7.0 Springfield Alternative

Chapter 7 describes existing conditions of the affected environment and identifies the environmental consequences associated with the Springfield site. A detailed description of the methodologies used to evaluate impacts for each resource category is provided in Chapter 3, *Methodology*.

The Springfield site consists of approximately 58 acres of federally owned land located south of the Franconia-Springfield Parkway, east of I-95, and west of the CSX railroad right-of-way, as shown in figure 7-1. The General Services Administration (GSA) currently operates a warehouse complex at this site, which is divided into two sections: (1) Building A and sprinkler house, and; (2) Buildings B, C, D, and 1 through 12, referred to as the Logistics Operation Center (LOC), as shown in figure 7-2. GSA provides government agencies space in Building A for storing, shipping, and receiving dry goods, primarily office supplies, furniture, and electronics. There is a small vehicle fueling center used by the LOC adjacent to Building B.

The site is bordered by Loisdale Road and Interstate (I)-95 to the east, industrial and commercial uses along the southern and western border, and high-density residential uses, including a hotel, to the north. The commercial center of Springfield is located less than 1 mile to the north, and the Franconia-Springfield Metro Station (also known as Joe Alexander Transportation Center) is located about 2,000 feet to the east.

The analysis of environmental impacts for the Springfield Alternative is based on the conceptual site plan shown in figure 7-1. This site plan is informed by both site planning principles and design requirements based on FBI program needs. These site plans are conceptual in nature and represent a program-compliant layout that would yield the most conservative estimate of the environmental impacts associated with each alternative. Ultimately, the layout and design of the proposed FBI HQ could potentially be altered during the final design process with the selected exchange partner. GSA would perform supplemental National Environmental Policy Act (NEPA) analysis, as necessary, if there is substantial variance from what is considered in this environmental impact statement (EIS).

Figure 7-1: Springfield Conceptual Site Plan

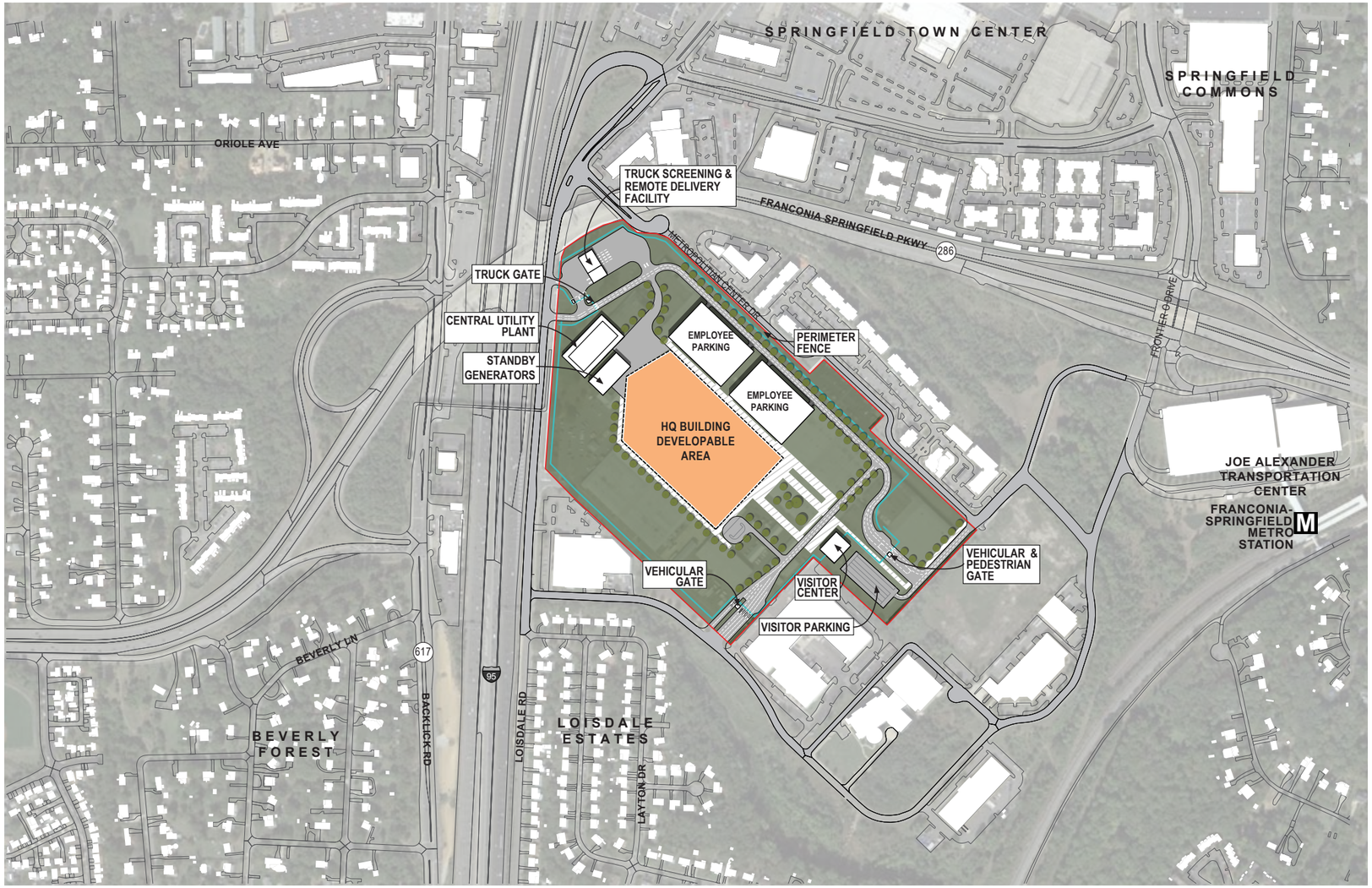


Figure 7-2: Springfield Existing Facilities Map

Site Boundary

0 250 500
Feet
1 inch = 500 feet

Sources:
ESRI (2013), GSA (2013)
Fairfax County (2014)
Logistics Operation Center (2014)

AMSL
Above mean sea level (AMSL) is the average level for the surface of one or more of Earth's oceans from which heights such as elevations may be measured.

