS 2006).

The project site is located near the southwest boundary of the park. The general topography of the project site slopes from west to east. The project area is rolling, and the area proposed for the parking lot is sloped, with an approximately eight-foot difference across the approximately 100-foot width of the lot.

### **Soundscape**

Valley Forge NHP has no natural soundscape, by definition, because human-caused sound is always present in the park and no area of the park is farther than 2,000 feet from a road or railroad and resulting transportation-associated sound (NPS 2005). The project site is bounded to the north by Yellow Springs Road, which is a two-lane state road with an average daily traffic volume of 1987 cars as of the last vehicle count in 2011. The project site is approximately 1/3 mile north of the Pennsylvania Turnpike, which is currently a four-lane highway with an average total daily traffic volume of 46,000 vehicles. Recent noise monitoring has been conducted according to Federal Highway Administration criteria along this stretch of the turnpike; all of the receptors along the park boundary detected noise levels ranging from 55 to 63 decibels (dBA) (STV Incorporated 2006). During August 2001 and March 2003 noise monitoring was conducted within the park. The southern portion of the park was characterized as having noise levels from 53 to 54 dBA, primarily attributed to the closeness of the Pennsylvania Turnpike (NPS 2006). Within the project site, noise levels range from 50 to 56 dBA, from the patio to the site of the proposed parking area.

Although no natural soundscape is present, the area is relatively quiet in the context of the region, and the quiet is an important value for visitors. The park makes an effort to minimize the impact of human-caused sounds, where possible.

The lease will set a maximum level of decibels for music and other amplified sound so that the sound heard by the general public at Valley Creek and on the Mount Misery Trail is minimal. No amplified sound would be audible from private residences, the closest of which is located across the Pennsylvania Turnpike, 2000' from the project site. Future study and experimentation is needed to set this limit.

### **Lightscape**

A natural lightscape is an environment undisturbed by light pollution. Dark night skies have natural, cultural, and scientific importance (NPS 2012). In accordance with *NPS Management Policies 2006* (NPS 2006), the NPS strives to preserve natural ambient lightscales, which are natural resources and values that exist in the absence of human-caused light. No natural lightscales are present in the park, but the site is relatively dark in the context of the region. The park closes at dark, and there is no visitor use after dark.

Within the project site, little lighting is used. The P. C. Knox House is rarely used at night and is not regularly lit on the interior or exterior. Two adjacent structures are used as park housing, and have interior and exterior lighting appropriate for residential use. There is no street lighting on Library Lane.

Headlights from passing vehicles are visible from the project site from Yellow Springs Road and, during six months of leafless trees, from the Pennsylvania Turnpike.

## **CULTURAL RESOURCES**

Valley Forge NHP encompasses the site of the 1777-78 encampment of the American Continental Army under General George Washington's command. Although multiple layers of history exist throughout the park, it retains sufficient integrity to convey the stories of its past.

Within the project site, the P. C. Knox House and grounds contribute to the National Register significance of Valley Forge NHP (see Figure 3). Specific cultural resources that may be impacted by proposed action include historic structures and cultural landscapes. Cultural resources dismissed from further consideration were discussed in "Chapter 1: Purpose of and Need for Action" and include archeological resources, museum objects, and ethnographic resources.

### **Historic Structures**

The buildings, ruins, monuments, markers, statues, roads, earthworks, and walls in Valley Forge NHP all help to reflect the park's history and contribute to its significance. Within the project site, the P. C. Knox House and terrace and the walled garden ruin are noted as contributing to the National Register significance of the site (Milner 2009).

The P. C. Knox House is a large, three-story Colonial Revival style mansion with a servants' wing, an open entrance porch, and a large library with a fireplace and bay window. The outside of the mansion was remodeled to include the addition of a stone terrace featuring Mercer tiles depicting 18<sup>th</sup> century craftsmen. Formal stairs lead from the terrace to the lawns, reflecting pond, pool, and creek (see Figure 9).

