Part I: Niagara Falls: Then and Now
1. Historic Conditions

Before determining the best future use of lands along the Niagara gorge rim, it is important to understand past events that influenced and shaped current conditions. The Niagara gorge and gorge rim is a dynamic environment that has been shaped by a wide variety of environmental and cultural forces over time. The following is a discussion of the historic natural and cultural settings in Niagara Falls, which is followed by a profile of the current conditions in this same area. The intent is to provide a contextual backdrop from which to review the proposed concept for future restoration of the Study Area along the Niagara gorge rim.

A. Natural Setting

The 6.8 mile-long Niagara gorge is comprised of the riverbanks and steep cliffs carved through the Niagara Escarpment by the Niagara River along the U.S – Canadian border in New York and Ontario. The Escarpment is an ancient geological formation that runs east-west through the Great Lakes region from New York through Ontario and Michigan west to Wisconsin. The escarpment originated approximately 430-450 million years ago, as marine deposits at the edge of a shallow, warm sea. Differential erosion of adjacent softer rock, such as shale and sandstone, eventually exposed the cliffs of the escarpment (NEC, 2010). The upstream end of the Niagara gorge is defined by Niagara Falls, which is comprised of three named flows: the American and Bridal Veil Falls, between Goat Island and the City of Niagara Falls (NY), and the Canadian (or Horseshoe) Falls between Goat Island and the City of Niagara Falls (Ontario, Canada). The Canadian Falls currently drop an average of 188 feet to the Lower Niagara River, and have a brink length of 2,600 feet. The American and Bridal Veil Falls currently combine for a total brink length of 1,060 feet and are 70-110 feet tall, with the height of water reduced by a massive accumulation of rocks at the base of the falls (Niagara Parks, 2011).

Formation of the gorge and falls began with the retreat of the Wisconsin Glacier approximately 12,000 years ago. Melting ice from the glacier drained into the Niagara River, and plunged over the edge of the Niagara Escarpment near what is now Lewiston. Gradual erosion through the force of the river water, annual freezing/thawing cycles, and rockfall has resulted in the falls moving upstream to their present-day location (DNC, 2010). Although the falls are still moving today, the rate of erosion has slowed considerably due to flow control and diversion for hydro-power generation (Niagara Parks, 2011).

Following retreat of the Wisconsin Glacier, the land along with Niagara gorge supported tundra vegetation. After approximately 1,300 years of climate amelioration, boreal forest vegetation became established throughout the lands adjacent to the gorge (the gorge rim), with spruce and jack pine as dominant trees. The area was sparsely populated by nomadic human tribes that hunted indigenous large mammals, including caribou, mastodons, moose, and elk. The spruce and fir forests that dominated the area between 9,000 and 3,000 years ago supported a variety of large mammals, including deer and moose. Starting around 5,000 years ago, the climate became much as it is today, promoting growth of extensive deciduous forest, dominated by sugar maple and American beech. However, the warming of the climate has not been uniform. Conditions became significantly warmer during several periods, allowing the establishment of xerophytic plants, some of which subsist today. In addition, the northern exposures and restricted angles of sunlight in the gorge, along with the spray from the cataracts and ice floes late into the year allowed northern trees, such as paper birch and northern white cedar, to extend down the Niagara Escarpment into the Niagara gorge (Eckel, 2002). These factors combine to make the Niagara gorge an area of unusually rich plant diversity.

Human occupation of the area has greatly influenced the natural history of the Niagara gorge and gorge...
Native Americans manipulated the understory of Northeastern forests through the use of fire to enhance hunting opportunities. These tribes also created small clearings for the establishment of villages, hunting camps, and agricultural plots. European settlers exerted a more significant influence on the natural ecological communities of the area by creating more substantial villages, farms, and roads. Early settlement of the Niagara region was followed by more intensive residential and industrial development that largely eliminated or severely altered the natural communities that occurred along the Niagara gorge and gorge rim. Much of what is present today represents either secondary succession back to more natural ecological communities (primarily within the gorge) or a largely planted/managed landscape, primarily associated with the Robert Moses Parkway (RMP) and the state parks that occur along the gorge rim. Detailed information on the current ecological condition of the Study Area is included in Section 2.

B. Cultural Setting

As mentioned above, the ecology of the gorge rim has been influenced by humans for at least 3,000 years. The first human inhabitants of the area were the Palco-Indians or Clovis people. The Clovis people were nomadic hunters that lived along the shoreline of Lake Erie between 12,000 and 9,000 years ago. Between 9,000 and 3,000 years ago (the Archaic Period), the area was occupied by hunter-gathers that subsisted on a diet of deer, moose, fish and plants. Evidence for Indian occupation of the region during the Archaic period has been found at Lockport and Grand Island. The Archaic Period was followed by the Woodland Period (3,000 to 300 years ago), during which the Iroquois inhabited the area. The Iroquois (primarily the Seneca and Tuscarora tribes) were agriculturalists who established small villages in Niagara Falls, Chippewa, and Foster’s Flat. Hunters moved seasonally between these permanent settlements and temporary hunting and fishing camps, occupying the river banks during the summer and scavenging on animals that washed over the falls. During this time the gorge rim was part of an overland portage route which bypassed the Niagara River rapids and falls. (Eckel, 2002).

At the beginning of the 17th century, European explorers and missionaries began arriving in the area (Info Niagara, 2011). In 1666, the first French explorer, Rene Robert Chevalier, Sieur de La Salle made a short visit to the east bank of the Niagara River. La Salle’s expedition formalized the Portage Trail, and built the first European structures in the region. Fort LaSalle was constructed in 1669, Fort Hennepin in 1678, and Fort Conti in 1679. Other early European settlements established in the area included Fort Joncaire, Fort du Portage, Fort Schlosser, and Fort Demler.

Because Niagara Falls created an insurmountable obstacle for shipping goods and materials by water, the Portage Trail, or detour around the Falls, had to be protected to keep supply and trade routes open. In 1687, the French established Fort De Nonville at the mouth of the Niagara River. La Salle’s expedition formalized the Portage Trail, and built the first European structures in the region. Fort LaSalle was constructed in 1669, Fort Hennepin in 1678, and Fort Conti in 1679. Other early European settlements established in the area included Fort Joncaire, Fort du Portage, Fort Schlosser, and Fort Demler.

On September 14th 1763, a British wagon train was attacked by 500 Senecas along the Niagara gorge
rim above the Devil’s Hole Cave. The outnumbered soldiers were killed in what became known as “the Massacre at Devil’s Hole”. In response to the Native American uprising, Captain John Montresor, a British engineer, was sent to Niagara to strengthen British fortifications (Info Niagara, 2011). In addition to fortifying the area, Captain Montresor also devised the first elevator built in North America which was known as “Crawl On All Fours” to haul goods up the steep bank of the Niagara Escarpment in Lewiston (Info Niagara, 2011). Fort Niagara prospered and the transportation route was protected under British control. During the American Revolution, Fort Niagara served as Britain’s most important contact point with the Iroquois and the Indians of the upper Great Lakes region. Protection of the portage for military and commercial purposes remained the chief duty of the Niagara garrison.