PHYSIOGRAPHIC PROVIDENCE
A geographic region with a characteristic geomorphology and often specific subsurface rock type or structural elements.

FALL LINE
The geomorphologic break between an upland region of relatively hard crystalline basement rock and a coastal plan of softer sedimentary rock.

7.1 Affected Environment

The following sections describe the Affected Environment for the Springfield site and associated study areas for each resource topic evaluated in this EIS.

7.1.1 Earth Resources

The following sections describe the affected environment for earth resources at the Springfield site. Earth resources encompass geology, topography, and soils.

7.1.1.1 Geology and Topography

The US Geological Survey (USGS) topographic map 7.5-minute Quadrangle series for Annandale, Virginia, indicates that the site is relatively flat with a slight slope toward the southeast. The site elevation ranges from approximately 220 to 230 feet above mean seal level (AMSL), as shown in figure 7-3.

The Springfield site is situated within the Piedmont physiographic province, which is the largest physiographic province in Virginia. The piedmont physiographic province is bounded on the east by the fall line, which separates the province from the Coastal Plain, and on the west by the mountains of the Blue Ridge province. The Piedmont province is characterized by gently rolling topography and a relative paucity of solid outcrop. Hard, crystalline igneous and metamorphic formations dominate this region, with some areas of sedimentary rocks and Saprolite deposits overlying the bedrock. The bedrock in this province are strongly weathered in the Piedmont's humid climate (VADEQ 2014a). The age of most of the bedrock ranges from Proterozoic (2.5 billion years ago to 542 million years ago) to Paleozoic (542 to 251 million years ago) and forms the internal core of the ancient Appalachian mountain belt (William and Mary Department of Geology 2015).

According to the Geologic Map of the Annandale Quadrangle, Virginia, geologic deposits beneath the site consist of Pliocene-aged terrace gravel, characterized by gray to yellow-brown, thick- to thinly-bedded cobble and pebble gravel interbedded with sand, silt, and clay (Drake and Froelich 1986). These deposits commonly occur as fluvial deposits, reaching a thickness of about 30 feet in upland conditions. Terrace deposits at the Springfield site are underlain by the early-Cretaceous-aged Potomac Formation, which consists of varicolored clay and silt intercalated with pebbly to cobbly sand at a depth of approximately 30 feet below ground surface. The Potomac Formation is approximately 100 feet thick and overlies saprolite on Piedmont crystalline bedrock. Figures 7-4 and 7-5 illustrate the geology of the Springfield site and its environs.

7.1.1.2 Soils

The Springfield site has been previously disturbed and is 93 percent covered by impervious surfaces, including buildings and parking lots. The United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) web soil survey classifies all soils on the site as urban land, which is characterized as land mostly covered by pavement, buildings, and other structures common to urban areas, such that the original characteristics are no longer present. This soil type requires on-site survey investigation to determine the erosion, drainage, and building potential characteristics of the soil (USDA 1963; USDA 2015). As discussed in section 3.2.1, GSA has prepared preliminary geotechnical investigations in support of the exchange partner procurement process; however, this information was not available in time to be included in this EIS.

SPRINGFIELD EARTH RESOURCES AFFECTED ENVIRONMENT OVERVIEW

- The site is relatively flat with a slight slope toward the southeast. The site elevation ranges from approximately 220 to 230 feet AMSL.
- The Springfield site is situated within the Piedmont physiographic province, which is characterized by gently rolling topography and a relative paucity of solid outcrop.
- The Springfield site has been disturbed previously and consists almost entirely of impervious surface, including buildings and parking lots. The soils on the site is classified as urban land, which is land mostly covered by pavement, buildings, and other structures common to urban areas.