The floor boards in the foyer/entry hallway and dining room are consistent throughout the two areas with no sign of patching or change in the last fifty years. They are of the same width and finish, without breaks that would indicate they are of a different age. If the floor has been changed at some point not known to the park, the first generation of flooring would have had to be torn out and a newer floor re-laid at the original elevation since all the floor duct registers in both areas are level with the flooring with the exception of in the dining room north east corner where a joist was cut for the ductwork from below and the floorboards are unsupported and sagging.

On the rear terrace, the laid stone is mortared in place and the mortar in many locations is failing. The stones are uneven, and the inlaid Mercer tiles are spalling, contributing to the uneven nature of the terrace. Low walls ranging from 16 to 25 inches high surround the terrace.

West of the greenhouse ruin, considered to be a contributing structure, stone walls enclosed a garden on three sides. Only the west and north sides remain, and the walls are in poor condition. The walls are considered to be a contributing structure (CLI 2000).

Figure 9. Modern-day P.C. Knox House.



View of front of house.



View of back of house.

## **Cultural Landscape**

The cultural landscape of the project site overwhelmingly reflects its 19<sup>th</sup>- and 20<sup>th</sup>-century agricultural and gentleman's estate-development heritage through the broad expanses of rolling fields, the residential cluster of farm and estate buildings, and remains of ornamental gardens and private recreational features such as a swimming pond and grass tennis court.

The landscape also shows evidence of its transportation history including the 19<sup>th</sup>-century covered bridge over Valley Creek and road traces, including a ford site, that likely were used by the Continental Army.

The immediate project site is significant for its association with the 1777-78 encampment of the Continental Army, including the terrain, creek, and ford. The site also is significant for its association with Philander Chase Knox, who held cabinet positions in three presidential administrations and twice served as a U.S. senator for Pennsylvania, while maintaining his primary residence here. The site retains a high degree of integrity to its 20<sup>th</sup>-century period of significance; a moderate degree of integrity to its 19<sup>th</sup>-century period of significance; and relatively little integrity to the encampment period (CLI 2000)

## **VISUAL RESOURCES**

Visual resources are based on vantage point: what park visitors on the Knox Trail see, what passers-by on Yellow Springs and Wilson Roads see, and what users of the site see when they look beyond the site. There are few long views from within or directly around the project site; views are foreshortened by topography, vegetation, and structures. The overall area is broken up into a series of smaller spaces that contain views. The quality of the views is primarily cultural rather than natural—even views of Valley Creek include features such as bridges and trails.

## **VISITOR USE**

Valley Forge NHP provides a variety of recreational and historical opportunities for park visitors. At the project site, visitor use comprises walking, biking, and equestrian use on the Knox Trail and Library Lane, wildlife watching, fishing in Valley Creek, and general informal relaxation. Visitors may use the park's Horace Willcox Library within the P.C. Knox House by appointment. Other than library visits, there is no visitor access to the house.

## **TRAFFIC AND CIRCULATION**

October 2011 daily traffic volumes were collected by the Pennsylvania Department of Transportation for Yellow Springs Road. Adjacent to the project site, Yellow Springs Road carries 1,987 vehicles between Wilson Road and State Highway 252. Yellow Springs Road feeds into a one-lane covered bridge with limited sight distance leading to Highway 252.

The project site is served by an approximately 1500-foot long, one-way, single-lane driveway called Library Lane that extends from Yellow Springs Road to Wilson Road. Just past the main house, the entry drive incorporates a small drop-off circle before it proceeds up an incline to terminate at Wilson Road. No parking is permitted on the lane, with the exception of four parking spots in front of the house.

## **PARK OPERATIONS**

The park became responsible for the P. C. Knox House and grounds in 1976, when Valley Forge State Park was transferred to the National Park System. Three rooms of the P.C. Knox House are used as the park library, which is available by appointment only. Additional rooms are used for curatorial storage. Two rooms are used for occasional meetings by park staff and partners. Law enforcement rangers perform security checks of the property. Visitors to the area use a 76-car paved parking lot on Route 252 or a 12-car lot on Yellow Springs Road. Maintenance staff service the property as needed, including occasional lawn mowing and repair of normal wear and tear. Future unfunded projects include replacement of the heating system and rehabilitation of the reflecting pond.