8.0 Cumulative Impacts

CEQ regulations implementing NEPA require the assessment of cumulative impacts in the decision making process for Federal projects. Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, current, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR 1508.7). As stated in the CEQ handbook, Considering Cumulative Effects Under the National Environmental Policy Act, cumulative impacts should be analyzed in terms of the specific resource, ecosystem, and human community being affected and should focus on effects that are truly meaningful (CEQ 1997b). Cumulative impacts are considered for all alternatives, including the No-action Alternative.

Cumulative impacts are most likely to arise when a relationship or synergy exists between the Proposed Action and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with or in proximity to the Proposed Action at each site alternative and the JEH parcel would be expected to have more potential for a relationship than those with a greater degree of spatial separation. Likewise, actions closer in time to the Proposed Action at each site alternative would be expected to have more potential for a relationship than those with a greater degree of temporal separation. Cumulative impacts were determined by combining the impacts for each alternative with other past, present, and reasonably foreseeable future actions that would also result in beneficial or adverse impacts. Therefore, it was necessary to identify actions in the vicinity of each site alternative and the JEH parcel that could contribute to cumulative impacts for the resources discussed in this EIS. The greater the impacts determined under each alternative, the more they contribute to the cumulative impacts identified for each resource.

The evaluation of cumulative impacts was accomplished using 4 steps;

Step 1 - Identify Affected Resources,

Step 2 - Identify appropriate spatial and temporal boundaries for each resource,

Step 3 - Identify cumulative action scenario, and

Step 4 - Cumulative impact analysis: determine the combined impact of the proposed alternative and the other identified actions of the cumulative scenario.

8.1 Greenbelt

8.1.1 Projects Contributing to Potential Cumulative Impacts

Cumulative effects were evaluated for major infrastructure projects or private developments that are geographically related to the Greenbelt Alternative and that prominently contribute to the overall character of the area. In order for a future project to be included in the cumulative impact analysis, it must have received development approval from the Maryland National Capital Park and Planning Commission (MNCPPC). This analysis refers to these projects as reasonably foreseeable projects.

8.1.1.1 Past Projects

The Greenbelt Metro Station was developed in 1993 and is located northwest of the Greenbelt Alternative. This station serves both Metrorail and MARC. It has a parking lot with 3,300 spaces. The station has two high-level platforms that are handicap accessible, but no buildings, restrooms, telephones, ticket kiosks or heaters. The Greenbelt Alternative is a portion of the existing parking lot for the station.

Lake Artemesia (constructed during the completion of Metrorail's Green line) is a man-made lake in College Park and Berwyn Heights located south and downstream of the Greenbelt Alternative along Indian Creek. The lake covers 38 acres and is part of the Lake Artemesia Natural Area that includes aquatic gardens, fishing piers, and hiker-biker trails.

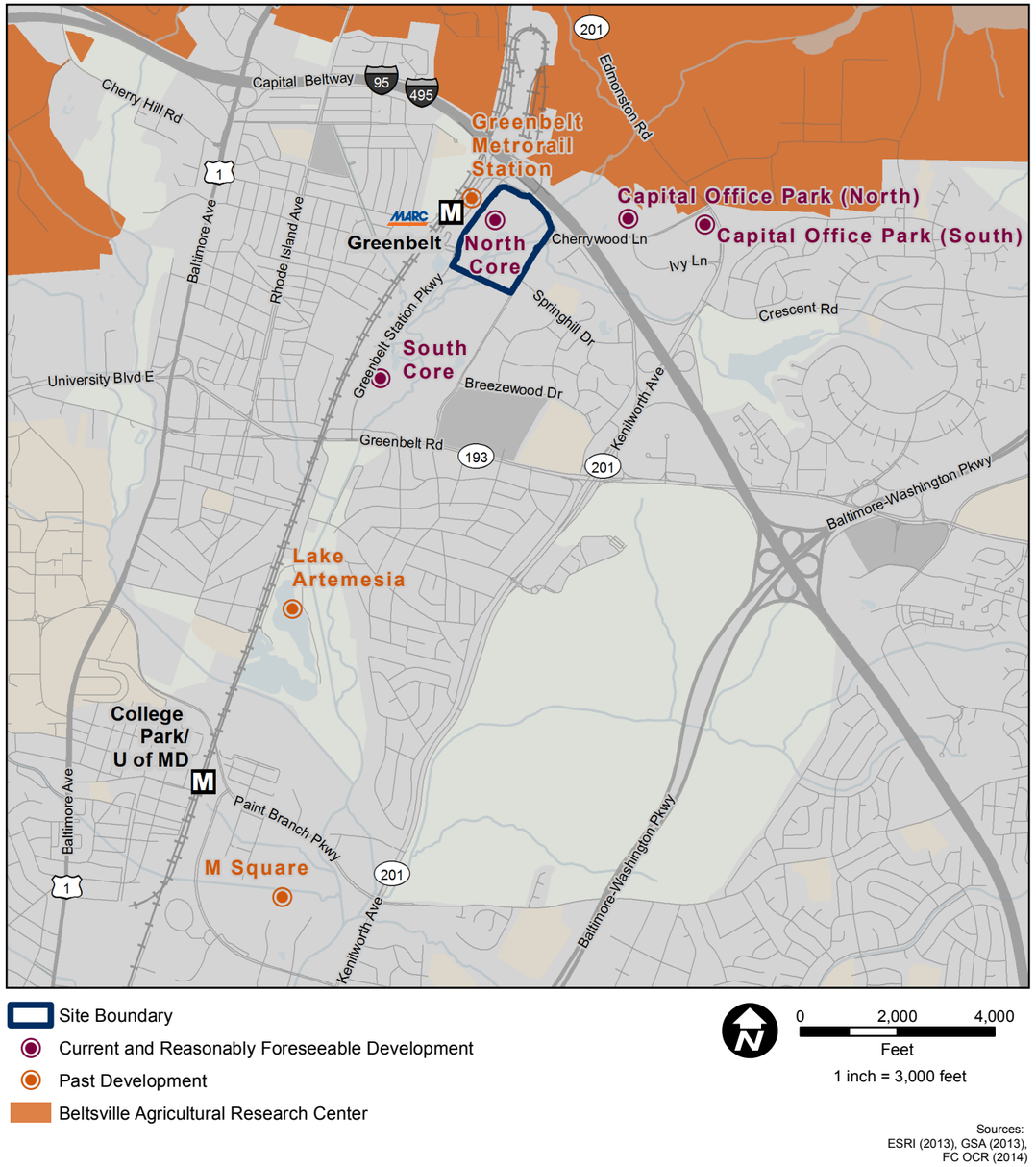
Beltsville Agricultural Research Center (BARC) is the largest agricultural research complex in the world covering 6,600-acres of which several thousand acres is preserved as farmland. The research center house approximately 1,300 people in four buildings with more than 365,000 SF of space and is located north of the Greenbelt Alternative.

M Square / Maryland and Research Park is located within a 293-acre transit district at College Park/ University of Maryland (HUB zone). The building contains 2.5 million SF of public and private research labs. Various companies in the computer science, mathematics, engineering, physical and life sciences, biotechnology, and linguistics sectors are housed in the Research Loop. The $500 million M Square is set to become the largest research park in the State of Maryland and one of the largest in the country. Construction began in 2004, and full build-out is expected at a future date.

8.1.1.2 Current Ongoing and Reasonably Foreseeable Projects

The South Core portion of Greenbelt Station is an 87-acre transit-oriented, mixed-use infill project with 350 townhomes, 550 apartments, and 180,000 SF of retail, located southwest of the Greenbelt Alternative. Phase I is currently under construction. The construction schedule for Phase II is currently unknown.

Figure 8-1: Greenbelt Cumulative Projects



The North Core portion of Greenbelt Station is a proposed transit-oriented development that would spur commercial revitalization and pedestrian-oriented improvements along the MD 193 corridor around the Greenbelt Metro Station, and currently includes the Greenbelt Alternative. If the Greenbelt Alternative is selected, the development of the North Core would be scaled back to include 800 apartment units, 100,000 SF of retail, 350,000 SF of office space; and a 300-room hotel. The development would be placed between the western edge of the Greenbelt Alternative and the Greenbelt Metro station.

Capital Office Park sites are located on Cherrywood Lane north of the Ivy Lane intersection just off the Capital Beltway, and at the southwest corner of Cherrywood Lane and MD 201. A seven-building business park and an on-site upscale hotel with conference facilities is proposed for the Capital Park (North) site, which was previously an agricultural field. Overall, the larger site would include 300,000 SF of general office space. The Capital Park (South) site is located adjacent to an Maryland Department of Transportation (MDOT) salt dome, would include 46,000 SF general office space.

A map of all past or currently ongoing and reasonably foreseeable projects in the vicinity of the Greenbelt Alternative are shown in figure 8-1.

8.1.2 Cumulative Impacts Analysis

8.1.2.1 Earth Resources

There would be no measurable long-term impacts to geology or topography under the Greenbelt Alternative, therefore there would be no measurable cumulative impacts. The majority of the impacts to geologic resources would be short-term, limited in geographic extent, and associated with the construction phase at the site, and would include indirect impacts to the subsurface through rock ripping (the break up and removal of rock material with an excavator) or drilling footers.

Similarly, because potential impacts to soil resources from the Greenbelt Alternative would be limited to the general footprint of the project, and there would no long-term impacts, there would not be any cumulative impacts to soils. The majority of the potential impacts to soil resources are short-term, limited in geographic extent, and associated with the construction phase only. Soil disturbance associated with the North and South Core Greenbelt Station development would occur close in time and space as the consolidation of FBI HQ at this site and would result in short-term, adverse impacts to soils. However, the implementation of erosion and sedimentation control plans and other BMPs, and compliance with applicable permits, would minimize short-term cumulative impacts to soils.

8.1.2.2 Water Resources

Past, present, and reasonably foreseeable future actions would result in adverse impacts to water resources. The development of the Greenbelt Metro Station in 1993 permanently impacted wetlands and floodplains surrounding the Greenbelt Alternative. Much of the southern portion of the existing Greenbelt Metro Station parking lot was formerly part of the 100-year floodplain and contained a large emergent wetland (FEMA 1989; USFWS 2010). The addition of impervious surface for the parking lot reduced stormwater infiltration at the site and impacted stormwater drainage. Two stormwater ponds were constructed to handle the runoff.

The BARC preserves thousands of acres of land as agricultural land. Keeping the land free from development benefits water resources such as stormwater hydrology and, indirectly, surface waters and wetlands that would be impacted by changes to stormwater drainage, volume, and associated pollution carried in runoff.

Construction of all projects would temporarily disturb soils and increase the potential for pollution of surrounding surface waters and wetlands from sediment and construction-related pollutants. Construction of these projects would create more impervious surface and modify stormwater drainage patterns.

Portions of the originally planned North Core development at the Greenbelt Station would be constructed on the existing impervious surface of the station's parking lot. This project would result in short-term, adverse impacts from a potential decrease in water quality of surrounding resources. Development of the South Core portion of Greenbelt Station would disturb undeveloped land, create impervious surface, and impact the preliminary 100-year floodplain and NWI wetlands. Portions of the braided Indian Creek cross through the northern portion of the South Core footprint. Construction of the South Core would result in adverse impacts from decreased water quality in surrounding surface waters and wetlands and temporary alteration of stormwater drainage. Long-term, adverse impacts to surface water and stormwater hydrology and floodplains from permanent disturbances would be mitigated and minimized through permits, mitigation measures, BMPs, and management plans as discussed in Chapter 4.

Both Capital Office Park projects would disturb undeveloped land and create impervious surface. The Capital Office Park site on Cherrywood Lane north of the Ivy Lane intersection would directly impact wetlands and 100-year floodplain according to NWI data and preliminary floodplain data. Implementation of this action would result in short-term impacts to surface waters and stormwater hydrology and long-term impacts to wetlands and floodplains. The Capital Office Park site on the southwest corner of Cherrywood Lane and MD 201 would have adverse impacts to stormwater hydrology.

Compliance with applicable water quality and stormwater standards and use of appropriate sediment and erosion control and stormwater BMPs would minimize impacts of all projects during and after construction. Implementation of stormwater management practices should address flooding risks associated with potential urban drainage flooding. Floodplain disturbance would be mitigated with BMPs and management plans. These practices would minimize adverse impacts to water resources. As a result, overall impacts to water resources from past, present, and reasonably foreseeable projects would be long-term and adverse. The Greenbelt Alternative would have a minimal contribution to the overall cumulative impacts, because improvements in the hydrologic regime expected under the Greenbelt Alternative would limit adverse impacts to Indian Creek and downstream resources through improvements in stormwater quality and quantity, and preserve existing wetlands and floodplains on the site.

8.1.2.3 Biological Resources

Past, present, and reasonably foreseeable future actions that could impact biological resources include the development of the South Core portion of Greenbelt Station, Capital Office Park at Cherrywood Lane north of the Ivy Lane intersection, and Capital Office Park at the southwest corner of Cherrywood Lane and MD 201. The Indian Creek watershed and associated habitat has been and continues to be transformed into a more developed area. The majority of developed land in the area consists of streets, parking lots, and buildings (houses, apartments, shopping centers, schools, and offices). Additional development on undeveloped land would have adverse impacts to vegetation and wildlife and would contribute to cumulative impacts.

The development of the South Core portion of Greenbelt Station and extension of Greenbelt Station Parkway, and the portion of the North Core development at Greenbelt Station outside of the Greenbelt Alternative would have no measurable impacts to aquatic species because the project area would not directly affect aquatic species and indirect impacts would be mitigated by BMPs for stream resources. There would be adverse impacts to vegetation and terrestrial species due to destruction of habitat, increased human activity, and the construction of a habitat barrier through the Indian Creek watershed. Impacts to vegetation would be partially mitigated by requirements under Maryland's Forest Conservation Act. Adverse impacts to special status species may occur as a result of the occurrence of the state-listed endangered trailing stitchwort near the Greenbelt Alternative. Avoidance and mitigation measures would minimize these potential impacts.