While the military was protecting the trade route, the local civilian economy was being shaped and influenced by the region’s dominant natural resource: water. Eventually the water was harnessed to produce power. Daniel Joncaire was the first person known to harness the waters of the Niagara River for the production of power. As the operator of a saw mill back to 1759, he harnessed water to power his mill. This lead to growth in local industry, which continued for the next 100 years (Niagara Info, 2011).

In 1805, the State of New York auctioned off the mile-wide strip of land lining the river banks upstream and downstream of Niagara Falls. By 1810, Niagara Falls, New York consisted of twelve houses, with a grist mill, saw mill, tannery, tavern, and post office. During the first half of the Nineteenth century, transportation infrastructure and industrial development continued on both the Canadian and American sides of the Niagara River. In 1847, the countries joined in commissioning the first suspension bridge over the river, built by Charles Ellet, Jr. at the site of the narrowest crossing, just south of the Whirlpool rapids.
Eight years later, John A. Roebling, the designer of the Brooklyn Bridge, went on to build the Niagara Railway Suspension bridge in 1855. This was the first railroad bridge to cross the Niagara gorge. Two years later the Hydraulic Canal was developed. This was the first large-scale hydroelectric power development in the area. Eventually, in 1881, the first hydroelectric generating station on the Niagara River was built by the Niagara Falls Hydraulic Power and Manufacturing Company. The availability of power resulted in the proliferation of industry along the river, including: the Gaskill Flouring Mill (1875), Pittsburgh Reduction Company (1895, later known as the Aluminum Corporation of America, or ALCOA), Niagara Falls Hydrologic and Manufacturing Power Company (1896, later known as the Schoellkopf Power Station), and the Niagara Mohawk Power Company (1953) (Niagara Info, 2011).

During the rapid industrialization of Niagara Falls, in 1902, the Great Gorge Route Railroad was constructed across the Lewiston-Queenston Suspension Bridge. Later it was extended along the lower Niagara gorge on the American side of the river, from Lewiston to the falls, before connecting back into Canada at the Upper Steel Arch Bridge. Over a half-million passengers each year marveled at the scenic vistas afforded by travel along the Great Gorge Route. The Gorge Route on the American side was destroyed on September 17, 1935 when 5,000 tons of rock broke free from the gorge wall and crashed onto the tracks. The route was never repaired (NCHS, 2009).

In response to the heavy industrial growth within the city, population grew rapidly from 30,445 at the turn of the twentieth century to 102,394 in 1960 (see graph). As the regional and national manufacturing economy began to struggle in the 1960s and 70s, the local population trend followed suit. With not enough local employment choices, many people chose to search for employment outside of Niagara Falls, which led to a steady decline in population over the last 50 years.

Industrial and population growth in Niagara Falls was paralleled by the growth of tourism. Father Louis Hennepin, a member of LaSalle’s group of early explorers, sketched the first published image of Niagara Falls in 1699. Following the American Revolution and the War of 1812, news about the unique beauty and wonder of the Niagara River and falls traveled, and by 1838 the area was attracting approximately 20,000 visitors annually. By 1850 Niagara Falls was experiencing 80,000 visitors annually, and by 1870 tourism was the area’s dominant industry. Visitors would travel long distances to view the falls and gorge. These visits could last for weeks or months at a time (Niagara Info, 2011).

The coincidental growth of tourism, along with the growth of the energy and manufacturing sectors in the Niagara Falls area, created competing interests and opinions regarding the value and best use of the area’s natural resources. The resulting land use policies and decisions permanently impacted the future quality and accessibility of the Niagara River, falls, gorge and rim (Info Niagara, 2011). In response to these competing interests, by the late 1860s, the Free Niagara Movement was started by a small group concerned about preserving the natural beauty of the falls. It was led by America’s first landscape architect, Frederick
Law Olmsted, known for designing New York City’s Central Park and Buffalo’s Delaware Park. Members of the Free Niagara movement were outspoken and persistent in their efforts to reclaim the land along the Niagara rim for public use and restoration. With the help of prominent Buffalo resident Ansley Wilcox and Senator J. Hampden Robb, the Niagara Reservation Act of 1885 was signed by Governor David Hill. The act appropriated one million dollars toward the purchase of private properties along the river above the falls, for the purpose of establishing the nation’s first state park (Welch, 1903).

Though the creation of the Niagara Reservation was a great victory for the Free Niagara movement, many continued to advocate for additional lands to be protected. For years, Wilcox and others pressed the state to extend the reservation beyond the falls, along the gorge rim toward Lake Ontario (Wilcox, 1920). Although ultimately successful in expanding the boundaries of the Reservation, his vision of memorial parks and “riverways” was only partially implemented. While Wilcox and others continued their grassroots campaign, Robert Moses, chairman of the State Parks Council, was maneuvering to ultimately wrestle control over the Niagara Reservation away from the park commissioners in 1928 (Caro, 1974). When the state eventually developed the park system along the gorge rim, it was Moses’ vision of power generation, rather than Wilcox’s vision of memorial parks, which drove the design of the parkway and shaped the landscape of the gorge and rim.

A view seeker perches on the rim above the Whirlpool Rapids and Great Gorge Route, circa 1902. Photo courtesy of Niagara Falls Public Library, Niagara Falls Heritage Foundation Collection.
The Niagara gorge and rim changed significantly in 1956 with the catastrophic Schoellkopf Station rockslide. When the face of the gorge collapsed at the Schoellkopf site, it took much of the area’s electrical generation capacity with it. This disaster led directly to the NYPA’s decision to build the Niagara Power Project. The project consisted of the Robert Moses Niagara Power Plant (named in honor of Moses’ chairmanship of NYPA; hereafter, the “power plant”), intake structures, underground conduits and pump stations, the forebay, the Lewiston Reservoir and generating plant, and the Niagara switchyard. It also included the construction of 9.3 miles of the RMP, as well as additional work at Goat Island, Niagara Reservation State Park, Whirlpool State Park, and Hyde Park (NERA, 2005). When the Niagara Power Project began operation in 1961, it was the largest hydroelectric project in the Western Hemisphere (NYPA, 2011). Water for the power plant is drawn from the Niagara River 2.5 miles above the falls, at a rate of 600,000 gallons per second (Info Niagara, 2011). The hydroelectric plant consists of thirteen turbines rated at 200,000 horsepower each, with a capacity of power output rated at 2,300 megawatts (NYPA, 2011).