Figure 7-3: Springfield Topography

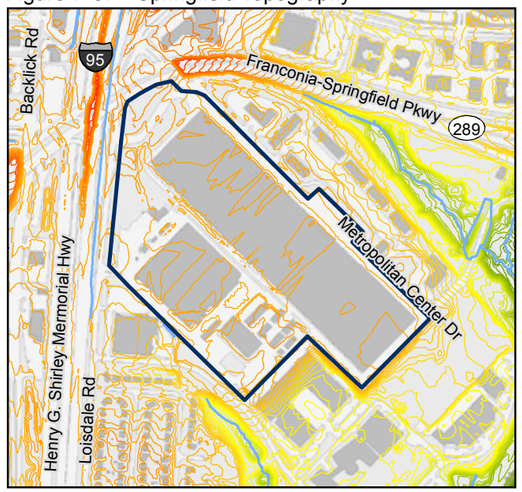


Figure 7-4: Physiographic Provinces of the National Capital Region

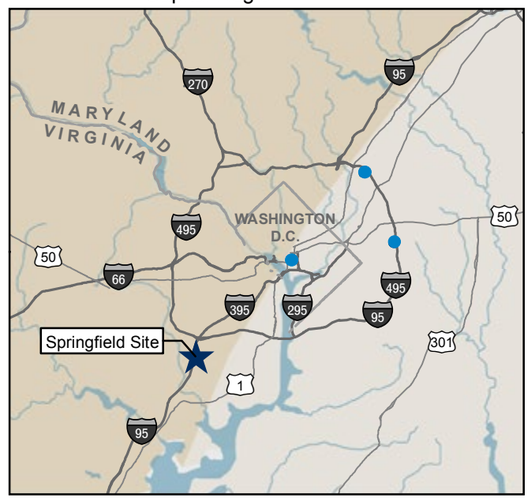


Figure 7-5: Springfield Geology Overview

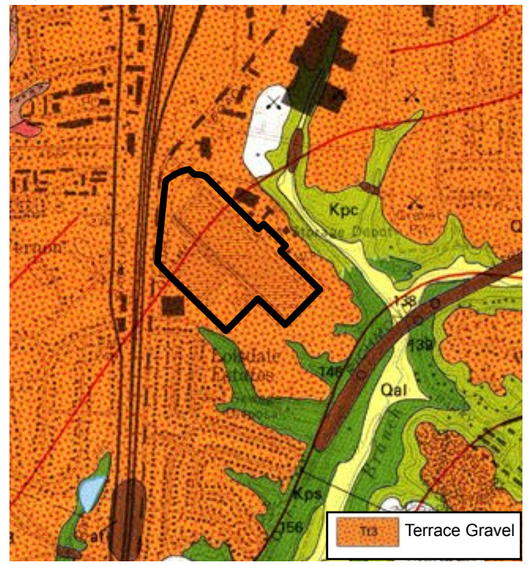
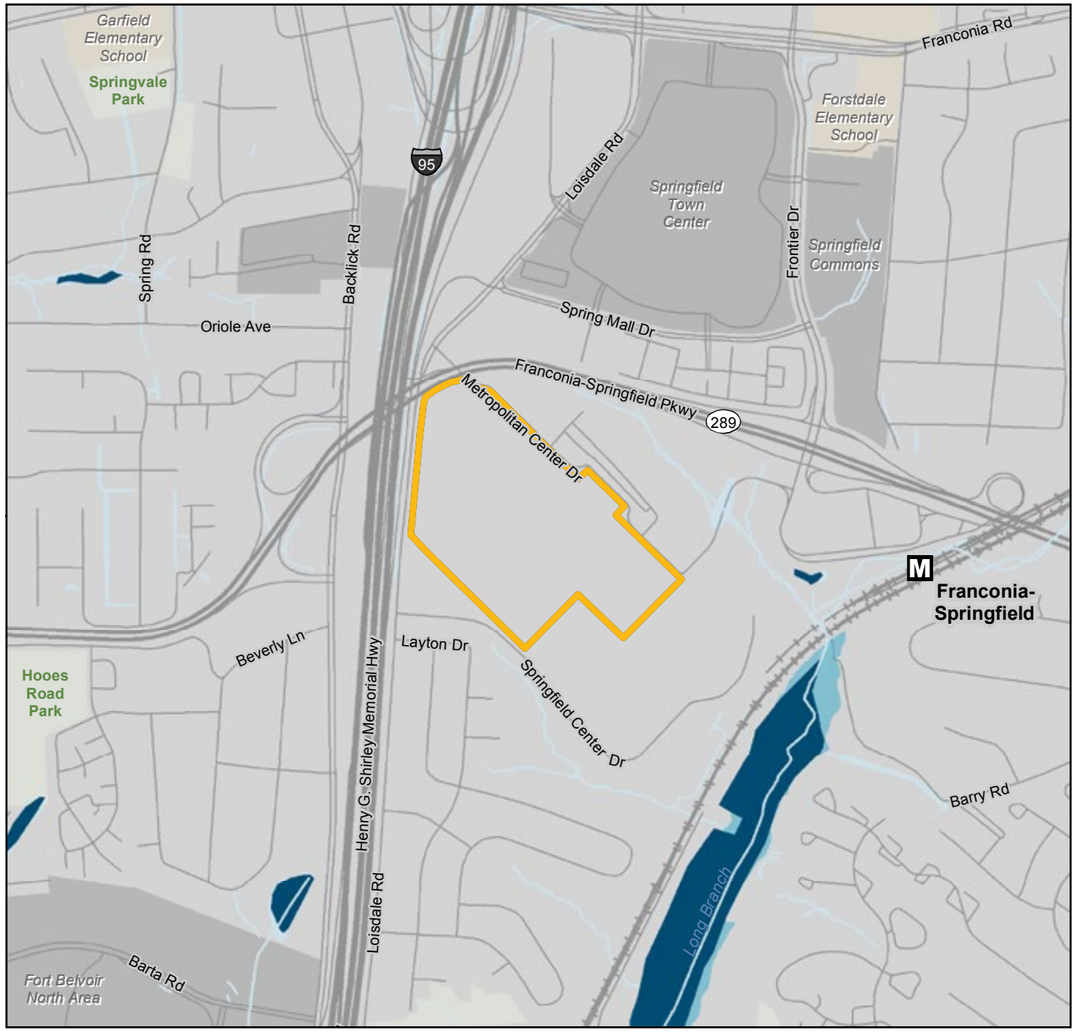


Figure 7-6: Springfield Water Resources Map



7.1.2 Water Resources

The following sections describe the affected environment for the water resources at the Springfield site. Water resources encompass surface water, groundwater, hydrology, wetlands, and floodplains.