The development of the Capital Office Park at Cherrywood Lane north of the Ivy Lane intersection would have adverse impacts to terrestrial species, and potentially special status species because habitat would be destroyed and species would be temporarily displaced. Mitigation measures, such as avoiding species' breeding periods, would be implemented. There would be adverse impacts to vegetation because the turf grass would be cleared, paved, and developed. The impact to vegetation would be partially mitigated by Maryland's Forest Conservation Act. No impacts to aquatic species would be expected because there is no on-site aquatic habitat. There would be adverse impacts to vegetation because the forested area would be cleared, paved, and developed. The impact to vegetation would be partially mitigated by Maryland's Forest Conservation Act.

As discussed in Section 5.2.3, the Greenbelt Alternative would result in adverse impacts ranging from short- to long-term. Overall, there would be adverse cumulative impacts associated with the Greenbelt Alternative in conjunction with other past, present, and reasonably foreseeable future actions. The Greenbelt Alternative would minimally contribute to the overall cumulative impacts.

8.1.2.4 Land Use

The projects considered for the cumulative impacts analysis all entail redevelopment of existing parcels in the vicinity of the Greenbelt Alternative. These projects, in conjunction with the development of the Greenbelt Alternative, would contribute to and facilitate economic growth and fulfill the vision for land use in the Greenbelt area. It is assumed that the surrounding developments, as well as the redevelopment of the Greenbelt Alternative, would occur either in accordance with applicable local land use controls or through consultation with regulatory agencies to help ensure future development would adhere to or be compatible with local state, and federal land use planning and development policies. As a result, overall cumulative impacts to land use would be beneficial. The Greenbelt Alternative would have a moderate contribution to the overall cumulative impacts because it would fulfill the vision of multiple land use plans for the North Core, while it would also disagree with some aspects.

8.1.2.5 Visual Resources

The area near the Greenbelt Metro Station consists of residential neighborhoods dispersed throughout wooded areas. Existing building height is less than 3 stories. Future development, including development of both the South and North Core portion of Greenbelt Station and the Greenbelt Alternative, would result in densities and building heights significantly higher than existing development. The density at the Greenbelt Alternative and current/future development would be apparent because of the existing split between paved lot and wooded area.

Additionally, much of the surrounding area is wooded or agriculture, including property associated with the BARC. Overall, when combined with the impacts of the Greenbelt Alternative, present and reasonably foreseeable future actions would result in direct, long-term, major adverse impacts related to the aesthetics of the area.

8.1.2.6 Cultural Resources

There would be no measurable impacts to cultural resources under the Greenbelt Alternative, therefore there would be no measurable cumulative impacts.

8.1.2.7 Socioeconomics and Environmental Justice

The development of the BARC and the M Square / Maryland and Research Park likely had long-term, beneficial and adverse impacts to population, housing, income, employment, taxes, schools, community services and facilities, environmental justice, and children in Prince George's County and the Washington, D.C. MSA. The development of these past projects likely caused short-term impacts during their construction as a result of construction spending and long-term impacts as a result of employment and population changes that occurred because of these projects. Because the exact change in total employment or population attributable to these projects is unknown, it is not possible to know the exact cumulative impact to socioeconomic resources that these projects, in conjunction with the impacts from the Greenbelt Alternative, have had and would have on Prince George's County and the Washington, D.C. MSA. However, these projects occurred in the past and most of their impacts are already reflected in the existing conditions. Because the impacts to socioeconomic resources from the Greenbelt Alternative are not anticipated to be significant, the overall impact of these past projects in combination with the impacts from the Greenbelt Alternative would result in indirect, short- and long-term, adverse and beneficial impacts. Some cumulative resource impacts, such as impacts to housing, are unknown at this time, as insufficient information exists about this alternative's potential impacts on these resources.

The South Core portion of Greenbelt Station could impact population, housing, income, employment, taxes, schools, community services and facilities, environmental justice, and children in close proximity to the Greenbelt Alternative as a result of an increase to the permanent population and hotel-guests around this site and their spending and visitation of resources in the area around the site. This project's impacts, in combination with impacts from the Greenbelt Alternative, could result in indirect, short-term, and beneficial impacts to employment and spending in Prince George's County and the Washington, D.C. MSA; short-term, adverse impacts to populations living in proximity to the projects' sites as a result of construction noise and air quality impacts; no measurable impact to schools would occur in the Washington, D.C. MSA; there would be unknown impacts to community and recreation facilities within one-mile of the project site as a result of insufficient information about potential impacts to these resources; short-term impacts to community services in Prince George's County while these services adjust to the change in serviced population; and long-term and beneficial impacts to tax revenues in Prince George's County, recreation resources, and community facilities as a result of increased funding of these resources.

Indirect, short-term, beneficial cumulative impacts would be expected from all current and future construction activities around the Greenbelt Alternative for the same reasons previously stated for past projects. Construction could provide direct employment opportunities for construction workers as well as indirect employment for support workers within Prince George's County and the Washington, D.C. MSA. The Greenbelt Alternative, in combination with construction of the North Core portion of Greenbelt Station, and other office park sites located in close proximity to the Greenbelt Alternative, represent contributions to the overall short-term and beneficial cumulative impacts to the economy, employment, and income.

No environmental justice cumulative impacts or cumulative impacts to children are anticipated.

8.1.2.8 Public Health and Safety

Past, present, and reasonably foreseeable future actions that could impact public health and safety at the Greenbelt Alternative include the South Core portion of the Greenbelt Station; the Capital Office Park development located at Cherrywood Lane north of the Ivy Lane intersection; and the Capital Office Park development located at the southwest corner of Cherrywood Lane and MD 201.

Construction-phase worker safety protocols, spill prevention and response measures, and hazardous materials handling procedures would minimize the risk of short-term, adverse impacts related to life safety and hazardous materials. Construction of these projects would temporarily disturb soils and increase the potential for runoff of sediment and construction-related pollutants into surrounding wetlands and surface waters. It is unknown whether any of the aforementioned projects would have potential to discharge contaminants into nearby water bodies as a result of stomwater runoff. Since the Capitol Office Park Capital Park North development is located on a former agricultural site and the Capital Office Park South site is located adjacent to an MDOT salt dome, there exists the possibility that soil disturbance associated with these projects could mobilize contaminants. However, all of the aforementioned projects would be required by law to obtain a State of Maryland General or Individual Permit for Stormwater Associated with Construction Activity before beginning earth disturbance on the first part of the project, because they would all disturb more than one acre of ground. Therefore, it is expected that any potential discharge of contaminants through stormwater runoff would be mitigated.

Construction activities at the Greenbelt Alternative would include spill prevention and response procedures, hazardous materials handling protocols, and worker safety measures to minimize the potential for adverse health and safety impacts. Greenbelt Alternative would disturb approximately 30 acres of land and would result in potential impacts to water quality related to runoff of sediment and construction-related pollutants from the site. This would create potential short-term, adverse impacts to public health and safety during construction. These potential impacts would be mitigated through the implementation of an erosion and sedimentation control plan, which is required for construction activity pollution prevention as a prerequisite for LEED certification (USGBC 2009).

Over the long-term, the additional residential populations associated with the North Core and South Core developments as well as the additional daytime populations and commercial activity associated with M Squared, North Core, and Capital Office Park would result in additional demand for fire, emergency and police services. Prince George's County Police and Fire and Emergency Services would address any capacity issues as part of their long range planning, resulting in no measurable long-term impacts.

Overall, when combined with the impacts from the Greenbelt Alternative, past, present, and reasonably foreseeable future actions would result in short-term, adverse cumulative impacts and no long-term, cumulative impacts to public health and safety.

8.1.2.9 Transportation

As presented in Chapter 5, the 2022 No-action or Action Landover Alternative or Action Springfield Alternative (referred to as the Greenbelt No-build Condition in the transportation section) vehicular analysis for transportation considered the projected growth in the region based on the future planned developments, background growth, and changes in travel patterns resulting from planned roadway improvements as agreed in the Greenbelt Alternative Transportation Agreement (Appendix A). The transit analysis for transportation considered the projected growth in the region based on the MWCOG's travel demand model. These sources provide an estimate of future vehicle and transit trips through 2022 and include reasonably foreseeable projects.

The greatest cumulative impacts for the 2022 Build Condition were studied as part of the transportation analysis, which relied on regional growth. The study evaluated each transportation mode. There would be cumulative impacts from the Greenbelt Alternative as follows: direct, long-term, adverse traffic impacts; direct long-term, adverse parking impacts; direct, long-term, adverse transit capacity impacts; and no measurable impacts to pedestrian, transit bus operations, bicycle, and truck impacts. The recommended mitigation in Section 5.2.9 would minimize the adverse traffic and transit bus operations impacts such that they would be an improvement over the No-action Alternative, and therefore direct, long-term, and beneficial.

8.1.2.10 Air Quality

There is potential for adverse cumulative impacts to air quality during construction if the North Core and/or South Core Greenbelt Station developments are under construction at the same time as the Greenbelt Alternative. Because of the proximity of the Greenbelt Station development sites to the Greenbelt Alternative, the combined emissions of PM10 and PM2.5 could create elevated concentrations in localized areas of sensitive receptors. The intensity of impacts would be highly dependent on the exact details of the construction sequence for the FBI HQ and the North and South Core Greenbelt Station projects, all of which are currently not known. Impacts would be minimized because all major projects in the area would incorporate construction air quality BMPs.

No long-term operational air quality cumulative impacts are anticipated. Stationary source impacts would be addressed through the appropriate stack design for emissions sources associated the consolidated FBI HQ campus, and locating building fresh air intakes away from potential areas of air quality impact. In terms of mobile source impacts, future development was considered in the development of the traffic data used in the intersection air quality impact screening.

8.1.2.11 Noise

It is anticipated that identified current and planned projects have the potential to impact the noise environment of the Greenbelt Alternative and adjacent area in a manner similar to that described for the Greenbelt Alternative in Chapter 5. Each of the identified projects would have short-term, adverse impacts to noise primarily as a result of construction activities associated with the development/redevelopment of the projects. Indirect, long-term noise impacts would result from the combined effects of adding a major government campus along with mixed-use, residential, commercial or retail as well as associated traffic. These impacts would most likely be minor and would be consistent with existing noise uses, compatible with existing city of Greenbelt noise regulations, and would not substantially change the overall ambient noise levels of the area. Overall cumulative impacts to noise would be both short and long-term and adverse. The Greenbelt Alternative would contribute slightly to the overall increase in noise.

8.1.2.12 Infrastructure and Utilities

Cumulative, long-term, adverse impacts to infrastructure and utilities would be expected under the Greenbelt Alternative when combined with other past, present, and reasonably foreseeable projects. Short-term, adverse impacts to electric service, natural gas service, steam service, water service, sanitary sewer collection service, and stormwater management systems would be expected as a result of increased demand and the associated infrastructure improvements, extensions, and upgrades required to keep pace with demand.

Upgrades to the utility network would not likely be required; however, extension of water supply, wastewater, and electric power utilities to the site would be required for the Greenbelt Alternative, resulting in direct, short-term, adverse cumulative impacts. Over the long-term, no continuing deficiencies in utility services are expected, as any necessary improvements would ensure service levels remain at acceptable levels.

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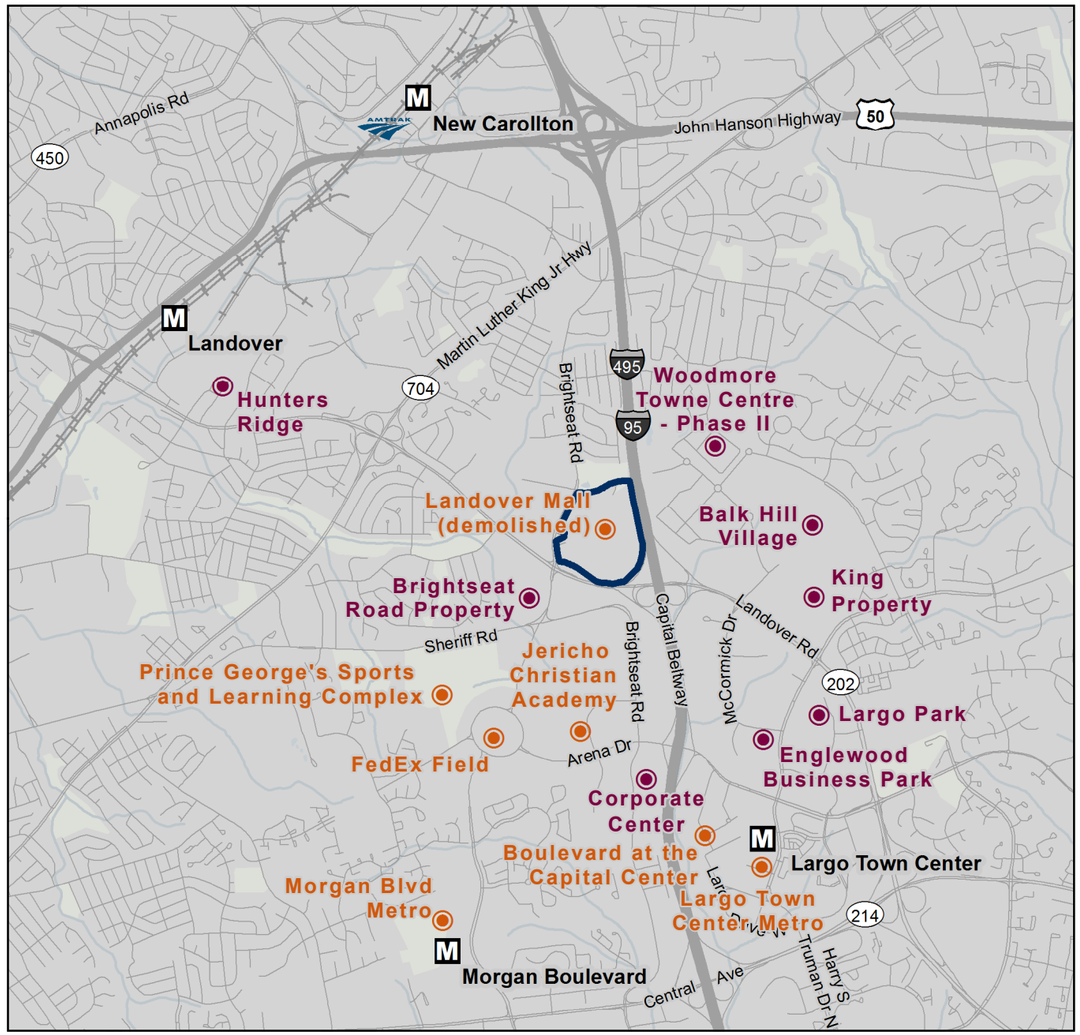
Figure 8-2: Landover Cumulative Projects



Site Boundary

Current and Reasonably Foreseeable Development

Past Development

0 2,000 4,000

Feet

1 inch = 3,500 feet

Sources:
ESRI (2013), GSA (2013)
Prince George's County (2013), M-NCPPC (2014)

8.2 Landover

8.2.1 Projects Contributing to Potential Cumulative Impacts

Cumulative effects were evaluated for major infrastructure projects or private developments that are geographically related to the Landover Alternative and that prominently contribute to the overall character of the area. In order for a future project to be included in the cumulative impact analysis, it must have received development approval from the Maryland National Capital Park and Planning Commission (M-NCPPC). This analysis refers to these projects are reasonably foreseeable projects.