Robert Moses is often referred to as the “master builder” of the mid-twentieth century in New York State, and served as the director of several state agencies and public authorities. He is considered the father of the New York State parkway system due to the parkway projects he spearheaded on Long Island in the 1920s and 1930s. From the 1930s to the 1960s he was also responsible for the construction of numerous bridges and expressways in New York City and on Long Island. However, he was a polarizing figure in the field of urban planning. Like most projects with which Robert Moses was associated, the RMP reflects Moses’ general approach, which favored the automobile over mass transit, and was not particularly sensitive to adjacent neighborhoods and the integrity of the existing urban fabric in the areas where his roads were located (Caro, 1974). Additional discussion of the RMP is included in Part II of this study.
2. Current Conditions

A. Natural Setting

The Niagara gorge rim is located within the Great Lakes Plain ecozone, which is a large, relatively level area covering 7,206 square miles in New York State, adjacent to Lakes Erie and Ontario.

1. Topography

Elevation in the Study Area ranges from approximately 260 feet above mean sea level (amsl) along the Niagara River at the Earl W. Brydges Artpark, to approximately 600 feet amsl on the gorge rim in DeVeaux Woods State Park. Topography within the gorge consists of steep slopes and cliffs that descend from the gorge rim to the river. Along the rim itself, topography is more level, but generally slopes upward towards the eastern edge of the Study Area (USGS, undated). Topography on the gorge rim ranges from approximately 320 to 600 feet amsl. Gorge depth averages 209 feet from the top of the gorge rim to the surface of the river (Eckel, 2004).

2. Geology

Surficial geology in the central and southern portions of the Study Area is comprised of variably textured glacial till, that was deposited during and shortly after the last ice age. Bedrock of the Lockport dolomitic limestone formation is exposed at the surface at the Niagara Escarpment, with lacustrine beach deposits found to the north in the Artpark, and a terminal moraine paralleling the Escarpment to the south (NYS Geological Survey, 1999; USDA Soil Conservation Service, 1972). Soils in the Study Area formed in these glacial materials. Glacial till consists of the rocks and soil materials that were picked up and deposited by the glacier as it moved slowly southward. As the ice began retreating north again, coarse materials were deposited in the form of outwash, while melting waters carried fine soil materials into water bodies, which settled out to form lacustrine deposits (USDA Soil Conservation Service, 1972).
3. Soils

The General Soil Map for Niagara County shows two soil associations on the gorge rim: the Rhineback-Ovid-Madalin association and the Odessa-Lakemont-Ovid association (USDA Soil Conservation Service, 1972). Each of these is described in greater detail below:

- **Rhineback-Ovid-Madalin Association**: This soils association occurs in the Study Area north of the Escarpment. These soils are deep, somewhat poorly drained to very poorly drained soils having a fine textured or moderately fine textured subsoil. The surface layers are usually comprised of silt loam or dark silt loam, with silty clay or silty clay loam subsoils. Underlying materials are varved silt and clay, or loamy glacial till (USDA Soil Conservation Service, 1972).

- **Odessa-Lakemont-Ovid Association**: This soils association occurs in the Study Area south of the Escarpment. These soils are deep, somewhat poorly drained to very poorly drained soils having a fine textured or moderately fine textured subsoil. The surface layers are usually comprised of silty clay loam or silt loam, with silty clay or silty clay loam subsoils. Underlying materials are clay and silt, or loamy glacial till (USDA Soil Conservation Service, 1972).

Due to early human settlement of the area, detailed soil mapping was not conducted throughout much of the City of Niagara Falls. In the Soil Survey of Niagara County, regions not subject to detailed examination were mapped as Ua, or Unsurveyed area. Such areas comprise approximately 350 acres, or 50%, of the Study Area, including Devil’s Hole State Park and all of the area south of University Drive/Hyde Park Boulevard. Detailed soil surveys have only been conducted in the northern half of the Study Area. Within the surveyed area, 26% of the land is comprised of silt loams and gravelly sandy loam; 13% by steep rockland; and 61% by soils that are very disturbed and lack soil profile development. Disturbed soils are concentrated along the rim, and are generally the result of construction operations (e.g., RMP Niagara Power Project). The original soil in these areas has been either stripped away and removed, or compacted and covered with fill materials to a depth of 3 feet or more. According to the USDA Soil Conservation Service (1972), these areas require detailed on-site investigations of the specific soil conditions “if changes in land use are contemplated” in order “to determine suitability for other uses.” The characteristics of the soil series mapped within the northern portion of the Study Area are summarized in Appendix A.

4. Hydrology

The Niagara River is the outlet for four of the five Great Lakes. The drainage area for the river totals over 264,000 square miles. The hydrology of the Niagara River between the intakes and tailrace of the Niagara Power Project is largely controlled by the diversion of water for both NYP and Sir Adam Beck (Canadian) power plants. During the seven-month tourist season from April through October, a minimum flow of 100,000 cubic feet per second (cfs) is required in the river during hours of peak visitation. A minimum flow of 50,000 cfs is required during non-peak hours within the tourist season, and during the non-tourist season from November through March (ASA & E/PRO, 2005).

Water resources within the Study Area are limited. Surface water features include Fish Creek and Bloody Run, which historically drained into the Niagara River in the Artpark and Devil’s Hole State Park, respectively. Fish Creek has a long history of modification, beginning with channelization in the early 1900s for construction of a railroad, and again more recently in 1962 during construction of the RMP. Upstream of the Study Area, Fish Creek flows through the Niagara Falls Country Club in a concrete channel, then enters a culvert that runs under the RMP, and finally drains down the gorge walls in a concrete spillway. Bloody Run originally flowed into the gorge near Devil’s Hole, but the drainage area...
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has been gradually filled by construction of residential streets and the RMP. It remained an open waterway until 1992, when remediation for dioxin contamination buried the creek altogether (WNYWS, 2011; Eckel, 2003c). Groundwater in the Study Area is contained primarily within the Lockport Group, a fractured bedrock aquifer (URS & GSE, 2005). Discharge features on-site include seeps and springs that daylight along the cliff face within the gorge and discharge onto “shelves” in the calcareous cliff community. Numerous stormwater drainage outlets also occur within the gorge (ASA & E/PRO, 2005).

The U.S. Fish and Wildlife Service National Wetland Inventory (NWI) maps indicate one small, forested wetland within the Artpark, near the northern edge of the Study Area. In addition, reconnaissance-level field surveys identified a small shallow emergent marsh on the gorge rim, within the wildlife refuge area (Plateau Park) in the Artpark. There are no mapped New York State Freshwater Wetlands within the Study Area.

5. Water Quality

The NYSDEC classifies all waters in the state based on the existing or expected best use of that waterway. The Niagara River is designated as Class A-S, which indicates that the best usage is as a source of drinking water, and for fishing, swimming and other recreation. Tributaries within the Study Area, including Fish Creek and Bloody Run are designated as Class C. This class is unprotected, and indicates that the best usage is for fishing (NYSDEC, 2010b).