7.1.2.1 Surface Water

The Springfield site is located within the Accotink Creek watershed and the larger Chesapeake Bay watershed; however, there are no surface waters within the site, as shown in figure 7-6. Long Branch, a perennial stream, is located approximately 1,300 feet to the southeast across the CSX railroad right-of-way. An intermittent tributary that parallels the northern boundary of the site flows into Long Branch close to the northeastern corner of the site. Long Branch drains south to the Accotink Creek, then the Potomac River, and ultimately into the Chesapeake Bay. Several small perennial ponds are found within the wider area surrounding the site. The closest large water body is Lake Accotink, a reservoir located approximately 2.5 miles upstream of the site on Accotink Creek.

All surface waters in Virginia have the following designated uses: recreation, propagation and growth of balanced indigenous populations of aquatic life, wildlife, and production of edible and marketable natural resources (9VAC25-260-10). The Draft Virginia 2014 Water Quality Assessment 305(b)/303(d) Integrated Report list of impaired waters includes portions of Accotink Creek and Long Branch that do not support the designated uses of recreation and/or the consumption of fish. The causes of the impaired water quality are polychlorinated biphynls (PCBs) in fish tissue and *Escherichia coli* (VADEQ 2014b). The main sources are stormwater runoff from developed areas, stormwater discharges, sewer effluent discharges, and pet and wildlife waste. Portions of both Long Branch and Accotink Creek have impaired macroinvertebrate communities and do not support the aquatic life designated use.

The riparian area surrounding Long Branch and the intermittent tributary north of the site are designated Resource Protection Areas (RPAs) under the Chesapeake Bay Preservation Act in 1993 (County of Fairfax 2005; Fairfax County 2015i). Disturbance and development activity in such areas is subject to county review. Native vegetation is encouraged, as is minimization of land disturbance and impervious surfaces.

Hydrology

The Springfield site is composed almost entirely of impervious surfaces with no natural surface waters; therefore, the hydrology of the site is composed of stormwater runoff rather than natural surface waters. Stormwater runoff at the site is managed through a series of stormwater manholes, inlets, and pipes that discharge to the intermittent tributary north of the site (Fairfax County 2014d). This runoff is either discharged directly through two outfalls or through a sand filter located off-site to the northeast. The discharges eventually drain into the wet pond located close to the confluence of the intermittent tributary and Long Branch. The wet pond has a control structure and double box structure that discharge the stormwater to Long Branch through an outfall.

PERENNIAL STREAMS

Generally refers to freshwater streams or rivers with continuous flow in parts of its stream bed throughout the year.

FLUVIAL

Refers to processes associated with rivers and streams and the deposits and landforms created by them.

Groundwater

Groundwater in the region is contained generally within igneous and metamorphic-rock aquifers of the Piedmont and Blue Ridge crystalline-rock aquifer system (USGS 2003). Groundwater in the approximate center of the site is anticipated to be encountered at depths ranging from approximately 14 to 20 feet below ground surface (Apex 1997, as cited by GSA 2014c). The actual depth to groundwater may be shallower towards the northern and northeastern boundaries with increasing proximity to the nearby surface water features (GSA 2014c). Under natural conditions, groundwater would be expected to follow the topography and flow southeast toward Long Branch. However, groundwater flow direction may vary based on pumping, dewatering, underground utilities, and seasonal fluctuation.

A Phase I Environmental Site Assessment (ESA) was performed at the site in October 2014 (GSA 2014c). Groundwater contaminants (pollution) associated with underground storage tanks were confirmed, and remediation and corrective actions were completed in 2000. Additionally, the presence of other active and abandoned underground storage tanks on the site, a wash water sump pit, and underground vaults may have the impacted groundwater. See section 7.1.8.2 for more information.

7.1.2.2 Wetlands

Review of the United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) data indicated that there are no wetlands on the site (USFWS 2010). Figure 7-6 shows that the nearest mapped wetlands are associated with a small man-made stormwater basin located approximately 900 feet northeast of the site (USFWS 2010). A larger freshwater forested and shrub wetland associated with Long Branch is located on the east side of the CSX railroad right-of-way.

7.1.2.3 Floodplains

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) data for Fairfax County, there are no floodplains within the site (figure 7-6) (FEMA 2010b). A small buffer surrounding Long Branch to the east is classified as flood zone AE, which is “areas subject to inundation by the 1-percent-annual-chance flood event,” although no base flood elevations have been determined for this floodplain (FEMA 2014b).

SPRINGFIELD WATER RESOURCES AFFECTED ENVIRONMENT OVERVIEW

- The Springfield site is located within the Accotink Creek watershed and the larger Chesapeake Bay watershed; however, there are no surface waters within the site. Therefore, the hydrology of the site is composed of stormwater runoff rather than natural surface waters.
- There are no floodplains within the site, however a small buffer surrounding Long Branch to the east is classified as flood zone AE.

RIPARIAN

Riparian areas are vegetated ecosystems along a water body that characteristically have a high water table and are subject to periodic flooding and influence from the adjacent water body. These systems encompass wetlands, uplands, or some combination of these two landforms (USEPA 2006).