8.2.1.1 Past Projects

FedExField opened in 1997 with a capacity of 79,000 to 91,000 (depending on the point in time). There are 22,000 parking spaces in 8 different lots and a dedicated exit off I-495. The stadium and parking areas cover approximately 5.6 million SF. Surrounding the field is a residential development and the Cholson Middle School.

Jericho Christian Academy and Baptist Church was completed in 1997 and includes a six-building complex. Additional buildings were purchased in subsequent years, and include the Jericho Residences (270 units) and the Jericho Business Centre (24 warehouse stalls and 150 offices). All of the buildings are located between Jericho City Drive and Arena Drive.

Prince George's Sports & Learning Complex was completed in 2004 and sits on approximately 80 acres of land adjacent to FedExField. It features an outdoor track, seating for 5,500 people, a lighted football field, and outdoor support building.

Morgan Boulevard Metro Station is located in Summerfield, Maryland, on Garrett Morgan Boulevard approximately 1 mile from FedExField. The station opened in 2004 and is an island platform style. The station has parking spaces for 635 cars.

Largo Town Center Metro Station is located in Lake Arbor, Maryland, at Lottsford Road and Largo Town Center. The station opened in 2004 and is an island platform style with 2,200 parking spaces for cars.

Boulevard at the Capital Centre is an open-air shopping center in Landover, Maryland, located on the site of the former Capital Centre. It opened in 2003 next to the Largo Town Center Metro Station and houses more than 70 establishments in 485,000 SF of space.

Landover Mall operated between 1972 and 2002. As of December 2014, all facilities associated with Landover Mall have been demolished. A portion of this site is being considered for the consolidation of FBI HQ under the Landover Alternative.

8.2.1.2 Current and Reasonably Foreseeable Projects

Woodmore Towne Centre is a 245-acre mixed-use development that will include retail, residential, hotel, and office space in Glenarden, Maryland, off of Landover Road. To date half of the project has been built with the office space and majority of housing remaining. Full buildout information includes: 975,000 SF general office; 50,000 SF retail; 560 apartment units; 202 single family homes; 301 townhouses; and 360 room hotel.

Balk Hill Village located at Regent Park, adjacent to Woodmore Towne Centre, has 300 single family homes on 310 acres in Mitchellville, Maryland. Construction began in 2004. Balk Hill Village includes 156 single family homes and 82 townhouses.

King Property will include 202,000 SF retail; 202,000 SF general office; and 210 age-restricted apartment units.

Hunters Ridge is located north of Landover Road on the west side of 75th Street. The development will have 284 townhouse and 39 condominiums.

Largo Park (Lots 3 and 4 Block D) located on the northwest corner of Lottsford Road and Arena Drive is a mixed use development that includes 318 apartment units; 80,000 SF general office; 9,000 SF retail; and 10,000 SF restaurant.

Largo Park (Lot 5 Block B) located on the southeast corner of Landover Road and Lottsford Road will house 144,000 SF of general office space.

Englewood Business Park (Lot 43) is located at the southwest corner of McCormick and Lottsford Roads. The development will include a 61,000 SF flex office with 50 percent general office and 50 percent warehouse.

Englewood Business Park (Lot 27) is located at the northeast corner of Lottsford Road and Apollo Drive. The development will include a 61,000 SF flex office with 50 percent general office and 50 percent warehouse.

Englewood Business Park (Lots 51 and 52) is located on the southwest corner of Lottsford Road and Lottsford Court where a 7,000 SF retail space will be developed.

Englewood Business Park (Lots 31, 32, and 35) consists of four industrial/flex buildings, 9301 Peppercorn Place, 1441 McCormick Drive, 1220 Caraway Court, and 1221 Caraway Court, located in Largo, Maryland. The property will consist of four 1-story industrial/flex buildings totaling 256,877 SF with parking for 743 vehicles.

Corporate Center (Lot 4) is located on Brightseat Road and south of Arena Drive. The property will consist of 123,000 SF of light industrial use space.

Brightseat Road Property is located near the southwest corner of Landover Road and Brightseat Road. The development will consist of 380 apartment units.

A map of all past or currently ongoing and reasonably foreseeable projects in the vicinity of the Landover Alternative are shown in figure 8-2.

8.2.2 Cumulative Impacts Analysis

8.2.2.1 Earth Resources

The projects considered for the cumulative impacts analysis all entail development and redevelopment of existing parcels in the vicinity of the Landover Alternative. The anticipated overall absence of long-term or permanent impacts to geological resources indicates that cumulative effects to this resource area are not expected. Where long-term or permanent impacts are absent, the potential for additive cumulative effects with other past, present, and reasonably foreseeable future projects is also not measurable. The majority of the potential impacts to geological resources would be short-term, limited in geographic extent, and associated with the construction phase at the Landover Alternative. Potential impacts to geological resources could include direct impacts to the subsurface through rock ripping (the break up and removal of rock material with an excavator) or drilling footers. These activities would involve some disturbance and modification of limited areas of the shallow subsurface geology but would not have substantive impacts to the local geology. As a result, overall cumulative impacts to geology would be short-term in nature; however, given the nature of geologic resources, these short-term impacts would not be measurable over the long-term. The Landover Alternative would not result in any cumulative impacts associated with site geology because the project would be designed to meet current UBC and federal, state, and local building and development regulations and codes. Therefore, the Landover Alternative would make no significant contribution to cumulative impacts.

Potential effects to soil resources from the Landover Alternative are generally limited to within the site boundary. As a result, the potential for additive cumulative effects to these resources is also limited. The anticipated overall absence of long-term or permanent impacts to soil resources indicates that cumulative effects to this resource area are not expected. Where long-term or permanent impacts are absent, the potential for additive cumulative effects with other past, present, and reasonably foreseeable future projects is also negligible. The majority of the potential effects to soil resources are short-term, limited in geographic extent, and associated with construction activities only. Potential direct effects to soil resources include clearing, grading, trench excavation, backfilling, equipment traffic at the site. Potential impacts could include direct, short-term impacts associated with soil erosion and soil compaction and direct and indirect, short- to long-term impacts associated with topsoil loss. As a result, overall cumulative impacts to soils would be temporary impacts during construction and any long-term impacts would be considered insignificant. The Landover Alternative would not result in any significant cumulative impacts associated with soils because the project would be designed to meet current UBC and federal, state, and local building and development regulations and codes. Therefore, the Landover Alternative would result in no significant contribution to cumulative impacts to earth resources.

8.2.2.2 Water Resources

Past, present, and reasonably foreseeable future actions would result in adverse impacts to water resources. The past projects added impervious surface to the landscape and permanently altered stormwater hydrology. The present and reasonably foreseeable future actions include the development of undeveloped sites. Surface water and wetlands are in close proximity to some of the projects. All projects would temporarily disturb soils and increase the potential for pollution of surrounding surface waters and wetlands from sediment and construction related pollutants. Construction of these projects would create more impervious surface and modify stormwater drainage patterns. Compliance with applicable water quality and stormwater standards and use of appropriate sediment and erosion control and stormwater BMPs would minimize impacts during and after construction. Implementation of stormwater management practices should address flooding risks associated with potential urban drainage flooding. Short-term, adverse impacts to stormwater hydrology would result from temporary alteration of the existing stormwater drainage patterns during construction and long-term, adverse impacts would result from the increased impervious surfaces. As a result, overall cumulative impacts to water resources would be adverse and the Landover Alternative would have a marginal contribution to the overall cumulative impacts.

8.2.2.3 Biological Resources

Past, present, and reasonably foreseeable future actions that could impact biological resources under the Landover Alternative include the development of the Woodmore Towne Centre, Balk Hill Village, King Property at Lottsford Road and MD 202, Hunters Ridge, Largo Park (Lots 3, 4, and 5), Englewood Business Park (Lots 27, 31, 32, 35, 43, 51, and 52), the Corporate Center at Lot 4, and the Brightseat Road Property west of Iad Auto. The Landover area and its habitat have been and continue to be transformed into developed property. The majority of developed land in the area consists of streets, parking lots, and buildings. Additional development on undeveloped land would have adverse impacts to vegetation and wildlife, and would contribute to cumulative impacts.

The development of Woodmore Towne Centre, Balk Hill Village, Hunters Ridge, and the Englewood Business Park (Lots 31, 32, 35, 51, and 52) would have adverse impacts to terrestrial and special status species because species would be temporarily displaced; however, mitigation measures are available to avoid species' breeding periods. There would be no impacts to aquatic species because there is no aquatic habitat on any of the sites. Adverse impacts to vegetation would be expected because the forested areas would be cleared, paved, and developed. The impact to vegetation would be partially mitigated by Maryland's Forest Conservation Act.

The development of the King Property, Largo Park (Lots 3, 4, and 5), Englewood Business Park (Lots 27 and 43), and the Brightseat Road Property would have adverse impacts to vegetation, terrestrial species, and special status species as a result of tree removal and the temporary displacement of species; however, mitigation measures are available to avoid species' breeding periods and reduce the impacts to vegetation through Maryland's Forest Conservation Act. There would be no impacts to aquatic species because there are no aquatic habitat on the sites.

The development of the Corporate Center at Lot 4 would have adverse impacts to vegetation, terrestrial species, and special status species as a result of tree removal and the temporary displacement of species; however, mitigation measures are available to avoid species' breeding periods and reduce the impacts to vegetation through Maryland's Forest Conservation Act. Adverse impacts to aquatic species may occur due to the nearby man-made lake; however, the development does not directly intrude upon the lake and indirect effects would be mitigated by applicable laws and regulations.

As discussed in Section 6.2.3, the Landover Alternative would contribute to impacts ranging from not measurable to short- and long-term adverse. Overall, there would be direct, short- and long-term, adverse cumulative impacts to biological resources associated with the Landover Alternative when considered together with other past, present, and reasonably foreseeable future actions.

8.2.2.4 Land Use

The projects considered for the cumulative impacts analysis all entail redevelopment of existing parcels in the vicinity of the Landover Alternative. These projects, in conjunction with the Landover Alternative, would contribute to and facilitate economic growth for land use in the Landover area. Surrounding development, as well as the Landover Alternative, are anticipated to occur either in accordance with applicable local land use controls or through consultation with regulatory agencies to help ensure future development would adhere to or be compatible with Maryland land use planning and development policies. As a result, overall cumulative impacts to land use would be beneficial and the Landover Alternative would have a marginal contribution to the overall cumulative impacts to land use.

8.2.2.5 Visual Resources

The Landover Alternative exists in an area of suburban landscape with commercial and residential development interspersed with wooded areas. Current and future projects outline a plan of substantial development in the area, including large quantities of office space, residential housing, commercial space, and transportation expansion. These projects, in conjunction with the Landover Alternative would contribute to the trend of increased height and density for a mix of uses. The Landover Alternative and other current or planned development are not incongruous with the visual character of the surrounding area, but would adversely impact older, existing residential neighborhoods whose character is markedly different from the more recent development trends. Notwithstanding, notable past, current and reasonably foreseeable projects, including Woodmore Town Center, Boulevard at Capital Center, Prince George's County Sport and Learning Complex would improve the aesthetics within the area, and contribute to long-term, beneficial, cumulative impacts to visual resources, to which the Landover Alternative would contribute moderately.

8.2.2.6 Cultural Resources

There would be no measurable impacts to cultural resources under the Landover Alternative, therefore there would be no measurable cumulative impacts.

8.2.2.7 Public Health and Safety

Past, present, and reasonably foreseeable future actions that could impact public health and safety under the Landover Alternative include the development of Woodmore Towne Centre, Balk Hill Village, the King Property, Hunters Ridge, Largo Park, Englewood Business Park, Corporate Center, and the Brightseat Road Property. Projects include the development of undeveloped sites as well as redevelopment of previously developed land. Short- and long-term cumulative impacts to public health and safety under the Landover Alternative, when considered together with these projects would be similar to those described for the Greenbelt Alternative in Section 8.2.2.8.

As discussed in Chapter 6, the Landover Alternative would have short-term, adverse impacts to public health and safety. Overall, when combined with the impacts of the Landover Alternative, past, present, and reasonably foreseeable future actions would result in short-term, adverse cumulative impacts and no long-term cumulative impacts to public health and safety. The Landover Alternative would not contribute substantially to cumulative impacts to public health and safety.

8.2.2.8 Socioeconomics and Environmental Justice

The construction of FedExField, Jericho Christian Academy and Baptist Church, Prince George's Sports and Learning Complex, the Morgan Boulevard and Largo Town Center Metro Stations, and the Boulevard at the Capital Centre likely had long-term and beneficial and adverse impacts to population, housing, income, employment, taxes, schools, community services and facilities, environmental justice, and children in Prince George's County and the Washington, D.C. MSA. The development of these past projects likely caused short-term impacts during their construction as a result of construction spending and long-term impacts as a result of employment and population changes that occurred because of these projects. Because the exact change in total employment or population attributable to these projects is unknown, it is not possible to know the exact cumulative impact to socioeconomic resources that these projects, in conjunction with the impacts resulting from the Landover Alternative, have had and would have on Prince George's County and the Washington, D.C. MSA. However, these projects occurred in the past and most of their impacts are already reflected in existing conditions. Because the impacts to socioeconomic resources from the Landover Alternative are not anticipated to be significant, the overall impact of these projects in combination with the impacts from the Landover Alternative would result in both short and long-term, indirect and adverse and beneficial impacts. Some cumulative resource impacts, such as impacts to housing, are unknown at this time, as insufficient information exists about this alternative's potential impacts on these resources.