The Niagara River and gorge have been subject to various pollutants, both historical and ongoing. The Hooker-Hyde Park landfill, active from 1953 to 1975, was used to dispose of approximately 80,000 tons of waste, including hazardous materials such as volatile organic compounds and dioxin. Contaminants from the landfill entered both the groundwater and Bloody Run, which flowed down the gorge face into the Niagara River. As part of the landfill remediation effort, Bloody Run was excavated to remove contaminated water and sediment, and extraction wells were constructed to maintain an inward groundwater hydraulic regime. Current seeps in the Bloody Run area of the gorge are surface runoff rather than groundwater discharge, and indicate that the extraction wells have been effective at controlling groundwater migration from the landfill into the gorge (USEPA, 2008). Although these remediation activities have successfully removed contaminants from Bloody Run, the altered hydrology in this part of the gorge has result in drier conditions in the calcareous cliff communities and calcareous talus slope woodlands in the vicinity of Devil’s Hole. Eckel (2003b) indicated that the Bloody Run remediation and resultant habitat desiccation has likely decreased the floristic diversity in the area.

Runoff from city streets and parking lots along the rim also drains into the gorge through channels and stormwater drainage structures evident along the face of the cliff, introducing a variety of pollutants (e.g., salt and petroleum products) to the natural communities at the base of the cliff, and ultimately to the Niagara River. This runoff represents an ongoing threat to the calcareous talus slope woodlands located below the cliffs. According to Evans et al. (2001), “the introduction of chemicals and fuels into these natural systems could have profound effects on their overall integrity.”
6. Ecological Communities

Ecological communities within the Niagara gorge and gorge rim currently include calcareous cliffs, calcareous talus slope woodlands, mowed lawn/ornamental plantings, shallow emergent marsh, successional old field, successional forest, northern hardwoods and disturbed/developed land. Calcareous cliffs and calcareous talus slope woodlands are the dominant communities within the gorge; both are identified as significant natural communities by the New York Natural Heritage Program (NYNHP). A variety of generally more common and/or disturbed communities occur within the Study Area, along the rim. The location of the various communities within the Study Area and the adjacent gorge is shown in the ecological communities map included in Appendix B. Brief descriptions of each ecological community within the gorge and gorge rim are presented below:

**Calcareous Cliff Community** - As defined by the Ecological Communities of New York State (Edinger et al., 2002), this community occurs “on vertical exposures of resistant, calcareous bedrock (such as limestone or dolomite) or consolidated material; these cliffs often include ledges and small areas of talus. There is minimal soil development, and vegetation is sparse.” This community occurs in a narrow band in the gorge immediately below the rim. The cliff averages about 82 feet in height and is largely unvegetated; where present, vegetation consists of herbs and a few stunted trees (Evans et al., 2001). Tree species include northern white cedars, while herbaceous species include wild columbine, bulblet fern, and herb Robert. Despite their diminutive stature, the stunted cedars found along many sections of the Niagara Escarpment have been documented to exceed 1,000 years in age (Larson et al., 2000).

**Calcareous Talus Slope Woodland** - This forest community consists of “an open or closed canopy community that occurs on talus slopes composed of calcareous bedrock such as limestone or dolomite” (Edinger et al., 2002). Talus derived from cliff rockfall or landslides with slopes of 20-45 degrees makes up at least 50% of the substrate, and soils are usually moist and loamy (NYNHP, 2009). This community is common throughout the
gorge, occurring immediately below the cliffs, and is present in two broad forms: as mature forest and as successional forestland dominated by shrubs (Evans et al., 2001). Dominant or co-dominant tree species observed in mature calcareous talus slope woodlands in the gorge include sugar maple, basswood, white ash, eastern hop hornbeam, paper birch, Norway maple, and American beech. Other less common tree species include black cherry, bird cherry, box elder, butternut, northern white cedar, hemlock, and yellow birch. The shrub layer ranges in density, depending on canopy coverage, and includes saplings of the overstory trees, along with red elderberry, chokecherry, flowering raspberry, mountain maple, buckthorn, shrubby honeysuckles, and dogwoods. Common herbaceous species include zigzag goldenrod, herb Robert, small-flowered leafcup, marginal woodfern, garlic mustard, white baneberry, sarsaparilla, and false Solomon’s-seal.

**Disturbed/Developed**- This community consists of a combination of several “cultural communities” as defined by Edinger et al. (2002), including paved road/path and urban structure exterior. Disturbed/developed lands occur throughout the gorge rim, and include buildings, parking lots, sidewalks, and staircases. These developed areas occupy approximately 183 acres (26%) of the Study Area. Vegetation in these areas is generally either lacking or highly managed (i.e., landscape plantings seeded along roadsides for erosion control). Volunteer vegetation at the edges of these areas is generally sparse, and comprised of early successional, often non-native, herbaceous species such as bull thistle, dandelion, curly dock, mullein, yellow rocket, and orchard grass.

**Mowed Lawn/Ornamental Plantings**- This community also consists of a combination of several “cultural communities” including mowed lawn, mowed lawn with trees, mowed roadside/pathway, and flower/herb garden (Edinger et al., 2002). Mowed lawn and ornamental plantings occur throughout the gorge rim, along roadsides and in parks. These communities make up approximately 167 acres (24%) of the Study Area. Common plant species include honeysuckles, hawthorns, barberries, lilac, privet, honey locust, horse chestnut, red pine, and Scots pine. Lawns typically include bluegrass,
dandelion, clovers, and hawkweeds. Components of native flora occur amongst the mowed lawn and ornamental plantings in some locations, particularly at Whirlpool State Park. This community also includes areas along the parkway that have recently been designated as “natural regeneration areas.” Although such areas are not currently being mowed, active landscaping (in the form of planting non-native shrub species) continues in these areas, and signs indicate the non-mowing management techniques are “being tested.”

**Shallow Emergent Marsh**—This community is “a marsh meadow community that occurs on mineral soil or deep muck soils (rather than true peat) that are permanently saturated and seasonally flooded” (Edinger et al., 2002). A small community fitting this description occurs on the gorge rim near the northern end of the Study Area, within the wildlife restoration area (Plateau Park) in the Artpark. Common herbaceous species include sedges, cattails, manna grass, green bulrush, wool grass, Joe-Pye weed, soft rush, and boneset. Though not dominant, willow shrubs and silky dogwood are scattered throughout the marsh.

**Successional Old Field**—This community is defined as “a meadow dominated by forbs and grasses that occurs on sites that have been cleared” and then abandoned (Edinger et al., 2002). This community occurs on the gorge rim near the northern end of the Study Area, in the Artpark. Common species include orchard grass, goldenrods, asters, old field cinquefoil, cow vetch, teasel, white and red clover, dandelion, thistles, and wild strawberry.