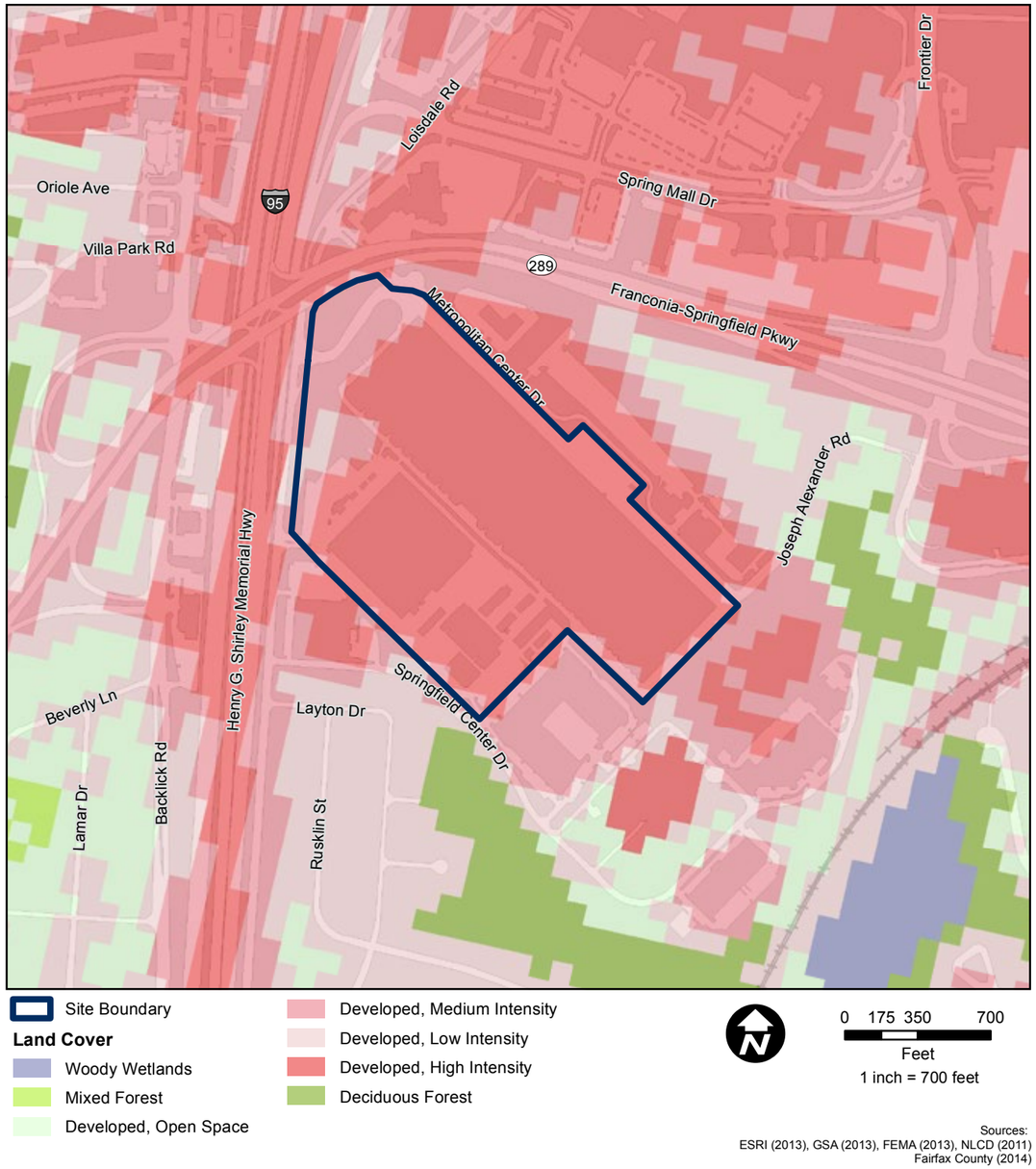
RESOURCE PROTECTION AREA (RPA)

Environmentally sensitive land adjacent to or near streams, rivers and other waterways which drain into the Potomac River and eventually into the Chesapeake Bay. RPAs, in their natural condition, perform important biological and ecological functions such as protecting water quality, reducing the volume of stormwater runoff, and preventing erosion (County of Fairfax 2015).

PHASE I ENVIRONMENTAL SITE ASSESSMENT (ESA)

A report that identifies potential or existing environmental contamination liabilities for real estate.

Figure 7-7: Land Cover Classes for the Springfield Site



SPRINGFIELD BIOLOGICAL RESOURCES AFFECTED ENVIRONMENT OVERVIEW

- The Springfield site is a previously developed site with minimal vegetation, the vegetation that does occur on the site consists of strips of woodland along the perimeter; trees on parking islands of the former Sears Department Store; and some grasses, weeds, and shrubs.
- There is no surface water, and therefore no aquatic habitats on the site to support aquatic species.
- The Springfield site lacks many terrestrial species because there is inadequate vegetation present on the site. However, those species that do exist on or adjacent to the site include Virginia opossum, eastern cottontail, coyote, eastern chipmunk, squirrel, raccoon, and species of bat.

7.1.3 Biological Resources

7.1.3.1 Vegetation

Because the Springfield site is composed almost entirely of impervious surfaces, vegetation does not occur on the site with the exception of small groupings of trees at the perimeter (Google 2015). Land cover classes in the vicinity of the Springfield site are shown in figure 7-7.

7.1.3.2 Aquatic Species

As described in section 7.1.2, the Springfield site is located within the Accotink Creek watershed and the larger Chesapeake Bay watershed. There are no surface waters within the site, and therefore no aquatic species. Long Branch is the closest water body, approximately 1,300 feet to the southeast. The ability of streams near the site to support aquatic life is impaired due to various forms of contamination, and pollution-tolerant species would be most likely to be found.

The Virginia Department of Game and Inland Fisheries (VADGIF) Fish and Wildlife Information database identifies habitat for bridle shiner (*Notropis bifrenatus*) and wood turtle (*Glyptemys insculpta*), as well as yellow perch (*Perca flavescens*) and Alewife (*alosa pseudoharengus*) in reaches of Accotink Creek located more than 1 mile from the Springfield site (VADGIF 2015).