The Woodmore Towne Centre, Balk Hill Village, King Property, Hunters Ridge, Largo Park, Englewood Business Park, Englewood Business Park, Corporate Center, and Brightseat Road Property would impact population, housing, income, employment, taxes, schools, community services and facilities, environmental justice, and children in close proximity to the Landover Alternative as a result of an increase to the permanent population and hotel-guests around this site and their spending and visitation of resources and retail in the area around the site. These projects' impacts, in combination with impacts from the Landover Alternative, would result in indirect, short-term, and beneficial impacts to employment and spending in Prince George's County and the Washington, D.C. MSA; short-term, adverse impacts to populations living in proximity to the projects' sites as a result of construction noise and air quality impacts; no measurable impact to schools would occur in the Washington, D.C. MSA; unknown impacts to community and recreation facilities within one-mile of the project site as a result of insufficient information; short-term impacts to community services in Prince George's County while these services adjust to the change in serviced population; and long-term, beneficial impacts to tax revenues in Prince George's County, recreation resources and community facilities as a result of increased funding of these resources.

Indirect, short-term, and beneficial cumulative impacts would be expected from all current and future construction activities around the Landover Alternative for the same reasons previously stated for past projects. Construction would provide direct employment opportunities for construction workers as well as indirect employment for support workers within Prince George's County and the Washington, D.C. MSA. The Landover Alternative, in combination with current and reasonably foreseeable projects located in close proximity to the project site represent contributions to the overall beneficial, short-term, cumulative impacts to the economy, employment, and income.

There would be no environmental justice cumulative impacts or cumulative impacts to children are anticipated.

8.2.2.9 Transportation

As presented in Chapter 6, the 2022 No-action or Action Greenbelt Alternative or Action Springfield Alternative (referred to as the Landover No-build Condition in the transportation section) vehicular analysis for transportation considered the projected growth in the region based on the future planned developments, background growth, and changes in travel patterns resulting from planned roadway improvements as agreed in the Landover Site Transportation Agreement (Appendix C). The transit analysis for transportation considered the projected growth in the region based on the MWCOG's travel demand model. These sources provide an estimate of future vehicle and transit trips through 2022 and include reasonably foreseeable projects.

The 2022 Build Condition included the addition of new person trips generated by the proposed FBI HQ based on the maximum projected person trip generation following the agreed Landover Site Transportation Agreement. The study considered the maximum employee person trips and maximum mission briefing center person trips. The person trips were separated into vehicle, transit, bicycle, and pedestrian trips and analyzed by mode.

The greatest cumulative impacts for the 2022 Build Condition were studied as part of the transportation analysis, which relied on regional growth. The study evaluated each transportation mode. Therefore, the cumulative impacts under the Landover Alternative, in addition to the past, present, and reasonably foreseeable projects considered here, would result in direct, long-term, major, adverse traffic and bus transit operations impacts; direct long-term, adverse transit capacity and bicycle impacts; direct long-term, beneficial pedestrian and truck impacts; and no measurable direct parking impacts. The recommended mitigation in Section 6.2.9 would address the major traffic and transit impacts and bicycle impacts changing them from adverse to beneficial. There would still remain a direct, long-term, major traffic impact reflecting two failing Interstate facilities.

8.2.2.10 Air Quality

There is potential for cumulative impacts to air quality during construction if the remaining portions of the Woodmore Towne Centre development is under construction at the same time as the FBI HQ. The combined emissions of PM10 and PM2.5 could create elevated concentrations in localized areas of sensitive receptors; however, this potential would be limited because the portion of Woodmore that is not yet developed is the portion that is located the farthest from the Landover Alternative. The intensity of impacts would be highly dependent on the exact details of the construction sequence for the FBI HQ and the Woodmore Towne Centre projects, both of which are currently not known. Impacts would be minimized because all major projects in the area would incorporate construction air quality BMPs.

No long-term operational air quality cumulative impacts are anticipated. Stationary source impacts would be addressed through the appropriate stack design for emissions sources, and locating building fresh air intakes away from potential areas of air quality impact. In terms of mobile source impacts, future development was considered in the development of the traffic data used in the intersection air quality impact screening.

8.2.2.11 Noise

It is anticipated that identified current and planned projects have the potential to impact the noise environment of the Landover Alternative and adjacent area by increasing the overall noise levels through construction activities, increased traffic, or other human activities. Each of the identified past, present, and reasonably foreseeable projects would have short-term, adverse impacts to noise associated primarily with construction activities. Each of the identified past, present, and reasonably foreseeable projects would have temporary adverse impacts to noise associated primarily with construction activities. Indirect, long-term, cumulative noise impacts are likely as a result of the additive effect of the expected noise level for each project. These impacts would most likely be minor and would be consistent with existing noise uses, compatible with existing city of Glenarden noise regulations, and would not substantially change the overall ambient noise levels of the area. Overall, there would be both short- and long-term adverse cumulative impacts to noise. The Landover Alternative would contribute minimally to these impacts.

8.2.2.12 Infrastructure and Utilities

Past projects have already been accounted for in terms of additional utility load and the need for infrastructure upgrades. Long-term, adverse, cumulative impacts to infrastructure and utilities would be expected when combined with the potential development projects in the vicinity of the Landover Alternative from the additional demand for utilities and the potential for service disruptions during construction of any necessary infrastructure upgrades. The Landover Alternative would contribute short-term, adverse impacts to wastewater, electric power, and natural gas during the extension of those utilities to the site and long-term, beneficial impacts to wastewater and stormwater collection.

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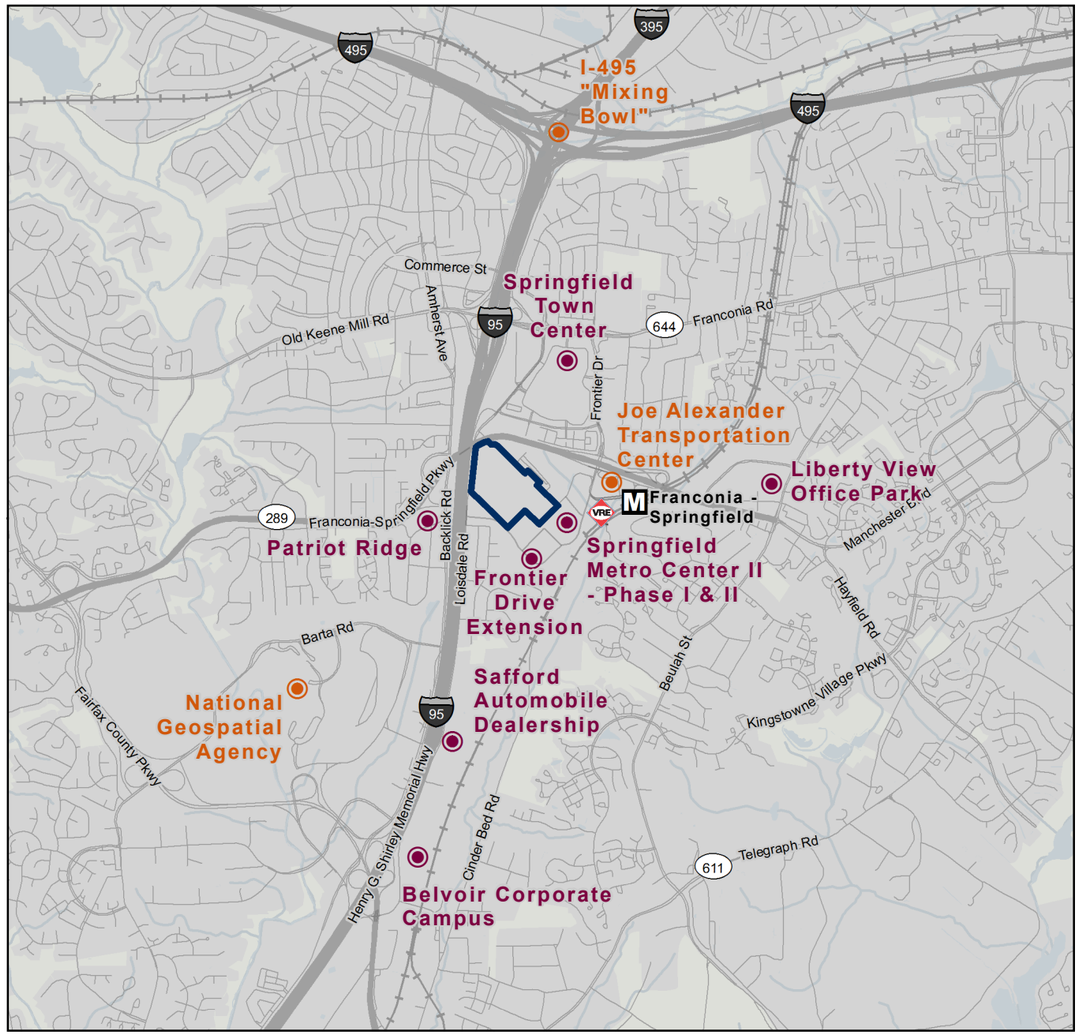
Figure 8-3: Springfield Cumulative Projects



8.3 Springfield

Cumulative effects were evaluated for major infrastructure projects or private developments that are geographically related to the Springfield Alternative and that prominently contribute to the overall character of the area. In order for a future project to be included in the cumulative impact analysis, it must have received development approval from the Fairfax County Department of Planning and Zoning. This analysis refers to these projects are reasonably foreseeable projects.

8.3.1 Projects Contributing to Potential Cumulative Impacts

8.3.1.1 Past Projects

The Franconia-Springfield Metro Station, also known as the Joe Alexander Transportation Center, was completed in 1997, and is located in the Springfield/ Franconia Business Area that is centered on the intersection of the Capital Beltway (I-495), I-95, and I-395. The center is built on a 35-acre tract of land and serves as a station for VRE, Greyhound, TAGS bus service, and is the southern terminus of the Metrorail Blue Line. The site also contains a 6-story, 3,856-space parking garage.

I-495 "mixing bowl" improvements took place during a multi-phased project beginning in 1999. The interchange is identified as one of the nation's largest, busiest, and most dangerous. Nearly 430,000 vehicles per day pass the interchange. The project consists of 50 bridges and flyovers and 21 lanes for I-95 between the Capital Beltway and Franconia Road.

The National Geospatial-Intelligence Agency is housed in a 2.3 million SF campus which opened in 2011, is the third-largest government building in the Washington metropolitan area. The location is the site of an 8,500-member workforce. The facility is located on the Fort Belvoir North Area in Springfield, Virginia.

Embassy Suites, near Fairfax County Parkway, was completed in 2013 with 219 rooms and a 5,700 SF meeting space.

8.3.1.2 Current Ongoing and Reasonably Foreseeable Projects

Safford Automobile Dealership (Safford/Jennings Auto Dealers) is being built on a 28.8-acre site and will house an 80,000 SF facility used for automobile sales. The project is expected to be completed sometime in 2015. The proposed location for the development is along Loisdale Road and generally in the I-95 Industrial Area Land Unit K of the Springfield Planning District.

Frontier Drive Extension is planned to run on the western portion of the Franconia-Springfield Metro Station property. Springfield Center Drive will be extended to Franconia-Springfield Parkway, renamed Frontier Drive Extension, and will turn into a new, two-way, four-lane, divided road with a new entrance created to the station.

Springfield Town Center will be developed in multiple phases. Development will include interior and exterior renovation of the existing mall structure and removal of approximately 170,000 SF; development of approximately 120,000 SF for Homewood Suites with 165 guest rooms; improvements and building of restaurants (Panda Express, Chick-Fil-a, and Subway; and construction of a 54,000 SF facility for the Metro Transit Police Department.

Springfield Metro Center II will be developed on parcels adjacent to the Springfield Alternative, and will consist of a four-building office campus with 1,000,000 SF of space. Each building will be 250,000 SF and 10 to 12 stories; and there will be a large shared parking garage.

Patriots Ridge is a three-phase project. Phase I will include a 244,000 SF, 8-story office building and a 1,300-space parking facility. Phase II will include a 240,000 SF, 8-story Class A office building. Phase III will include twin 8-story Class A office buildings totaling 240,000 SF.

Liberty View office park will house five buildings totaling 875,000 SF, located at the corner of Franconia-Springfield Parkway and Beulah Street.

Belvoir Corporate Campus is a 24-acre site on Loisdale Road planned for a 233,558 SF office park. The campus will include twin asymmetric concrete and glass curtain wall towers and a pedestrian plaza with outdoor meeting space.

A map of all past or currently ongoing and reasonably foreseeable projects in the vicinity of the Springfield parcel are shown in figure 8-3.

8.3.2 Cumulative Impacts Analysis

8.3.2.1 Earth Resources

The anticipated overall absence of long-term or permanent impacts to geological resources from the Springfield Alternative indicates that cumulative effects to geology are minimal. The majority of the potential effects to geological resources would occur over the short-term, would be limited in geographic extent, and associated with the construction phase under the Springfield Alternative. Potential impacts to geological resources could include direct impacts to the subsurface through rock ripping (the break up and removal of rock material with an excavator) or drilling footers. These activities would involve some disturbance and modification of the shallow subsurface geology but would not have substantive impacts to the local geology. As a result, overall cumulative impacts to geology would be direct, and adverse during construction. The Springfield Alternative would not result in any significant cumulative impacts associated with site geology because the Springfield Alternative would be designed to meet current UBC and Federal, state, and local building and development regulations and codes.

Potential effects to soil resources from the Springfield Alternative would be limited to the general footprint of the project. The anticipated overall absence of long-term impacts to soil resources from the Springfield Alternative indicates that cumulative effects to soils are not expected. Where long-term impacts are expected to be absent, the potential for additive cumulative effects with other past, present, and reasonably foreseeable future projects also would be adverse.