**Successional Forest**—This community is common along the rim on sites that have been cleared and are re-growing, typically adjacent to trails or other disturbed/developed areas. Trees are mostly immature and relatively low in height. Co-dominant trees in these areas consist of black locust, Norway maple, bird cherry, box elder, aspens, ashes, and staghorn sumac. Shrub growth is often
thick, and dominated by honeysuckles, buckthorn, privet, and chokecherry. Vines are abundant, with common species including Virginia creeper, poison ivy, and wild grape. Common herbaceous species include orchard grass, zigzag goldenrod, cleavers, deadly nightshade, weed orchid, and Canada thistle.

**Mixed Northern Hardwoods** - This community occurs along the gorge rim within both the Artpark and DeVeaux Woods State Parks. Dominant or co-dominant tree species include white oak, red oak, sugar maple, and Norway maple. Other common tree species include beech, black cherry, basswood, black locust, black walnut, shagbark hickory, and horse chestnut. The understory is variable, ranging from open to dense, and includes saplings of overstory trees, along with shrub species such as spicebush, witch hazel, alternate-leaved dogwood, chokecherry, honeysuckle, buckthorn, red elderberry, and maple-leaf viburnum. Herbaceous vegetation is similarly variable, sparse in places and very thick in others, and includes native species such as jack-in-the-pulpit, false Solomon’s seal, Virginia waterleaf, zigzag goldenrod, enchanter’s nightshade, and squawroot, along with invasive species such as garlic mustard, weed orchid, cleavers, fig buttercup, and nipplewort.

After evaluating DeVeaux Woods, and counting the rings on five fallen oaks that had ages ranging from 150 to 250 years, Kershner (1995) identified the mature forest at DeVeaux Woods as old-growth forest. The site has also been assessed by Eckel (1986, 2008), who described 2-3 acres of old growth forest at the site, and by the NYNHP in 2000. The NYNHP survey found “many very old trees,” but also documented that the small size and isolation of the forest makes it vulnerable to wind damage and other edge effects, such as encroachment by invasive species. Evans et al. (2001) concluded, “Although it is recognized that the DeVeaux Woods supports some very old trees, many other characteristics of old growth are lacking, such as fallen logs in various stages of decomposition, standing dead trees, both large and small canopy gaps, an undulating forest floor where trees have fallen over and decomposed, undisturbed soils, and a prevailing lack of human disturbance.”

### 7. Rare Plant Species

In response to a written request for information regarding state-listed threatened and endangered plant species, the NYNHP reported current records for six state-listed plant species in the vicinity of the Study Area (NYNHP, 2011). These include elk sedge (Carex garberi), lesser fringed gentian (Gentianopsis virgata), slender blazing-star (Liatris cylindracea), Ohio goldenrod (Oligoneuron ohioense), smooth cliff brake (Pellaea glabella), and sky-blue aster (Symphyotrichum oolentangiense). With the exception of sky-blue aster, all of these species are found exclusively in the gorge, rather than on the rim.
The NYNHP database also includes records of three additional state-listed plant species in the vicinity of the Study Area: puttyroot (Aplectrum hyemale), basil-balm (Monarda clinopodia), and northern pondweed (Potamogeton alpinus). However, none of these populations have been located since the 1800s, despite extensive botanical work in the area by Eckel (1986; 2001, 2002, 2003a, 2003b, 2004, 2008) and others (Evans et al., 2001; TRC & Riveredge, 2008). While it is possible that these species could occur undetected within the Study Area, such occurrence is unlikely, and they are considered “historical” in the vicinity of the Study Area by the NYNHP (Additional information on rare plant species is included in Appendix B).

8. Non-Native Invasive Species

A non-native invasive species is an organism that has been purposefully or accidentally introduced outside its original geographic range, and is able to proliferate and aggressively alter its new environment, potentially causing harm to the economy, environment, or human health (NYS ISTF, 2005).

Non-native plant species represent a significant portion of the current flora on the gorge rim, but also occur within the gorge as well. Of the 238 species observed by edr during field surveys, 105 species (44%) are not native to the western New York region. The plant species list in Appendix B identifies non-native species, and indicates whether each species was observed in the gorge or along the rim. Twenty-one species included on the NYSDEC (2010a) interim list of invasive plant species were documented, including: Japanese knotweed, purple loosestrife, common reed, garlic mustard, mugwort, spotted knapweed, Canada thistle, bull thistle, crown vetch, Fuller’s teasel, oriental bittersweet, Norway maple, tree of heaven, Japanese barberry, autumn olive, glossy buckthorn, Amur honeysuckle, shrub honeysuckles, common buckthorn, black locust, and multiflora rose. Most of the invasive species present within the Study Area are both common and widespread outside the Study Area as well.

Non-native invasive species, both in the gorge and along the rim, present a threat to the rare plant populations and natural communities within the gorge (Evans et al., 2001; Eckel 2002, 2003a). Each of the invasive species identified within the Study Area has the ability to spread rapidly and crowd out native plants, changing the vegetative structure of natural areas. Invasive species within the Study Area have typically been planted along the rim or in adjacent communities, or have established populations there through inadvertent introduction during construction, road building, and various other earth moving
activities. Once established along the rim, these populations of invasive species serve as a source of seeds for expanding populations, often within the gorge (Evans et al., 2001; Eckel 2002).

9. Wildlife Habitat

Wildlife occurrence along the gorge rim is limited due to the abundance of disturbed/developed areas, human and vehicular activity, and the general lack of habitat diversity. However, each ecological community that occurs within and adjacent to the Study Area has particular elements that make it valuable to different species of wildlife.

Forested communities typically include a variety of features that provide habitat for wildlife. These features include foliage height diversity and structural complexity, fruit and nut producing plant species, and standing and fallen deadwood. Forests that possess these characteristics provide a wide variety of food and cover that in turn support a high diversity of wildlife species. Unfortunately, along the gorge rim, forest vegetation occurs in relatively small patches, with limited tree species diversity and a poorly developed understory/midstory. In most places, the understory includes a substantial component of non-native invasive species (e.g., garlic mustard, common buckthorn, bush honeysuckle, and Norway maple seedlings/saplings). Other typical forest habitat features, such as abundant leaf litter and standing and fallen deadwood, are also generally lacking. The lack of these habitat features limits the diversity of small mammals, birds, reptiles and amphibians these forested areas can support. Their small size and isolation from other areas of forest (i.e., within the gorge) limits the seclusion they can provide and the ability of wildlife to freely travel from one area of forest habitat to another.