7.1.3.3 Terrestrial Species

Because the Springfield site consists almost entirely of buildings and other impervious surfaces, wildlife is scarce. Nevertheless, because it is located near areas of deciduous forest, wildlife may wander onto the site. Examples of mammals typical to Virginia that have habitat present near the site are squirrels, chipmunks, raccoons (*Procyon lotor*), white-tailed deer (*Odocoileus virginianus*), opossum (*Didelphis virginiana*), skunks (*Mephitis nigra*), red and grey foxes (*Vulpes* and *Urocyon cinereoargenteus*), and bat species.

Passerine birds such as sparrow species, starlings (*Sturnus vulgaris*), and grackles (*Quiscalus quiscula*) are a common sight. Birds of prey (hawks and falcons) and migratory songbirds may perch and forage around the edge of this site where trees and grasses are present.

There are 19 snake species that occur in Virginia, such as the mole king snake (*Lampropeltis calligaster rhombomaculata*) and the eastern rat snake (*Pantherophis alleghaniensis*), all of which could occur in the site vicinity (Fairfax County 2013a).

A variety of terrestrial insects common to Virginia that may occur on the site include: mosquitoes and flies, beetles, dragonflies, butterflies, and numerous others (Virginia Museum of Natural History n.d.), but specific species lists were not readily available. Insects influence the presence of other animal types, and are an essential component of the food web. Without the presence of insects, wildlife such as bats and many bird species would likely not be present. Of the known arachnids, garden spiders (*Argiope aurantia*) and wolf spiders are common throughout Virginia (VADCR 2015), as well as several species of ticks (Virginia Museum of Natural History n.d.).

7.1.3.4 Special Status Species

Special status species are species of plant or animal that require special consideration and/or protection. These species are listed as rare, threatened, or endangered by Federal and/or state governments. State species of greatest conservation concern are also covered under this section and include rare, threatened, and endangered species, as well as species that have a declining population and are considered at risk.

As noted previously, the site is a developed area with limited vegetation and natural habitat. It is unlikely that special status species are present in the study area because of the lack of natural habitat and vegetation at the site.

Across Virginia, there are three federally listed animal species [red knot (*Calidris canutus*), northern long-eared bat (*Myotis septentrionalis*), and American burying beetle (*Nicrophorus americanus*), 88 federally and state-listed (and Federal species of concern) animal species (8 terrestrial mammals, 7 marine mammals, 5 birds, 6 reptiles, 1 amphibian, 10 fishes, 38 mollusks, and 13 other invertebrates), and 45 state-only listed animal species (5 terrestrial mammals, 9 birds, 4 reptiles, 3 amphibians, 12 fishes, and 12 mollusks) (VADGIF 2014). Out of the 136 listed animal species occurring in Virginia, only the northern long-eared bat occurs in Fairfax County (USFWS 2014c). However, the northern long-eared bat would likely not be impacted by the Springfield Alternative because of unsuitable habitat on the project site. Additionally, areas that would be impacted by transportation mitigation would not be likely to affect the northern long-eared bat as the species would seek habitat away from road edges and human activity.

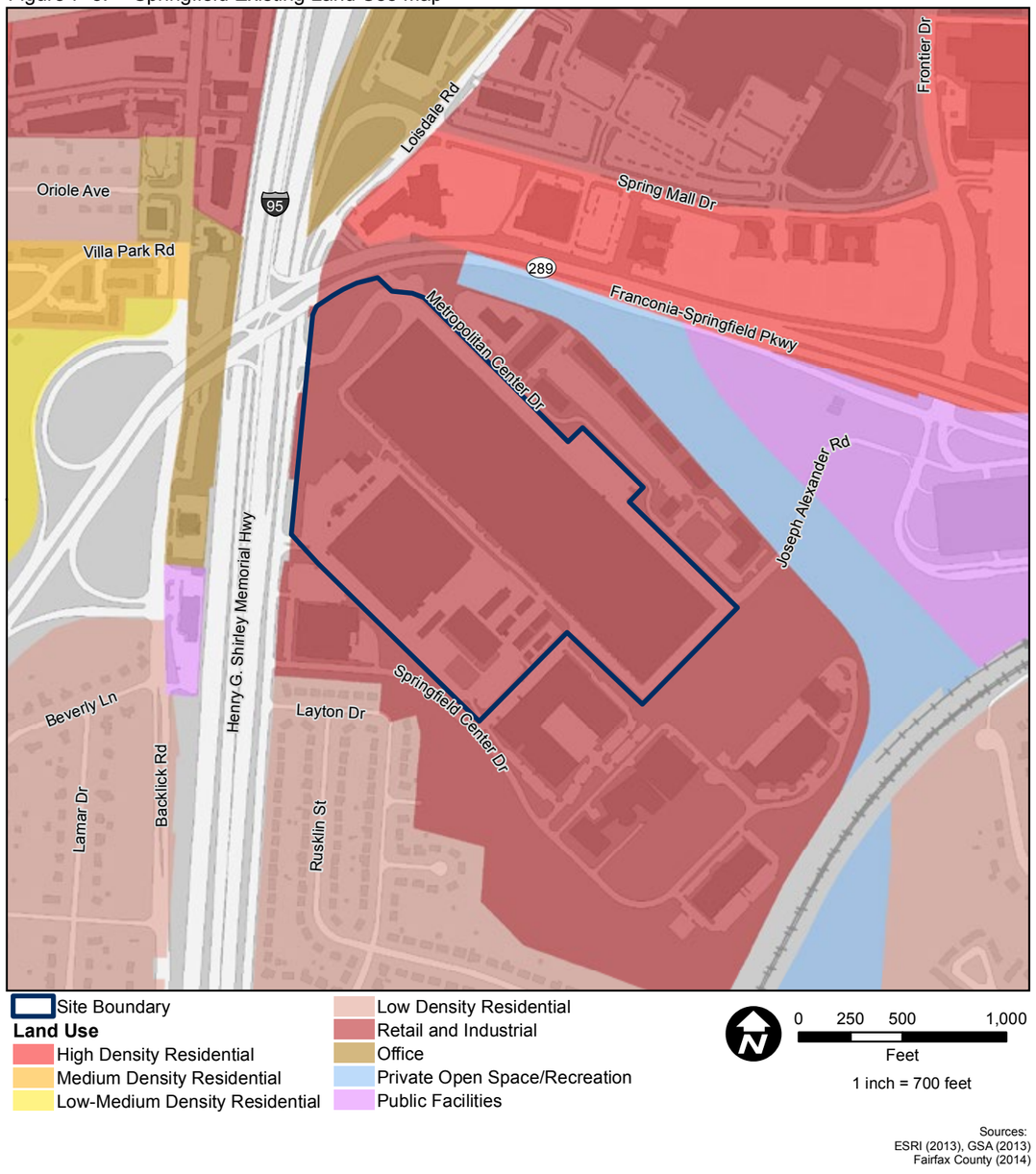
The Springfield site has 19 federally listed migratory birds of conservation concern associated with its location (table 7-1). Because of the lack of natural habitat on-site, it is possible although unlikely that the listed species may fly over, perch, forage, or breed at this location. No rare plants listed by the Virginia Department of Conservation and Recreation (VADCR) heritage program are known to occur on-site (USFWS 2014b).