The majority of the potential effects to soil resources would be short-term, limited in geographic extent, and associated with the construction phase under the Springfield Alternative. Potential direct effects to soil resources include clearing, grading, trench excavation, backfilling, and impacts from equipment traffic. Potential impacts could include direct, short-term impacts associated with soil erosion and soil compaction and direct and indirect, short-to long-term impacts associated with topsoil loss. As a result, overall cumulative impacts to soils would be short-term during construction, and any long-term impacts would be considered insignificant. The Springfield Alternative would not result in any significant cumulative impacts associated with soils because the project would be designed to meet current Uniform Building Code (UBC) and Federal, state, and local building and development regulations and codes. Therefore, the Springfield Alternative would result in no significant contribution to cumulative impacts.

8.3.2.2 Water Resources

There would be no measurable impacts to water resources under the Springfield Alternative, therefore there would be no measurable cumulative impacts.

8.3.2.3 Biological Resources

Past, present, and reasonably foreseeable future actions that could impact biological resources under the Springfield Alternative include the development of the Safford Automobile Dealership, Springfield Town Center, Springfield Metro Center, Patriots Ridge, Liberty View, Embassy Suites, and the Belvoir Corporate Campus. The Springfield area and its habitat have been and continue to be transformed into a densely developed metropolitan suburb. The majority of developed land in the area consists of streets, parking lots, and buildings. Additional development on undeveloped land would have adverse impacts to vegetation and wildlife and would contribute to cumulative impacts.

Minimal vegetation currently exists on the Springfield Alternative. Existing vegetation would be removed during construction, and it is anticipated that a consolidated FBI HQ campus would contain substantially more vegetation and habitat, leading to direct, long-term, beneficial impacts to biological resources, as discussed in Section 7.2.3. However, all of the past, present, and reasonably foreseeable projects with the exception of Springfield Town Center would cause degradation to vegetation, and plant and animal habitat, because existing forest would cleared and developed. The beneficial impacts from the Springfield Alternative would contribute minimally to the overall short- and long-term cumulative adverse impacts from the past, present, and reasonably foreseeable projects.

8.3.2.4 Land Use

The projects considered for the cumulative impacts analysis all entail redevelopment of existing parcels in the vicinity of the Springfield Alternative. These projects, in conjunction with the Springfield Alternative, would contribute to and facilitate economic growth for the land use in the area. It is assumed that the surrounding developments and the Springfield Alternative would occur either in accordance with applicable local land use controls or through consultation with regulatory agencies to help ensure future development would adhere to or be compatible with Virginia land use planning and development policies. As a result, overall cumulative impacts to land use would be beneficial and the Springfield Alternative would have a marginal contribution to the overall cumulative impacts.

8.3.2.5 Visual Resources

The Springfield Alternative exists in an area of sparse suburban landscape with commercial and residential development interspersed with wooded areas. Current and future development projects outline a dramatic increase in residential housing and office and commercial space. These projects, in conjunction with the Springfield Alternative would contribute to the general development trend of mixed-use land use. As a result, the overall impact to visual resources from the combination of these projects in conjunction with the Springfield Alternative would be indirect, long-term, and beneficial.

8.3.2.6 Cultural Resources

There would be no measurable impacts to cultural resources under the Springfield Alternative, therefore there would be no measurable cumulative impacts.

8.3.2.7 Socioeconomics and Environmental Justice

Development of the Franconia-Springfield Metro Station, the I-495 "mixing bowl" improvements, and construction of the National Geospatial-Intelligence Agency likely had long-term, beneficial and adverse impacts to population, housing, income, employment, taxes, schools, and community services and facilities in Fairfax County and the Washington, D.C. MSA. These projects likely caused short-term impacts during their construction as a result of construction spending and long-term impacts as a result of employment changes that occurred because of these projects. Because the exact change in total employment attributable to these projects is unknown, it is not possible to know the exact cumulative impact to socioeconomic resources that these projects' impacts, in conjunction with the impact of the Springfield Alternative site, have had and would have on Fairfax County and the Washington, D.C. MSA. However, these projects occurred in the past and most of their impacts are already reflected in existing conditions. Because the impacts to socioeconomic resources from the Springfield Alternative on the socioeconomic resources are anticipated to be less than adverse, the overall impact of these projects in combination with the impacts from the Springfield Alternative would result in indirect, short- and long-term, and adverse and beneficial impacts. Some cumulative resource impacts, such as impacts to housing, are unknown at this time, as insufficient information exists about this alternative's potential impacts on these resources.

The development of an Embassy Suites, Springfield Town Center, Springfield Metro Center, Patriots Ridge, and Liberty View, and Belvoir Corporate Campus would impact population, housing, income, employment, taxes, schools, and community services and facilities in close proximity to the Springfield Alternative as a result of an increase to the permanent population and hotel-guests around the Springfield Alternative and their spending and visitation of resources in the area around the site. These project impacts, in combination with impacts from the Springfield Alternative, would result in indirect, short-term, and beneficial impacts to employment and spending in Fairfax County and the Washington, D.C. MSA; short-term, adverse impacts to populations living in proximity to the projects' sites as a result of construction noise and air quality impacts; no measurable impact to schools would occur in the Washington, D.C. MSA; unknown impacts to community and recreation facilities within one-mile of the project site would occur as a result of insufficient information; short-term impacts to community services in Fairfax County while these services adjust to the change in serviced population; and long-term, beneficial impacts to tax revenues in Fairfax County.

Indirect, short-term, and beneficial cumulative impacts would be expected from all current and future construction activities around the Springfield Alternative for the same reasons previously stated for past projects. Construction could provide direct employment opportunities for construction workers as well as indirect employment for support workers within Fairfax County and the Washington, D.C. MSA. The Springfield Alternative, in combination with current and reasonably foreseeable future projects located in close proximity to the Springfield Alternative represent contributions to the overall short-term and beneficial cumulative impacts to the economy, employment, and income.

Construction activities associated with the Springfield Alternative combined with other nearby actions could result in disproportionate ecological or human health effects on children and low-income or minority residents as a result of increased noise or decreased air quality. Because these impacts would be mitigated or would not disproportionately affect these sensitive populations, no environmental justice cumulative impacts or cumulative impacts to children are anticipated.

8.3.2.8 Public Health and Safety

Past, present, and reasonably foreseeable future actions that could impact public health and safety under the Springfield Alternative include the Safford Automobile Dealership; interior and exterior renovations to the Springfield Mall; the Springfield Town Center; the Springfield Metro Center; the Patriots Ridge office development; the Liberty View Office Park; the Embassy Suites Hotel; and the Belvoir Corporate Campus. Short- and long-term impacts to public health and safety from cumulative projects for the Springfield Alternative would be similar to those described for the Greenbelt Alternative in Section 8.2.2.8.

As discussed Chapter 7, the Springfield Alternative would have short-term, adverse impacts and no long-term, adverse impacts to public health and safety. Overall, the impacts of the Springfield Alternative combined with past, present, and reasonably foreseeable future actions would result in short-term, adverse cumulative impacts and no long-term, cumulative impacts to public health and safety.

8.3.2.9 Transportation

As presented in Chapter 7, the 2022 No-action or Action Landover Alternative or Action Greenbelt Alternative (referred to as the Springfield No-build Condition in the transportation section) vehicular analysis for transportation considered the projected growth in the region based on the future planned developments, background growth, and changes in travel patterns resulting from planned roadway improvements as agreed in the Springfield Site Transportation Agreement (Appendix A). The transit analysis for transportation considered the projected growth in the region based on MWCOG's travel demand model. These sources provide an estimate of future vehicle and transit trips through 2022 and include reasonably foreseeable projects. Impacts funder the Springfield Alternative (referred to as the Build Condition in the transportation section) was assessed with the projected growth from the 2022 No-build Condition, plus the addition of new trips generated by the addition of the FBI HQ generated vehicle and transit trips.

The 2022 Build Condition included the addition of new person trips generated by the proposed FBI HQ based on the maximum projected person trip generation following the agreed Springfield Site Transportation Agreement. The study considered the maximum employee person trips and maximum mission briefing center person trips. The person trips were separated into vehicle, transit, bicycle, and pedestrian trips and analyzed by mode.

The greatest cumulative impacts for the 2022 Build Condition were studied as part of the transportation analysis, which relied on regional growth. The study evaluated each transportation mode. Therefore, the cumulative impacts from the Proposed Actions would result in direct, long-term, adverse parking impacts, direct adverse long-term adverse traffic, direct, long-term, adverse transit bus operation impacts, direct, long-term, beneficial pedestrian, and no measurable direct transit capacity, bicycle, and truck impacts. The recommended mitigation in Section 7.2.9 would address the major adverse traffic and adverse transit bus operations impacts and changing them to no measurable or beneficial impacts.

8.3.2.10 Air Quality

There is potential for adverse cumulative impacts to air quality during construction if the Springfield Town Center and/or Springfield Metro Center II developments are under construction at the same time as the FBI HQ. Due to the proximity of these development sites to the Springfield Alternative, the combined emissions of PM10 and PM2.5 could create elevated concentrations in localized areas of sensitive receptors. The intensity of impacts would be highly dependent on the exact details of the construction sequence for the FBI HQ and the development projects, both of which are currently not known. Impacts would be minimized because all major projects in the area would incorporate construction air quality BMPs.

No long-term operational air quality cumulative impacts are anticipated. Stationary source impacts would be addressed through the appropriate stack design for emissions sources associated with both projects, and locating building fresh air intakes away from potential areas of air quality impact. In terms of mobile source impacts, future development was considered in the development of the traffic data used in the intersection air quality impact screening.

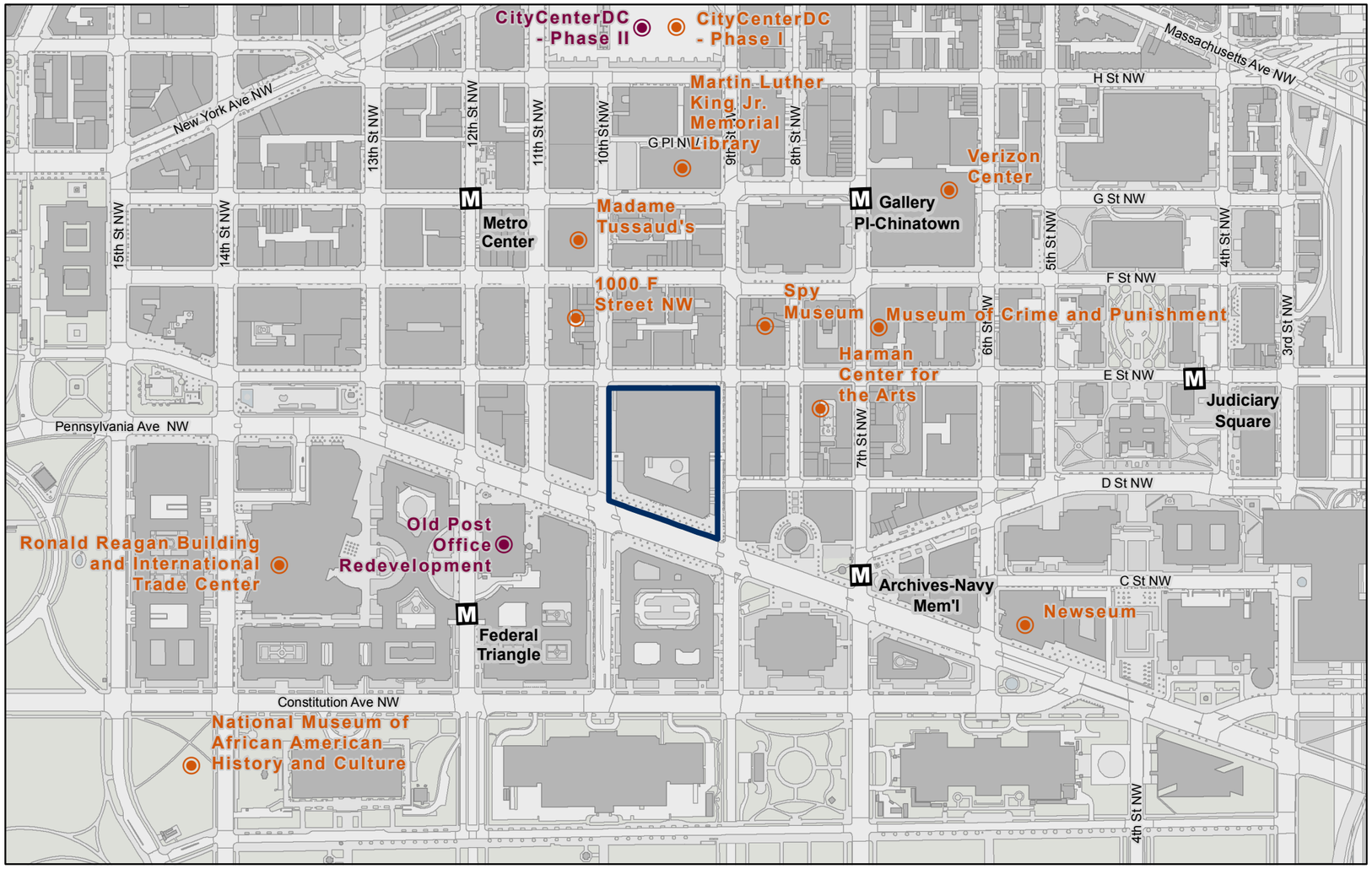
8.3.2.11 Noise

It is anticipated that identified current and planned projects have the potential to impact the noise environment of the Springfield Alternative and adjacent area by increasing the overall noise levels through construction activities, increased traffic, or other human activities. Each of the identified past, present, and reasonably foreseeable projects would have short-term, adverse impacts to noise associated primarily with construction activities. Indirect, long-term, cumulative noise impacts are likely as a result of the additive effect of the expected noise level for each project. These impacts would most likely be minor and would be consistent with existing noise uses, compatible with existing Fairfax County noise regulations and would not change the overall ambient noise levels of the area. Overall adverse cumulative impacts to noise would be both short- and long-term, with the Springfield Alternative site having a slight contribution.

8.3.2.12 Infrastructure and Utilities

Past projects have already been accounted for in terms of additional utility load and the need for infrastructure upgrades. There would be no long-term impacts to infrastructure and utilities as a result of Springfield Alternative because there is already abundant supply and capacity to meet any increased demand. There would be short-term impacts to electric power and telecommunications during installation of these utilities to the site, but these impacts would not contribute to overall cumulative impacts because of their short duration. Therefore, there would be no overall cumulative impacts to these utilities. The Springfield Alternative site would contribute beneficial impacts to stormwater management. Ongoing and proposed development surrounding the Springfield Alternative would contribute adverse impacts where impervious surface is added to the landscape. The Springfield Alternative would not contribute to those adverse cumulative impacts.