Areas with thick shrubs, such as successional shrubland and forests edges, are essential to sustain diverse songbird populations. Again, the limited occurrence of this habitat future within the gorge rim limits wildlife diversity in the area. Certain species, such as gray catbird, American goldfinch, indigo bunting, common yellowthroat, and yellow warbler, require low bushy vegetation for nesting and escape cover. Without this habitat the occurrence of these species will be limited, and even common species such as American robin, blue jay, and northern cardinal, which utilize a variety of habitats but prefer brushy edge habitat, will be less abundant. The lack of dense stands of shrubs and saplings also limits the area’s value as habitat for mammals such as white-tailed deer, raccoon, red fox, and eastern cottontail.

Old-field/meadow communities dominated by native herbaceous plants are also rare along the gorge rim, being essentially restricted to areas within the Artpark. Open fields are important hunting areas for raptors such as red-tailed hawk, and foraging areas for aerial insectivores such as bats, swallows, and flycatchers. The herbaceous vegetation also supports abundant insect populations, which serve as an important food source for nesting songbirds, and the vegetation itself provides forage in the form of seeds and foliage, which is utilized by sparrows, finches, small mammals, and woodchucks. Without herbaceous old fields the occurrence of such species will be limited. This in turn will limit the abundance of predators that feed upon them, such as hawks, owls, foxes, and coyotes.

The calcareous cliff community within the gorge provides potential habitat for wildlife species that require rock faces and/or loose rock for nesting, roosting, or escape cover. These species include cliff swallow, small-footed bat, and a variety of snakes, salamanders, and small mammals. The latter species may also use loose rock at the base of the cliffs as thermal cover/hibernacula during the winter. In addition, cliffs provide important nesting and perching sites for a broad range of raptors, including peregrine falcon (Larson et al., 2000), a state-listed endangered species.
The disturbed/developed areas and mowed lawn/ornamental plantings that dominate the gorge rim provide generally low quality wildlife habitat. Mowed lawn and patches of un-mowed vegetation within these areas are used for foraging by certain birds and mammals (e.g., European starling, eastern cottontail, meadow vole, woodchuck, etc.), while man-made structures and debris can provide cover for small mammals, snakes, and salamanders. In addition, some bird species have adapted to ever-increasing human disturbances and are able to forage in the non-vegetated portions of developed areas (i.e., for roadkill and food left behind by humans). These birds include American crow, various gulls, house sparrow, and European starling. However, the overall habitat value of these areas is low due to high levels of human activity and a lack of adequate food, cover, and water. These areas typically receive irregular use by a limited number of wildlife species.

10. Wildlife Species

Birds- A total of 54 bird species were observed by edr within the Niagara gorge and gorge rim during reconnaissance-level field investigations conducted during June of 2010. Commonly observed species included blue jay, cardinal, black-capped chickadee, Herring gull, and American crow. A complete list of these species, including scientific names, is included in Appendix B. In addition, published data from the New York State Breeding Bird Atlas (BBA) and Audubon Christmas Bird Count (CBC) were reviewed to more fully characterize avian species likely to occur within the Study Area. Data from each of these sources are summarized below.

The Study Area occurs within BBA survey blocks 1677A, 1678B, 1678C, and 1678D. The species totals for these blocks range from 46 to 73 species, for a combined total of 86 individual bird species. Most of the species recorded were common birds of forest, forest edge, successional old field, and wetland habitats. However, several state-listed avian species were also documented, including peregrine falcon (endangered), pied-bill grebe (threatened), and American bittern, sharp-shinned hawk, Cooper’s hawk, and common nighthawk (all special concern). No federally-listed threatened or endangered species were recorded (NYSDEC, 2007a).

Data from the CBC provides an overview of the birds that inhabit the region during early winter. Food for most birds is likely to be scarce at this time of year, and therefore, a low diversity and density of wintering birds would be expected in and around the Study Area. Those bird species that can be expected to consistently occur within the Study Area (i.e., occur during most winters), such as dark-eyed juncos, are generally common and abundant both on a regional and continental scale. The entire Study Area falls within the Niagara Falls, Ontario CBC count circle. Over the last ten years, annual species counts on this route ranged from 90 to 100 species, for a combined total of 140 individual species. The most common wintering bird species observed were Canada goose, mallard, common merganser, long-tailed duck, Bonaparte’s gull, ring-billed gull, herring gull, rock dove, mourning dove, blue jay, American crow, black-capped chickadee, European starling, American tree sparrow, dark-eyed junco, house finch, and house sparrow. The following state-listed avian species have also been documented during the CBC: peregrine falcon and short-eared owl (endangered); pied-bill grebe and northern harrier (threatened); and sharp-shinned hawk, Cooper’s hawk, northern goshawk, red-shouldered hawk, red-headed woodpecker, and horned lark (all special concern). No federally-listed endangered or threatened species were recorded (National Audubon Society, 2010).

Mammals- Reconnaissance-level surveys conducted by edr in June 2010 confirmed the presence of 16 mammal species within the Niagara gorge and along the gorge rim. Mammals observed within the gorge
included white-tailed deer, eastern chipmunk, gray squirrel, and red squirrel, while species observed along the rim included woodchuck, red fox, and several small mammals (mice and moles). Additional species not observed, but likely to occur along the rim based on suitable habitat conditions include deer, gray squirrel, opossum, raccoon, chipmunk, and various species of bats. All of these species are common and widely distributed throughout New York State.

**Reptiles and Amphibians** - Reptile and amphibian presence within the Study Area was determined through field surveys and review of the New York State Amphibian and Reptile Atlas (Herp Atlas). Based on these data, along with documented species ranges and existing habitat conditions, it is estimated that approximately 30 reptile and amphibian species could occur in the vicinity of the Study Area. Field surveys conducted by edr in June 2010 confirmed the presence of eight amphibian species and three reptile species, all of which occurred in the gorge, either along the riverbank, in seeps, or in damp leaf litter on the gorge slopes. Reptile and amphibian presence along the rim is limited due to a lack of suitable habitat. American toad and garter snake were observed along the rim, and spring peeper and western chorus frog were heard singing. Although no federally- or state-listed endangered or threatened species were observed on site, the Herp Atlas indicates the presence of blue-spotted salamander in the general area (i.e., in the Niagara Falls quadrangle), which is listed as species of special concern in New York State (NYSDEC, 2007b).

**Fish** - Although not included in the Study Area, the adjacent lower Niagara River rapids support a productive coldwater fishery. Concentrations of steelhead are among the highest in the state. These spawning runs start in September and October, and may continue sporadically throughout the winter, peaking in March and April. Substantial numbers of coho salmon, chinook salmon, and brown trout also occur in the area during spring and fall spawning periods. These populations are the result of an ongoing effort by the NYSDEC to establish and maintain a salmonid fishery in the Great Lakes through stocking; no successful reproduction by salmonids has been documented in the Lower Niagara River Rapids (NYSDOS, 2010).