Table 7-1: Federally Listed Migratory Birds of Conservation Concern in the Vicinity of the Springfield Site

Common Name	Scientific Name	Use of Site
American oystercatcher	Haematopus palliatus	Year-round
American bittern	Botaurus lentiginosus	Wintering
Bald eagle	Haliaeetus leucocephalus	Year-round
Black-billed cuckoo	Coccyzus erythropthalmus	Breeding
Blue-winged warbler	Vermivora cyanoptera	Breeding
Fox sparrow	Passerella iliaca	Wintering
Kentucky warbler	Oporornis formosus	Breeding
Least bittern	Ixobrychus exilis	Breeding
Pied-billed grebe	Podilymbus podiceps	Breeding
Prairie warbler	Dendroica discolor	Breeding
Prothonotary warbler	Protonotaria citrea	Breeding
Purple sandpiper	Calidris maritima	Wintering
Red-headed woodpecker	Melanerpes erythrocephalus	Year-round
Rusty blackbird	Euphagus carolinus	Wintering
Short-billed dowitcher	Limnodromus griseus	Wintering
Short-eared owl	Asio flammeus	Wintering
Snowy egret	Egretta thula	Breeding
Wood thrush	Hylocichla mustelina	Breeding
Worm-eating warbler	Helmitheros vermivorum	Breeding

Source: USFWS 2014b

Figure 7-8: Springfield Existing Land Use Map



7.1.4 Land Use, Planning Studies, and Zoning

The following sections describe the affected environment for land use and zoning for the Springfield site, highlighting planning studies applicable to the site.

7.1.4.1 Land Use

The Springfield site currently operates as a GSA warehouse complex with 16 warehouse and storage buildings and associated asphalt-paved parking lots. Warehouse A is the largest facility covers the northeastern half of the site. The Springfield Crossing Apartment Complex and Extended Stay America hotel, which are located adjacent to the site, across Metropolitan Center Drive, are multifamily residential and hotel, respectively. Other uses bordering the site are a variety of industrial and commercial office. A small parcel of undeveloped land is adjacent to the eastern site boundary. Transportation infrastructure is prominent in the site vicinity, and includes I-95 to the west, Franconia-Springfield Parkway (VA Route 289) to the north, and the Franconia-Springfield Metro Station and CSX rail lines to the east. Several lower density residential areas are found in the study area; Loisdale Estates is located immediately to the south. The major commercial center of Springfield, including Springfield Town Center, is located farther to the north and west of the site. There are no public parks or farmland in the study area. Figure 7-8 illustrates land uses within the study area.

7.1.4.2 Zoning

This Springfield site is currently zoned I-4 (Medium Intensity Industrial District); however, as a federally owned parcel the property is exempt from local zoning, so there are no applicable height or density requirements (Fairfax County 2015h). However, the National Capital Planning Commission (NCPC) Comprehensive Plan encourages federal campuses to “develop sites and buildings consistent with local agencies’ zoning and land use policies and development, redevelopment, or conservation objectives, to the maximum extent feasible.”

There are various zoning designations in proximity to the site, as shown in figure 7-9. The I-4 zoning designation surrounds the site and includes the Franconia-Springfield Metro Station, with the exception of parcels zoned C-4 (High intensity Office District) associated with the Extended Stay America hotel and the open parcel to the east of the site; and a zoning designation of Planned Development Commercial District between this parcel and the CSX rail line. Springfield Town Center is also zoned Planned Development Commerical. Higher intensity commercial uses dominate parcels to the north of the site. Two Planned Development Housing Districts are located in proximity to the site; the Springfield Crossing Apartment Complex directly adjacent to the north and the Residences at Springfield Station located between Springfield Town Center and the Franconia-Springfield Parkway. Other residential zoning in the study area is generally lower in intensity; the northern portion of Loisdale Estates closest to the site is zoned R-4 (Residential District, Four Dwelling units/acre).

7.1.4.3 *Regional and Local Land Use Studies*

This section describes the regional planning, land use, and transportation studies that form the framework for understanding Fairfax County's vision and plans for the area containing the Springfield site.