Figure 8-4: JEH Cumulative Projects



8.4 JEH Exchange

The exchange of the JEH parcel is common to all action alternatives. As such, in order to assess overall cumulative impacts for the Proposed Action, the impacts described in this section would need to be coupled with each of the action alternatives as described in sections 8.1 to 8.3.

8.4.1 Projects Contributing to Potential Cumulative Impacts

Cumulative effects were evaluated for major infrastructure projects or private developments that are geographically related to the JEH parcel and that prominently contribute to the overall character of the area. In order for a future project to be included in the cumulative impact analysis, it must have received development approval from Washington, D.C. Office of Planing (OP). This analysis refers to these projects are reasonably foreseeable projects.

8.4.1.1 Past Projects

Past projects contributing to the cumulative impacts for the JEH parcel exchange include:

Economic Revival in Penn Quarter and Chinatown: These neighborhoods north and east of the JEH parcel have experienced economic and social revitalization going back to the implementation of the PAP, under the PADC, in the early- to mid-1970s. More recent catalysts include a variety of residential, retail, restaurants, hotels, and cultural uses. Major projects include the development of the Verizon Center in 1997, housing several of the city's professional sports teams; the Harman Center for the Arts, housing the Shakespeare Theatre Company in 2007 (and the Lansburgh Theatre in 1992); the Spy Museum; Gallery Place, mixed use development in 2005, and Madame Tussauds Wax Museum.

The Newseum: Located at 555 Pennsylvania Avenue NW, two blocks east of the JEH parcel; the Newseum opened at its current location in 2008. The Newseum building contains the museum itself, with conference and office space, a restaurant, and the Newseum Residences (135 luxury apartments).

The Ronald Reagan Building and International Trade Center: Located at 1300 Pennsylvania Avenue, three/four blocks west of the JEH building and across from Federal Triangle. The building opened in 1998, and contains 1.4 million SF of Federal office space, a conference center, and parking.

8.4.1.2 Current Ongoing and Reasonably Foreseeable Projects

Current ongoing projects contributing to the cumulative impacts for the JEH parcel exchange include:

Old Post Office Building (Trump International Hotel) is expected to open in 2016. The Old Post Office Building, located at 1100 Pennsylvania Avenue NW, is being renovated to include 270 guestrooms, as well as a 5,000 SF spa and state-of-the-art fitness center. It will also offer 36,000 SF of meeting and event space, including a13,000-SF grand ballroom.

CenterCity DC, Phase I and II, is a mixed-use, transit and pedestrian-oriented neighborhood with outdoor space. The development, which encompasses three pedestrian city blocks on a 10-acre parcel contains 458 apartments, 216 condominium units, 462,085 SF of general office development, 252,023 SF of retail development, and an underground garage with approximately 1,600 spaces.

This EIS considers reasonably foreseeable projects that include plans with have permits or other development approvals. Reasonably foreseeable projects contributing to the cumulative impacts for the JEH parcel exchange include:

1000 F Street NW development will house an 11-story office and retail building located near Metro Center. Construction began in 2013 and will consist of 92,160 rental SF (7,000 SF of retail; 85,160 SF feet of office space). Two levels of below grade parking with 45 spaces will be built.

National Museum of African American History and Culture is located on Constitution Ave NW, between the National Museum of American History and 15th Street, beside the Washington Monument. The 350,000 SF building is expected to be finished in 2016. The building is limited to 5-acre site with 3 stories below ground and 5 stories above ground.

Martin Luther King Jr. Memorial Library redevelopment located at 901 G Street NW will be a 5-story stand-alone building. The building occupies nearly 400,000 SF.

A map of all past or currently ongoing and reasonably foreseeable projects in the vicinity of the JEH parcel are shown in figure 8-4.

8.4.2 Cumulative Impacts Analysis

8.4.2.1 Water Resources

RFDS 1

Under RFDS 1, there would be no impacts to water resources because the building and parcel would remain the same, so there would be no cumulative impacts to water resources.

RFDS 2

All past, present, and reasonably foreseeable future actions, except the ongoing construction of the Smithsonian National Museum of African American History and Culture, include redevelopment of previously developed land. The past actions for the Newseum, the Ronald Reagan building, and the International Trade Center were constructed within already disturbed 100-year floodplain. All ongoing projects have the potential to result in temporary modifications to existing water resources due to construction activities. All present and future projects would alter stormwater hydrology and increase the potential for temporary sediment or pollutant loading related to construction activities. However, adherence to District of Columbia stormwater regulations, including stormwater management performance requirements, make it unlikely that present and future projects would have any long-term, adverse impacts to stormwater hydrology and may even have beneficial impacts.

In addition to temporary impacts, construction of the Smithsonian National Museum of African American History and Culture would increase the amount of impervious surface. Again, adherence to the stormwater management performance requirements would prevent long-term, adverse impacts to stormwater hydrology. Both the Trump International Hotel at the site of the Old Post Office building and the Smithsonian National Museum of African American History and Culture are located within the 100-year floodplain. Because the Old Post Office building property is already developed, there would be no net loss of beneficial natural values of the floodplain from the redevelopment. The development of the Smithsonian National Museum of African American History and Culture would impact the floodplain and could adversely affect the functions and values of the floodplain over the long-term. Floodplain impacts would be mitigated and minimized through a flood zone building permit, compliance with applicable construction codes and flood hazard rules, and implementation of floodplain controls. Developers for this project, or any other project, would be required to adhere to appropriate building practices and water quality and stormwater standards, and implement appropriate measures to prevent impacts to existing water resources. Under RFDS 2, there would be indirect, long-term, beneficial impacts resulting from the implementation of BMPs and low-impact development techniques that were not required when the JEH building was initially constructed, but are currently required for any major land-disturbing projects within the District of Columbia. As a result, overall cumulative impacts to water resources would be beneficial and RFDS 2 would have a marginal contribution to the overall impacts.

8.4.2.2 Land Use

RFDS 1

Under RFDS 1, there would be there would be indirect, long-term, adverse impacts to land use, as the continued existence of the JEH building in its current configuration would continue to disagree with some planning principals for this portion of Pennsylvania Avenue, namely the stimulation of street life, diversity of uses, and the lack of pedestrian access through the parcel, especially with regards to the closed D-Street right-of-way (ROW), which is part of the original L'Enfant Plan. Other past, present, and reasonably foreseeable projects would be compatible with the Pennsylvania Avenue Plan and other with District of Columbia land use planning and development policies. Therefore, these projects would not contribute to the cumulative long-term, adverse impacts under RFDS 1.

RFDS 2

Under RFDS 2, there would be indirect, long-term, beneficial impacts to land use and zoning, as the redevelopment of the JEH parcel would better align with current zoning and local, state, and federal land use plans for the area. An Amendment to the PAP and subsequent development of Square Guidelines, currently underway, would ensure that future development of the parcel is consistent with the land use, historic preservation and design goals of the Avenue.

The projects considered for the cumulative impacts analysis all entail redevelopment of existing parcels in the vicinity of the JEH parcel. These projects, in conjunction with redevelopment under RFDS 2, would contribute to and facilitate economic growth in the area surrounding the parcel. It is assumed that the surrounding developments, as well as the redevelopment of the JEH building, would occur either in accordance with applicable local land use controls or through consultation with regulatory agencies to help ensure future development would adhere to or be compatible with District of Columbia land use planning and development policies. As a result, overall cumulative impacts to land use would be beneficial and RFDS 2 would have a marginal contribution to the overall cumulative impacts.

8.4.2.3 Visual Resources

RFDS 1

There would be no measurable impacts to visual resources under RFDS 1, therefore there would be no measurable cumulative impacts.

RFDS 2

Under RFDS 2, there would be a measurable impact to visual resources as a result of the demolition of the JEH building. The projects considered for the cumulative impacts analysis all entail redevelopment of existing parcels in the vicinity of the JEH parcel. These projects, in conjunction with potential parcel redevelopment under RFDS 2, would contribute to and facilitate the unique cultural aesthetic of the area and be consistent with land use regulations such as the PAP and associated square guidelines, the Height of Buildings Act, and proposed D-7 zoning regulations. As a result, overall cumulative impacts to visual resources would be beneficial and RFDS 2 would have a marginal contribution to the overall cumulative impacts

As a result, the overall impact to visual resources from the combination of these projects would be indirect, long-term, and beneficial.

8.4.2.4 Cultural Resources

RFDS 1

Under RFDS 1, there would be no impacts to cultural resources, including archaeological or historic resources, so there would not be any cumulative impacts.

RFDS 2

Under RFDS 2, there could be indirect, long-term, adverse impacts to historic properties because the existing character of the area would be altered. However, these potential impacts would be avoided by the enforcement of the Section 106 Programmatic Agreement (PA), which outlines the regulatory and review processes described in this section, including the enforced conformity to Square Guidelines, PAP, and other regulations. Other past, present, and reasonably foreseeable projects within the Pennsylvania Avenue Plan (PAP) boundary would be subject to the same regulations, thereby continuing to avoid adverse impacts within the APE. GSA previously determined that the JEH building is not eligible for the National Register of Historic Places (NRHP).

8.4.2.5 Socioeconomics and Environmental Justice

RFDS 1

Past projects, including the Economic Revival in Penn Quarter and Chinatown and its recent development of a variety of residential, retail, restaurants, hotels, and cultural uses; (the Newseum, the Ronald Reagan Building and International Trade Center) likely have had long-term, beneficial and adverse impacts to population, housing, income, employment, taxes, schools, community services and facilities, environmental justice, and children in Washington, D.C. MSA, and the Washington, D.C. MSA. Construction of these past projects had short-term impacts as a result of construction spending and long-term impacts as a result of employment and population changes that occurred post-construction. Because exact changes in total employment or population of these projects is unknown, it is not possible to know the exact cumulative impacts to socioeconomic resources that these projects have had on Washington, D.C., and the Washington, D.C. MSA. However, because these projects occurred in the past, most of their impacts are already reflected in existing conditions, and the results of RFDS 1 on the socioeconomic resources previously discussed are anticipated to have no measurable impact. Thus, the overall impact of these past projects in combination with the impacts from RFDS 1 would result in both short and long-term, indirect, adverse and beneficial impacts. Some cumulative resource impacts, such as impacts to housing, are unknown at this time, as insufficient information exists about this alternative's potential impacts on these resources.

The development of CenterCity DC Phase I, with the addition of 458 apartments and 216 condominium units, would impact population, housing, income, employment, taxes, schools, and community services and facilities in close proximity to the JEH parcel as a result of an increase to the permanent population and hotel-guests around the parcel and their spending and visitation of resources in the area around the parcel. The impacts associated with the development of CenterCity DC Phase I, in combination with impacts from RFDS 1, would result in indirect, short-term, and beneficial impacts to employment, income, and sales in Washington, D.C., and the Washington, D.C. MSA ; short-term and adverse impacts to populations living in proximity to the projects' sites as a result of construction noise and air quality impacts and impacts to schools and community and recreation facilities; and long-term and beneficial impacts to tax revenues. Insufficient information exists at this time to determine cumulative impcats to recreation resources and community facilities.

Indirect, short-term, and beneficial cumulative impacts would be expected from all current and reasonably foreseeable future construction activities in Washington, D.C. and the Washington, D.C. MSA for the same reasons previously mentioned for past projects. Construction would provide direct employment opportunities for construction workers as well as indirect employment for support workers throughout Washington, D.C., and the Washington, D.C. MSA. RFDS 1, in combination with the developments of CenterCity DC Phase I and II, the Trump International Hotel, 1000 F Street NW development, Smithsonian National Museum of African American History and Culture, and the Martin Luther King Jr. Memorial Library represent contributions to the overall short-term, beneficial, cumulative impacts to the economy, employment and income.

Indirect, long-term, and beneficial cumulative impacts would be expected as a result of sales tax revenue and individual income tax revenue from redevelopment projects that generate new business and bring new residents to Washington, D.C., or the Washington, D.C. MSA. Because the JEH parcel would be transferred from a Federally owned parcel to a privately owned parcel, this could result in an increase in property tax revenues. Current and reasonably foreseeable future actions would have an indirect, short-term, and beneficial cumulative contribution in the form of sales tax from construction expenditures and possible indirect, long-term, and beneficial cumulative impacts by stimulating business and residential growth.

Construction activities associated with RFDS 1 and other nearby actions could result in disproportionate ecological or human health effects on children and low-income or minority residents as a result of construction and renovation traffic, increased noise or decreased air quality. Because these impacts would be mitigated or would not disproportionately affect these sensitive populations, no environmental justice cumulative impacts or cumulative impacts to children are anticipated.

RFDS 2

Under RFDS 2, cumulative impacts resulting from the construction of past projects are the same as those identified under RFDS 1. Thus, the overall impact of these projects in combination with the impacts from RFDS 2 would result in both short and long-term indirect impacts.

The development of CenterCity DC Phase I, with the addition of 458 apartments and 216 condominium units, would impact population, housing, income, employment, taxes, schools, and community services and facilities in close proximity to the JEH parcel because it would increase the population and hotel-guests around the parcel and their spending and visitation of resources in the area around the parcel also would increase. The impact of CenterCity DC Phase I, in combination with impacts from RFDS 2, would result in indirect, short-term, and beneficial impacts to employment, income, and sales in Washington, D.C., and the Washington, D.C. MSA; short-term and adverse impacts to populations living in proximity to the JEH parcel as a result of construction noise and air quality impacts and impacts to schools and community and recreation facilities; and long-term and beneficial impacts to tax revenues. Insufficient information exists at this time to determine cumulative impcats to recreation resources and community facilities.

In combination with the impacts from RFDS 2, there could be impacts to the homeownership and rental market as a result of increasing the supply of apartment and condominium units on the marke. However, insufficient information exists at this tim to determine the exact impacts to the homeownership and rental markets.

Indirect and short-term impacts occurring as a result of all currenas shown in figure 6-40 and reasonably foreseeable future construction activities would be the same under RFDS 2 as they would be under RFDS 1, resulting in overall short-term, beneficial and cumulative impacts to the economy, employment, and income.