Other fish species found in the lower rapids include smallmouth bass, walleye, white bass, yellow perch, lake trout, smelt, rock bass, freshwater drum, and round goby (NYSDOS, 2010, Stantec, 2005). It is unlikely that the section of the Niagara River adjacent to the Study Area is used for fish spawning or nursery activities by any of these species to any significant extent, due to the strong turbulent currents, a lack of shallow water littoral areas, and the lack of tributaries (NYSDOS, 2010).

11. Rare Wildlife Species/Significant Wildlife Habitats

Correspondence from the NYNHP (2011) indicated the presence of three sensitive aquatic species in the vicinity of the Study Area: lake sturgeon (Acipenser fulvescens), hickorynut (Obovaria olivaria), and rainbow shell (Villosa iris). No listed terrestrial wildlife species were reported. However, NYNHP correspondence indicated the presence of two significant wildlife habitat features in the vicinity of the Study Area; a waterfowl winter concentration area and a gull colony, both on the Niagara River. In addition, the entire Study Area falls within the Niagara River Corridor Important Bird Area as designated by the National Audubon Society, and the lower Niagara River rapids is designated as a Significant Coastal Fish and Wildlife Habitat by the NYS Department of State, Division of Coastal Resources. The sensitive aquatic species and significant wildlife habitats reported by the NYNHP are described in Appendix B.
B. Cultural Setting

As stated earlier, the entire context of the Niagara gorge rim requires a view of the cultural activities that surround it as well as the natural resources located in or near the gorge rim. The following discussion focuses on the existing conditions of the City of Niagara Falls, with some emphasis on the areas that most influence the gorge rim due to their proximity to the Study Area.

Modern day Niagara Falls continues to be shaped and influenced by the natural features surrounding it, and the falls themselves continue to serve as the main attraction, drawing over 5 million tourists annually. Although the tourism industry has sustained itself over the last three decades, the manufacturing industry has declined dramatically, causing significant economic decline within the region. Four decades of a declining economy has taken a noticeable toll on the community. Today in downtown Niagara Falls, vacant storefronts are common along Main Street, highlighting the cycle of disinvestment that has complicated redevelopment efforts within the city. This cycle has been further compounded in recent years with the downturn in the national economy.

Despite its struggling economy, the City of Niagara Falls nurtured several diverse neighborhoods, many of which are active and vibrant today. These neighborhoods include Little Italy, the North End, DeVeaux, La Salle, Downtown, Niagara Street/East Side, Buffalo Avenue, Park Place, Orchard Parkway, and Hyde Park. Some of the neighborhoods adjacent to the Study Area include Park Place, DeVeaux, and Orchard Parkway. The dense urban residential neighborhoods immediately east of the RMP corridor feature hundreds of single family, two-family, and multi-use units in a wide range of condition and value. Among the more cohesive areas are two designated historic residential districts, Park Place and Chilton Avenue/Orchard Parkway. These two historic districts located west of Main Street and north of Pine Avenue include more than 170 residences built in the late 19th and early 20th centuries, in a series of architectural styles consistent with those periods, including Italianate, Queen Anne, Colonial and Tudor Revival, Arts and Crafts, and Bungalow/Craftsman. Regardless of their historic designation or physical condition, all of the neighborhoods adjacent to the Study Area are almost entirely cut off from the Niagara gorge and rim, (the primary aesthetic and recreational assets within the area) by the RMP. While many local residents use the expansive lawns of DeVeaux Woods State Park for active recreation, there is little or no connection between their neighborhoods and the passive recreation opportunities that exist only a few feet away, on the other side of the RMP.

With the decline of the heavy manufacturing industry, tourism is now the primary economic driver for the City of Niagara Falls and the surrounding area. Tourism-based spending supports the local economy through direct spending on goods and services, which in turn generates employment and municipal revenue, including sales, room, and income taxes. Over the past few years, an increasing amount of local attention has been focused on further developing the local tourism-based economy, increasing both the quantity and quality of attractions available to visitors, with the intention of lengthening their stay and thereby increasing local spending. As indicated in Appendix C, in 2009, 43% of visitors to the city stayed overnight, and approximately $378 million was spent by these overnight visitors on meals, lodging, recreation, retail purchases, and transportation. In light of the obvious long term success in the tourism trade, the city continues to exhibit interest in expanding its tourism attractions to include additional natural and cultural attractions. This fits with the national (and international) upward trend in ecotourism, a sub-sector of the tourism industry that includes nature-based travel experiences and those that “[contribute] to the conservation of the ecosystem, while respecting the integrity of host communities” (Scace et al., 1992). Ecotourism has been noted as one of the fastest growing segments of the tourism market. Over the last 20 years, ecotourism has grown 20% - 34% a year and is expected to continue growing over the next two decades (see Appendix C).
1. State Parks

As mentioned previously, New York State saw the value of protecting the unique natural features that exist along the Niagara gorge and rim by dedicating much of the land as state parkland accessible for enjoyment by the community. In addition, in early 2000 the Niagara gorge rim received federal designation as part of the Niagara Falls National Heritage Area. The four state parks located in the Study Area, include (from north to south) Earl W. Bridges Artspark (which includes Plateau Park), Devil’s Hole, Whirlpool, and DeVeaux Woods. The latter three of these parks predate construction of the RMP. Whirlpool and DeVeaux Woods State Parks, once physically connected, were bisected by the RMP. Below is a description of all four parks that occur along the gorge rim.

Earl W. Brydges Artspark State Park- This park, located adjacent to the Village of Lewiston, is home to cultural and historic resources of local and regional interest, and provides a venue for celebrating the arts. The Artspark site is at the base of the Niagara Escarpment at what was once the start of the Portage Trail. Over the years the site accommodated an inclined railway, a stone quarry, and a garbage dump. Between 1957 and 1960, over 26 million tons of excavated spoils from construction of the Niagara Power Project were deposited in the area, creating a 150-foot high plateau covering nearly 100 acres (known as the “spoil pile”). Built atop these spoils, Artspark was opened July 25, 1974, and features a theater, a theater terrace lounge, an outdoor amphitheater, picnic shelters, hiking trails, and fishing access points. An undisturbed portion of the park includes the Lewiston Mound, an Indian burial site dating back to 160 AD. Various groups and individuals throughout the area, including environmental organizations, were instrumental in creating a wildlife refuge at the Park. This refuge, referred to as “Plateau Park”, was officially opened to the public on October 17, 2003.

Devil’s Hole State Park- Devil’s Hole State Park is located just north of the whirlpool rapids on the Niagara River. It provides recreational access through the wooded gorge down to the rapids. Along the gorge in this area is the Devil’s cave, which lends it name to this park. This area was also the site of the Devil’s Hole Massacre, the costliest battle of Pontiac’s Rebellion, which resulted in more than 80 British fatalities.
The nearby Bloody Run Creek takes its name from the aftermath of this massacre of British troops by the Senecas.