Indirect, long-term, and beneficial cumulative impacts would be expected as a result of sales tax revenue and individual income tax revenue from redevelopment projects that generate new businesses and bring new residents to Washington, D.C., or the Washington, D.C. MSA. Because the JEH parcel would be transferred from a Federally owned parcel to a privately owned parcel, this could result in an increase in property tax revenues. The cumulative impacts to sales and income tax revenues for Washington, D.C., as a result of spending on the demolition and construction of the JEH parcel would be similar to but greater than the cumulative impacts for RFDS 1 because spending on demolition and construction is anticipated to be greater than spending on renovation, resulting in comparably greater indirect, short-term, and beneficial impacts to tax revenues.

Cumulative impacts, as a result of all current and reasonably foreseeable future construction activities (e.g. construction and renovation traffic, increased noise or decreased air quality) on children and low-income or minority residents would be the same under RFDS 2 as they would be under RFDS 1. Therefore, as any of these adverse impacts would be mitigated or these impacts would not disproportionately affect these sensitive populations, no environmental justice cumulative impacts or cumulative impacts to children are anticipated.

8.4.2.6 Public Health and Safety

RFDS 1 and 2

Past, present, and reasonably foreseeable future actions that could impact public health and safety in the vicinity surrounding the JEH parcel include the development of the Trump International Hotel in 2016, the Smithsonian National Museum of African American History and Culture, CityCenterDC, parcels north of CityCenter at New York Avenue NW between 9th Street and 10th Street NW, a construction project at 1000 F Street NW, and the redevelopment of the Martin Luther King Jr. Memorial Library. All projects include redevelopment of previously developed land.

During construction of these projects, contractors would be required to ensure that workers receive proper safety training for operation of mechanical equipment and utilize proper safety clothing, equipment, and procedures at all times. These measures would be expected to minimize the risk of injury and the related need for emergency response; therefore, no short-term impacts to life safety would be expected. Construction-phase spill prevention and response procedures would be implemented to prevent spills of hazardous materials such as vehicle and equipment fuels and maintenance fluids, and to ensure rapid response in the event of accidental spills. Likewise, any lead, asbestos, or other hazardous materials that may be present at the site of any of these surrounding development projects would require abatement and disposal by properly licensed and trained personnel, thereby minimizing any potential short-term adverse impacts from release of these materials during demolition and construction activities. Negligible to no short-term, adverse impacts related

to hazardous materials would result. In the long-term, water quality and stormwater standards, and other appropriate measures would be required to prevent runoff of pollution from the sites of these project sites. Because all of the projects previously described involve redevelopment of already developed land, they are not expected to place sufficient additional demand on fire and emergency response services to create adverse impacts. Therefore, no long-term cumulative impacts related to life safety or hazardous materials would occur as a result of either RFDS 1 or 2.

8.4.2.7 Transportation

As presented in Section 4.2.9, the 2025 No-action vehicular analysis for transportation considered the projected growth in the region based on the future planned developments and background growth as agreed in the DDOT Scoping Form (Appendix A). The transit analysis for transportation considered the projected growth in the region based on MWCOG's travel demand model. These sources provide an estimate of future vehicle and transit trips through 2025. Impacts for the 2025 action alternatives (RFDS 1 and 2) were assessed with the projected growth from the 2022 No-action, plus the addition of new trips generated by RFDS 1 and 2.

Additional reasonably foreseeable projects that were not included in the analysis include 1000 F Street NW, the Smithsonian National Museum of African American History and Culture, Martin Luther King, Jr., Memorial Library redevelopment, and Phase II CityCenter DC. These developments would add person trips to the 2025 No-action resulting in more vehicle, transit, bicycle, and pedestrian trips.

The greatest cumulative impacts for the 2025 Build Condition were studied as part of the transportation analysis, which relied on regional growth except for the four additional reasonably foreseeable projects. It assumed that the additional trips produced by the reasonable foreseeable projects would add to the transit and traffic networks, although mostly to the transit network based on the urban location and assumed modal split for each RFDS. Therefore, the cumulative impacts from both RFDS 1 and 2 would result in indirect, long-term, major transit capacity impacts, indirect, long-term, adverse traffic impacts, and no measurable indirect pedestrian, bicycle, transit bus operations, parking, and truck impacts. The recommended mitigation in the JEH Transportation Impact Assessment (Appendix B), would address the indirect, adverse traffic impacts changing them to no measurable impact.

8.4.2.8 Air Quality

RFDS 1

Under RFDS 1, the potential for cumulative air quality impacts is very low during construction because of there would be limited heavy equipment use and no ground disturbance with a rehabilitation of the existing JEH building. Long-term operations could contribute to adverse mobile-source related cumulative impacts in combination with other developments that increase traffic. However, the impacts of future growth were considered in the development of the traffic analyses, and the intersection screening discussion in Chapter 4 based on the traffic analysis constitutes a cumulative impact analysis.

RFDS 2

Under RFDS 2, there would be potential for cumulative impacts to localized air quality during construction if other major developments in the area (such as the CenterCity project) are also under construction at the same time. The potential for cumulative impacts is reduced by the lack of major development projects directly adjacent to the JEH parcel, reducing the extent of potential "overlaps" in air quality impacts between projects. It is anticipated that both the redevelopment of the JEH parcel and other projects in the area would incorporate construction air quality BMPS (i.e., as limitations on idling and dust control measures) such that there would be no measurable cumulative impacts.

8.4.2.9 Noise

RFDS 1 and 2

It is anticipated that identified current and planned projects have the potential to impact the noise environment in the vicinity of the study area in a manner similar to that presented under both RFDSs. Each of the identified projects would have temporary adverse impacts to noise primarily as a result of construction activities associated with the development/redevelopment of the projects. Indirect, long-term noise impacts are likely as a result of each of the projects through the introduction of new mixed-use, residential, commercial or retail development and their associated traffic. These impacts would most likely be minor and would be consistent with existing noise uses, compatible with existing District of Columbia noise regulations, and would not change the overall ambient noise levels of the area. Overall adverse cumulative impacts to noise would be both short- and long-term, with RFDS 1 and 2 making a slight contribution.

8.4.2.10 Infrastructure and Utilities

RFDS 1

Under RFDS 1, there would be no impacts to infrastructure and utilities, so there would not be any cumulative impacts.

RFDS 2

Long-term, adverse, cumulative impacts to infrastructure and utilities would be expected on electric service, natural gas service, water service, sanitary sewer collection service, and stormwater management systems would be expected as a result of increased demand from continued development and redevelopment in the vicinity of the JEH parcel. Redevelopment of the JEH parcel would represent a minor increase in cumulative utility use in the context of the entire downtown District of Columbia area. Upgrades to the utility network likely would not be required.

Extreme events are the occurrence of a weather or climate variable above or below a threshold value. The threshold values occur near the upper or lower bounds of the range of observed variable values (IPCC 2012; Seneviratne et al. 2012). The definition of extreme events is typically specific to a certain region and can vary among research studies.

Frequency refers to the number of times a precipitation event recurs within a given time interval (Seneviratne et al. 2012).

Intensity refers to the rate at which precipitation falls within a given time interval (NOAA 2013b).

8.5 Climate Change and Sustainability

The consolidation of FBI HQ provides an opportunity for sustainable and resilient campus development that would minimize environmental impacts and the consumption of resources over the lifecycle of the building, and develop a facility that would be resilient to extreme weather and flooding events from a changing climate. Given the complexity and initial capital outlay required to develop a consolidated FBI HQ, the lifecycle of the main building would be designed to last beyond 50 years. The design, construction, and operation of the consolidated HQ would be required to achieve a Leadership in Energy and Environmental Design (LEED) Gold rating for new construction, version 4, and to comply with Federal sustainability statutes and guidance (USEPA 2015i, b). It is expected that the project's greenhouse gas emissions (and therefore its contribution to climate change) would be greatest during the opening year of the project and should diminish over time. This trend would result from the improving energy efficiency of products and technology as well as behavior such as commuting patterns.

Designing to manage the risks posed by long-term climate change is a core principle of this project. Extreme weather events and a changing climate present real costs to both operations and infrastructure; this would only become more pronounced through the life-cycle of the project. Therefore, climate change vulnerabilities must be addressed early and integrated through the project's delivery, occupancy, operation and maintenance. Incorporating climate resilience is paramount due to the mission critical functions located at the HQ which are sensitive to interruption, replacement and relocation, and would constitute a significant federal investment.

For this project to be climate resistant over time, climate protection levels (CPL) must be developed by the exchange partner and incorporated into project design, construction, operations and maintenance. The goal of CPLs is to ensure that this critical asset remains viable and operational over time under projected climate conditions, which include long-term climatic changes (e.g. longer, hotter summers) and more extreme weather events (e.g. heat waves, hurricanes, floods). This would also mitigate the limitations of current codes used in the design, build, and compliance process of structures and sites which are based on past events, rather than a changing future climate.

8.5.1 Key Strategies to Manage Climate Change Risks

Several key strategies have been identified that may be incorporated into the final facility design in order to manage climate change risks.

1. Integration of architectural form and optimization of building enclosure (above and below grade and detailing) for long-term performance/durability and selected materials or systems

2. Optimization of building orientation, footprint, and envelope design to mitigate solar loads

3. Optimization of site for projected extreme precipitation loads for long-term performance/durability and known regional/local planning development /land use changes which may contribute to site loads

4. Utilization of available on-site renewable energy resources

5. Site/facility design focused on flexibility and adaptability to allow modifications to enhance its ability resist or accommodate climate extremes in temperature or precipitation

8.5.2 Regulatory Framework

Compliance with the following statutes and guidance would help ensure a sustainable and resilient consolidated FBI HQ campus. A complete list of applicable environmental and planning regulations is found in Section 1.2.2.

- EO 11988 "Floodplain Management": Requires Federal agencies to avoid both the long- and short-term adverse impacts associated with occupancy within and modification of floodplains, and to avoid direct and indirect support of floodplain development when there is a practicable alternative.

- EO 13690 "Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input": Requires future Federal investments within and affecting floodplains to meet the level of resilience defined within the EO, to improve the nation's resilience to flooding and better prepare the nation for the impacts of climate change.

- EO 13693 "Planning for Federal Sustainability in the Next Decade": Requires Federal agencies to maintain leadership in sustainability and greenhouse gas emission reductions by reducing, where cost effective over the lifecycle of the facility, building energy use and intensity, water use efficiency and management (including stormwater management), and reducing mobile source greenhouse gas emissions from agency fleet vehicles.

- Energy Policy Act of 2005: Provides both requirements and incentives for entities to increase energy efficiency and use renewable and alternative energy sources.

- Energy Independence and Security Act (EISA) of 2007: Designed to increase U.S. energy security by increasing the production and consumption of renewable and alternative fuel sources and reducing dependence on energy sources originating outside the U.S. Additionally, Section 438 requires Federal agencies to reduce stormwater runoff from Federal development projects by implementing green infrastructure or low impact development practices.

- The Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings (Guiding Principles): GSA is a signatory on this memorandum of understanding (MOU) and is therefore committed to take the lead in the design, construction, and operation of high performance and sustainable buildings that reduce costs over the lifecycle of a facility; improve energy efficiency and water conservation; provide safe, healthy, and productive built environments; and promote sustainable environmental stewardship.

- CEQ Revised Draft Guidance for Greenhouse Gas Emissions and Climate Change Impacts: On December 18, 2014, CEQ released revised draft guidance that describes how Federal agencies consider the effects of greenhouse gas emissions and climate change in their actions. According to the guidance, Federal agencies should identify the current and expected future state of the affected environment, based on available climate change information, including observations, interpretive assessments, predictive modeling, scenarios, and other empirical evidence, so as to provide a basis for evaluating the environmental consequences of the Proposed Action for each alternative for those aspects of the human environment that are impacted by both the Proposed Action and climate change.

8.5.3 Climate Change and Environmental Effects

The following sections describe impacts associated with climate change for affected resource topics.

8.5.3.1 Earth Resources

Earth resource impacts from the Proposed Actions would not have a measurable impact to climate change; however, climate change would have an impact to earth resources within and in proximity to the sites evaluated in this EIS, and may further exacerbate adverse impacts identified in this EIS. This section includes a qualitative discussion of the impacts of climate change, and potential increases in soil erosion and soil composition at each site.

Global warming is expected to lead to a more vigorous hydrological cycle, including more total rainfall and more frequent high intensity rainfall events. Rainfall amounts and intensities increased on average in the United States during the twentieth century, and according to climate change models, they are expected to continue to increase during the twenty-first century. These rainfall changes, along with expected changes in temperature, solar radiation, and atmospheric carbon dioxide (CO_2) concentrations, would have significant impacts on soil erosion rates, and could alter the soil composition through the loss of organic matter. These impacts are particularly apparent in previously disturbed soils, where the structure has been previously altered, and in soils with a predisposition to higher erosion rates; however, climate change impacts could be apparent in all soil types (Nearing et al. 2015; Blume 2011). Soils at the JEH parcel and each of the site alternatives have been disturbed due to past development. Future changes in the climate could exacerbate soil erosion, particularly for those soil associations at the Greenbelt and Landover Alternatives which have moderate erosion potential.

8.5.3.2 Water Resources

Water resource impacts from the Proposed Actions would not have a measurable impact to climate change; however, climate change would have an impact to water resources within and in proximity to the sites evaluated in this EIS, and may further exacerbate adverse impacts identified in this EIS. This section includes a qualitative discussion of the impacts of climate change, and potential increases in precipitation, storm frequency and intensity, and flooding as well as changes to weather patterns and associated increases in intense precipitation events and inland flooding at each site. Adaptation to climate change in the form of mitigation measures and possible site design elements is highlighted.

Climate projections are based on assumptions concerning future emissions of greenhouse gases as well as climate change policies. Therefore, there are limitations and uncertainties associated with these projections as well as the associated responses by ecosystems. Furthermore, knowledge of site-specific responses to climate change, including flooding, are limited due to the resources required to study and model various projections of climate change for the individual conditions present at each site. The text qualitatively discusses the impacts of climate change and potential changes in precipitation and inland flooding, including severity and frequency of storm events. The text is intended to support decision making concerning the FBI HQ consolidation and to make the proposed project more resilient against environmental impacts.

The JEH parcel and the Greenbelt and Landover Alternatives are within the Northeast Region of the 2014 National Climate Assessment, while the Springfield Alternative is within the Southeast Region. The Springfield Alternative is on the border of the Northeast and Southeast regions, and as such the climate of the site is assumed to be similar to that projected for the Northeast region, therefore the following discussion is based on data for the Northeast Region only. The region has already experienced extreme storm and precipitation events such as Superstorm Sandy, Hurricane Irene, and the June 2012 derecho. Heavy storm events deliver large amounts of water within short periods of time, and give rise to the potential to overwhelm both natural and engineered water resources systems. Based on available climate change information, storm intensity and the frequency of heavy storm events are both expected to increase thereby impacting water resources (Georgakakos et al. 2014; Walsh et al. 2014).The percentage of total precipitation from heavy precipitation events is likewise expected to increase (Seneviratne et al. 2012). Although there is some uncertainty concerning specific regional annual total storm precipitation trends, there is a high degree of certainty that heavy precipitation events would increase in the future throughout the United States (Walsh et al. 2014), and there is evidence that the intensity of these precipitation events has been increasing.

The definition of extreme and heavy precipitation events can vary according to geographic location and study; however, both refer to changes in the intensity and frequency of precipitation events. Gradations of precipitation extremes can be defined by frequency (by percentile), return period, or an absolute value (Groisman et al. 2002; Karl et al. 2008, Karl et al. 2009). For example, extreme events could include rainfall equal to or above the 99th percentile of daily events (i.e., the heaviest 1 percent of events) and heavy events could include precipitation within the 95th percentile.

In the Northeast region, there was a 71 percent increase in the amount of precipitation falling during extreme precipitation events between 1958 and 2010. (Karl et al. 2009; Walsh et al. 2014). These recent increases in the intensity of precipitation events are expected to continue in the future. Assuming that the greenhouse gas (GHG) emissions that drive these changes continue their upward trend, these heavy precipitation events would occur approximately three times as often during the 2081-2100 time period (Walsh et al. 2014). Generally, winter storm intensity and frequency have also increased in the mid-latitudes over the 1949 to 2010 time period (Walsh et al. 2014). Rainfall intensities have increased such that “the amount of rain that was expected to occur once in 100 years, could “now occur on average once every 60 years” (NOAA 2013a). Depending on the climate projection within the CREAT, the intensity of the 100-year storm over all site alternatives is projected to increase over the 2026-2045 time period by a low of 3.12 percent to a high of 10.71 percent and over the 2051-2070 time period by a low of 6.07 percent to a high of 20.84 percent (USEPA 2015j). Based on North American Regional Climate Change Assessment Program model simulations for the high emissions scenario, the annual mean of heavy precipitation events (i.e., greater than 1 inch, for this study) is projected to increase by approximately 15 to 18 percent for the 2041-2070 time frame compared to 1980-2000 period (NOAA 2013a).

The United State Environmental Protection Agency (USEPA) Climate Resilience Evaluation and Awareness Tool (CREAT) projects climate changes under three scenarios, Hot/Dry, Central, and Warm/Wet (USEPA 2015j). Projections are based on the Coupled Model Intercomparison Project Phase 5 (CMIP5) dataset which is produced from coupled atmosphere-ocean general circulation models studied, run, validated, compared, and analyzed by the international climate modeling community. The CREAT shows that annual precipitation would increase over the three modeled climate scenarios with the smallest increases occurring under the Hot/Dry scenario (i.e., hotter and drier conditions) and the largest increases occurring under the Warm/Wet scenario (i.e., less warming but increased precipitation) (USEPA 2015j). Throughout all site alternatives, precipitation increases ranged from 0.17 percent to 6.18 percent for the 2026-2045 time period and 0.34 percent to 12.06 percent for the 2051-2070 time period for all scenarios. Other projections show that annual mean precipitation would increase by 0.008 inches/day by 2050-2074 (USGS 2014).

According to the mean of 30 CMIP5 climate models provided by the U.S. Geological Survey (USGS) National Climate Change Viewer, the annual mean runoff for the Middle Potomac-Anacostia-Occoquan hydrologic unit (where all the site alternatives are located) would not change from the current runoff rate of that ranges from 1.0 inches/month to 1.1 inches/month over all the site alternatives (USGS 2014). Other individual models show a range from a decrease of 0.4 inches/month to an increase of 0.3 inches/month. Georgakakos et al. (2014) state that both streamflow and stormwater runoff increased in the Northeast region over the last half-century and are expected to increase in the future. Increases in the intensity and frequency of precipitation events and more frequent flooding in the future could result in increased stormwater runoff containing heightened levels of pollutants and sediments from soil erosion into local waterways (Georgakakos et al. 2014; NCPC 2014).

Overall, the magnitude of river floods has increased in the Northeast region according to the 2014 National Climate Assessment; however, specific localized trends vary depending on land use, soil moisture, river channel and flow, and flood control infrastructure (Georgakakos et al. 2014; Walsh et al. 2014). The trend toward increased riverine flooding generally reflects the observed increases in heavy precipitation events because these events generally result in more stormwater runoff and therefore potentially more flooding (Walsh et al. 2014). Localized flash flooding events are frequent in the region and are expected to increase as heavy precipitation events increase (Georgakakos et al. 2014; NOAA 2013a; Walsh et al. 2014). Typically in urban and suburban areas with more impervious area, surface stormwater runoff moves quickly into receiving waters, potentially leading to flooding (Georgakakos et al. 2014; NOAA 2013a). The increased volume of runoff in developed areas would be expected to result in an increase in riverine flooding and/or flash flooding.

The Federal Flood Risk Management Standard (FFRMS) requires that all future federal investments in and affecting floodplains meet the level of resilience as established by the standard, which may include elevating the structure or, where appropriate, designing it to withstand or otherwise quickly recover from a future flood event. The FFRMS was applied to the Greenbelt Alternative to estimate future flood risks along Indian Creek and to ensure that the Greenbelt Alternative would consider the increased risk of flooding associated with climate change. Using a hydraulic model, 3 feet of elevation, as designated in the Freeboard approach for Critical Actions, was added to the FEMA revised preliminary floodplain base flood elevations to account for future flood risks. The additional vertical and horizontal spatial extent of floodplain is similar to the revised preliminary floodplain, and results in approximately 29.1 acres of floodplain within the site boundary. This total is an addition of 1.2 acres over the floodplain acreage of the revised preliminary FIRM, on which it is based. To the south and east of the site the FFRMS floodplain would be substantially expanded to encompass additional acres of open space surrounding a tributary of Indian Creek as well as two buildings in the Franklin Park Development.

Mitigation

Adaptation to climate change for the consolidation of FBI HQ at the selected site would be in the form of mitigation measures and possible site design elements, particularly for the Greenbelt Alternative. The EISA, EOs 13693 and 11988, and the FFRMS address stormwater runoff control and retention; water use efficiency and management, including the reduction of water use and the capture and reuse of water; and the use of natural features and natural processes. These objectives should be the basis for mitigation and design to minimize the environmental impacts of more intense and frequent precipitation events and potential flooding in the future and to provide resilience. Mitigation measures for water resources include stormwater management BMPs, such as low-impact development. The use of conservation easements to preserve open space around the sites could provide protection from flooding and prevent flood hazards. Ultimately, successful mitigation would require a combination of BMP types, control techniques, and design measures. The design of the site must initially consider the most accurate floodplain and higher base flood elevations as recommended in the FFRMS. This would ensure that all buildings and structures are designed and constructed to withstand flooding. Site design and associated BMPs and practices should be optimized for the projected future increases in the intensity and frequency of extreme precipitation events. Lastly, any successful plan to accommodate the effects of climate change must incorporate adaptive management. The design elements and mitigation measures must have the ability to adjust to new and changing conditions, provide resiliency, and protect human safety and health.

8.5.3.3 Biological Resources

Biological resource impacts from the Proposed Actions would not have a measurable impact to climate change; however, climate change would have an impact to biological resources within and in proximity to the sites evaluated in this EIS, and may further exacerbate adverse impacts identified in this EIS. This section includes a qualitative discussion of the impacts of climate change, and potential changes to species distribution, altered biological timing, and extinction at each site.

Global warming is expected to have an effect on ecosystem, plants, and animals. Most plants and animals have adapted to specific climate conditions, such as the amount of rainfall, average temperature, and the timing of the seasons. Any change in the climate of an area can affect the plants and animals living there, as well as the makeup of the entire ecosystem. The JEH parcel and Greenbelt and Landover Alternatives are within the Northeast Region of the 2014 National Climate Assessment; the Springfield Alternative is within the Southeast Region but is on the border of the Northeast and Southeast regions. This region has already experienced extreme storm and precipitation events such as Superstorm Sandy, Hurricane Irene, and the June 2012 derecho. Based on available climate change information, increases in the intensity and frequency of weather events, and more frequent heat waves could result in species, including iconic species, vanishing from regions where they have been prevalent, altered timing of biological events (such as migration and reproduction), and species extinction (Groffman et al. 2014). Vegetation modeling suggests that much of the United States would experience a shift of species composition in the future as a result of changes in weather patterns associated with climate change (Groffman et al. 2014).

8.6 Unavoidable Adverse Impacts

Unavoidable adverse impacts would result from implementation of any of the action alternatives. Most adverse effects would be limited to short-term disruptions or disturbances to resources during construction, which would occur under the No-action Alternative at the Greenbelt Alternative, and under all action alternatives from construction and use of FBI HQ at the Greenbelt, Landover, or Springfield Alternatives. Site clearing, excavation, and construction of buildings, parking, and roads would result in mostly adverse impacts to soils, water resources, vegetation, wildlife, health and safety, and traffic during construction activities, with short-term adverse impacts to air quality and the noise environment from use of construction equipment.

Continued use of the buildings and site development would have unavoidable adverse impacts to geology, water resources/stormwater systems, wetlands and floodplains associated aquatic species (Greenbelt Alternative only), health and safety, air quality, and the noise environment.

Long-term, adverse impacts could occur on the recreational resources, the visual environment, and some utilities at all sites that would be developed, due to the increase in recreational users, increase in structure size and height and required lighting, and the need to extend utility service lines. Increased traffic resulting from employees commuting to and from FBI HQ would also result in unavoidable adverse impacts. Construction activities cause noise which could disturb special status species; however, the special status species that could be present would either not be present at the areas designated for construction or avoid the area due to noise and human interaction. There would be no direct adverse effects on historic structures, because there are none within the boundaries of the alternative sites, and indirect, visual impacts to any historic structures in the vicinity of the sites would be minimal and would not impact any potential historic resource to the extent that it would diminish its integrity.

8.7 Relationship Between Short-term Uses and Long-term Productivity

Short-term uses of the biophysical components of the human environment include direct impacts, usually related to construction activities, which occur over a short-term period of construction. Long-term uses of the human environment include those impacts that occur over a period extending beyond construction, including permanent resource loss. This loss is tempered by the already developed state of many of the alternative sites, so there would be less of a trade-off of long-term productivity where productivity of resources has already been affected.

The EIS identifies potential short-term, adverse impacts to the natural and human environments as a result of construction activities, which are described in section 8.1. However, there would be increases in long-term productivity associated with some resources. Redevelopment of the JEH parcel or development of any of the site alternatives would be expected to increase the long-term economic productivity of the sites. The addition of landscaped areas under each action alternative would also result in long-term reduction of erosion and an increase in soil productivity, improvements in vegetation cover, and an increase in productive wildlife habitat. Installation of new stormwater controls and BMPs would provide long-term enhancements to water quality. Implementation of stormwater control practices would result in a site that is adaptable to the projected changes in stormwater volume and quantity.

8.8 Irreversible and Irretrievable Commitments of Resources

An irreversible or irretrievable commitment of resources refers to impacts or losses to resources that cannot be reversed or recovered, even after an activity has ended and facilities have been decommissioned. A commitment of resources is related to use or destruction of nonrenewable resources, and the impacts that loss would have on future generations. Construction and operation of the proposed FBI HQ would involve the irreversible and irretrievable commitment of materials, energy, biological resources and soil, landfill space, and human resources. The impacts to these resources would be permanent.

Materials. Material resources irretrievably used for a consolidated FBI HQ would include steel, concrete, and other building materials. Such materials are not in short supply and would not be expected to limit other unrelated construction activities. The preferential use of recycled building materials would reduce the overall amount of materials used for building construction.

Energy. Energy resources used for a consolidated FBI HQ would be irretrievably lost. These include fossil fuels (e.g., gasoline, diesel, natural gas) and electricity. During construction, gasoline and diesel fuel would be used for the operation of construction vehicles and equipment. Long-term operation of the facilities would use electricity generated by combusting fossil fuels, both for primary and backup power. When the new consolidated FBI HQ is compared to the current energy usage of JEH and associated leased buildings, energy usage would be reduced over the lifecycle of the building due to energy efficiency, use of fuel cells and the possible use of renewable energy sources.

Biological Resources and Soils. Construction and operation of a consolidated FBI HQ would result in some irretrievable loss of vegetation, wildlife habitat, and soil resources, limited to the areas that have not yet been developed at each alternative. All sites except for Greenbelt have little to no undeveloped area. The Greenbelt Alternative has approximately 2 acres of undeveloped land along the edge of the existing parking lot that would be disturbed under that alternative. Although the addition of trees, shrubs, landscaped areas, improved stormwater infiltration, and other low-impact development features would represent a net improvement in the overall health of biological resources and soils at each site, the loss of specific individual specimens in limited areas on each site would be permanent.

Landfill Space. The generation of construction and demolition debris and subsequent disposal of that debris in a landfill would be an irretrievable, adverse impact. Construction contractors would be expected to recycle debris that is generated to the greatest extent possible. Recycling wastes would reduce irretrievable impacts on landfills. Consolidation of FBI HQ at either the Greenbelt or Landover Alternatives would result in landfilled debris from the current paved lots that exist. The future redevelopment of the JEH parcel under RFDS 2 and the Springfield Alternative would generate waste from the demolition of buildings containing hazardous material, including asbestos that would need to be disposed of properly, not landfilled.

Human Resources. The use of human resources for construction is considered an irretrievable loss only in that it would preclude such personnel from engaging in other work activities.