On the gorge rim, the majority of the land within Devil's Hole State Park features mowed lawn, paved surfaces, and a walking trail. A pedestrian bridge crosses over the RMP in the southwestern portion of the park, providing public access to and from adjacent neighborhoods. Along the existing RMP to the north of the park, visitors and commuters cross the footprint of the former Bloody Run Creek, which currently carries a service road to the bottom of the power plant. Along the gorge rim, Devil's Hole State Park features impressive scenic views of the Niagara River, and the bottom of the gorge below the park is a popular fishing spot for local anglers.

**Whirlpool State Park** - Whirlpool State Park is located at the point where the Niagara River takes an abrupt turn to the west. The resulting currents create a large eddy, or whirlpool, for which the park is named. Within Whirlpool State Park, approximately 250 feet above the river, a marked path follows the remnants of the former Great Gorge Route railway to an old observation station overlooking the rapids. This station was used as a way-point for visitors riding the Great Gorge Railway for its superior views...
overlooking the Whirlpool Rapids. The park provides picnic areas, a playground, a welcome center, and miles of recreational trails on the rim and down the gorge to the river. The river in this area is used by whitewater boaters and fishermen.

**DeVeaux Woods State Park** - Directly to the east of Whirlpool State Park, across the RMP, lies DeVeaux Woods State Park. The site is named after Judge Samuel DeVeaux (1789-1852), a prominent businessman and landowner in the area. Upon his death in 1852, DeVeaux left a portion of his land holdings to the Episcopal Diocese for the purpose of educating orphans and homeless boys. DeVeaux College opened in 1855, and remained in operation until 1971 (Niagara County Historical Society, 2008). The DeVeaux College site was briefly used by Niagara University for additional dormitory space from 1977 to 1978, and the New York State OPRHP purchased the site in 2001 for use as a state park. Today, this park features ball diamonds, a playground, a nature trial, picnicking facilities and a trail that crosses over the RMP and connects to the additional trails to the gorge and river. The park also includes a number of abandoned structures, and a substantial stand of old growth trees, considered by some to be “the oldest, most unaltered woodland along the entire American Gorge, including the Falls area” (Eckel, 1986).

### 2. Robert Moses Parkway

The history of travel along the Niagara gorge predates the construction of the Robert Moses Parkway by hundreds of years. As indicated in Part I, the rim of the Niagara gorge has been an important transportation corridor since its use as a portage trail by Native Americans and European settlers. The Portage Trail was upgraded over time and eventually became Lewiston Road, Route 104.

The Robert Moses Parkway (RMP) was opened to vehicular travel in 1962 as a four-lane limited-access freeway, divided by a grassed median. The full length of the roadway stretches more than 18 miles, from the southern terminus at the LaSalle Expressway to the northern terminus at State Route 18 in Youngstown. Like other parkways developed at the time, it was conceived as a limited-access, non-commercial vehicular

![View of the Robert Moses Parkway. Automobile access is limited to the original northbound lanes in the foreground, with pedestrian access granted to the original southbound lanes at left.](image)
thoroughfare within a well-landscaped, park-like setting. The parkway was envisioned as a scenic connector between I-90 and towns to the north of Niagara Falls, despite a lack of actual opportunities to view the gorge and river.

Since the construction of the RMP, efforts to alternately improve or remove parkway access points have resulted in a disjointed, redundant facility which accommodates relatively little traffic (see additional discussion in Part II, and full coverage of traffic conditions in Appendix D). In the early 2000s, the southbound lanes of the northern section of the parkway were gradually closed to vehicular traffic and converted to a pedestrian recreational facility, diverting all vehicular traffic onto the former northbound lanes and turning the parkway into a two-lane highway. The RMP is currently operating well below its design capacity, and even with the closure of the northbound travel lanes, is still underutilized. Since its construction, almost 50 years ago, the parkway is widely perceived as a redundant roadway and a barrier between the City of Niagara Falls and the riverfront of the Niagara River. Therefore, various changes to the parkway have been proposed, including full removal and several designs for reconfiguration.
3. Lewiston

The Village and Town of Lewiston are located immediately north of the City of Niagara Falls, at the mouth of the Niagara gorge. Between Lewiston and Queenston (Ontario), the Niagara River widens considerably, and no longer features the steep gorge walls and turbulent rapids that characterize the reaches between the falls and the power plant. The Village and Town of Lewiston are “bedroom communities” that serve as home to many residents that commute to work in Niagara Falls or other communities in the Buffalo-Niagara region. Since it was first surveyed for settlement in 1805, the Village of Lewiston has grown to include 2,700 residents and a thriving downtown business district. Residential areas within the village are largely stable and well-maintained. Access into and out of the village is provided via local roads and highways, including not only the RMP but also Routes 104 and 265 (both of which connect with Interstate Route 190), and Route 18. Within the Study Area, the Niagara Power Project, the Artpark, and a portion of the RMP are in the Town of Lewiston. Also occurring in the Town of Lewiston is Niagara University, which is located immediately southeast of the power plant along Lewiston Road/Route 104.

4. Canada

The context of international relations between the United States and Canada is complex and dynamic, involving trade, transportation, migration, security, and cultural exchanges. The primary channels of economic and cultural exchange between Niagara Falls, New York and Niagara Falls, Ontario are trade and tourism. The course of these exchanges is in constant flux due largely to the value of national currencies with respect to one another, however, suffice it to say that Canada and Canadians have a significant influence on the Niagara region, including the Niagara River and the gorge. Like the U.S., Canada developed a major hydroelectric generating facility (the Sir Adam Beck Hydro Plant) within the Niagara gorge. Residents of Niagara Falls and Queenston, Ontario, as well as Canadian tourists, use the Niagara River and visit the falls to enjoy the scenic and recreational opportunities they afford. Although Canadian use of the gorge and gorge rim on the American side is limited, Canadian visitors represent a significant pool of potential tourists and recreational users of the Study Area.
3. Summary

The history of the Niagara Falls region sheds light on the many complex elements that shaped the current cultural and natural environments within the Study Area. Moving forward, it is necessary to consider how contemporary decisions will shape and influence the future of the City of Niagara Falls and the Niagara gorge and rim. The existing natural and cultural conditions within the Niagara gorge and gorge rim described above define the baseline upon which to begin planning for the future. The Restoration Concept presented next in Part III of this study uses this information to identify ecological and cultural resources within the Study Area that are worth protecting and enhancing, and those where remediation or restoration is required.
Figure 1.0

Study Area

Legend:
- Study Area
- Interpretive Site
- Scenic View

Regional Economic Growth Through Ecological Restoration of the Niagara Gorge Rim

Figure 1.0