Fairfax County Comprehensive Plan: Franconia – Springfield Area

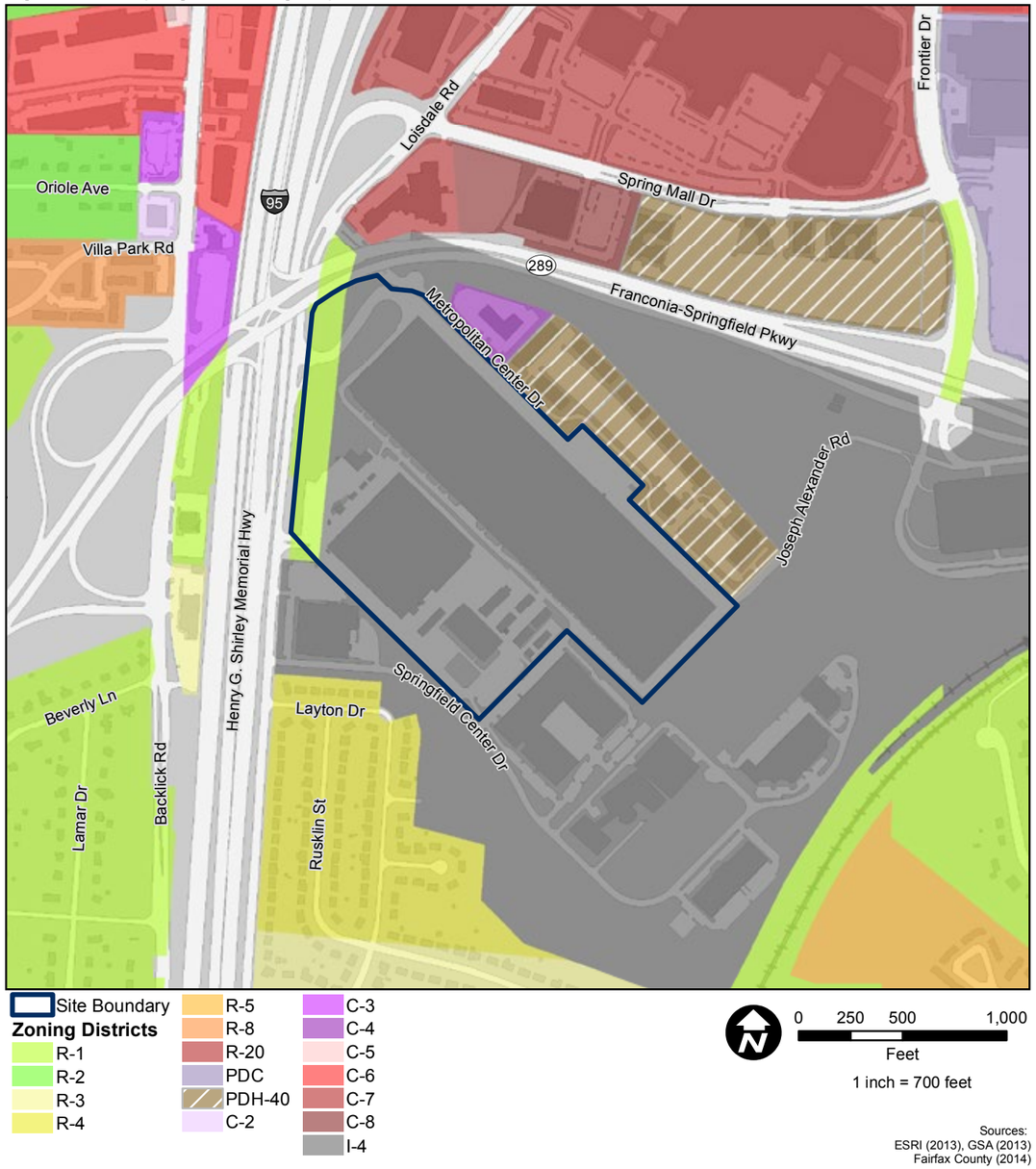
The current comprehensive plan for the Franconia-Springfield area was adopted in 2013 and has been amended through October 28, 2014, by the Fairfax County Board of Supervisors. The Springfield site is within the Franconia-Springfield Transit Station Area, which focuses on the regional aspects of the Springfield Town Center, and encourages multi-modal usage, including a transit-oriented development component at the Franconia-Springfield Metro Station. The Franconia-Springfield Metro Station Area is located in the southeast quadrant of the intersection of I-95 and Franconia Road, between I-95 and the CSX railroad tracks.

The vision for the Franconia-Springfield area is to foster revitalization and reinvestment by transforming the area into a mixed-use, easily accessible, and interconnected place. Residents, employees, and visitors would have their essential needs and services proximate to one another and easily accessible by multiple means of transportation, particularly walking and biking. Redevelopment would also serve the needs of the surrounding neighborhoods and, to a lesser extent, the region.

SPRINGFIELD LAND USE AFFECTED ENVIRONMENT OVERVIEW

- Land uses in the vicinity of the site include a variety of industrial and commercial use, transportation infrastructure, and lower density residential areas. A small parcel of undeveloped land is adjacent to eastern site boundary.
- The site is zoned as I-4, medium intensity industrial district, however, as it is currently a federally owned parcel it is exempt from local zoning.
- Land use plans and studies that guide the development for the Springfield site and the surrounding area include the Fairfax County Comprehensive Plan: Franconia – Springfield area, Springfield Connectivity Study, Franconia-Springfield Station Vision Plan, and Comprehensive Plan for the National Capital Region: Federal Elements.

Figure 7-9: Springfield Zoning Map

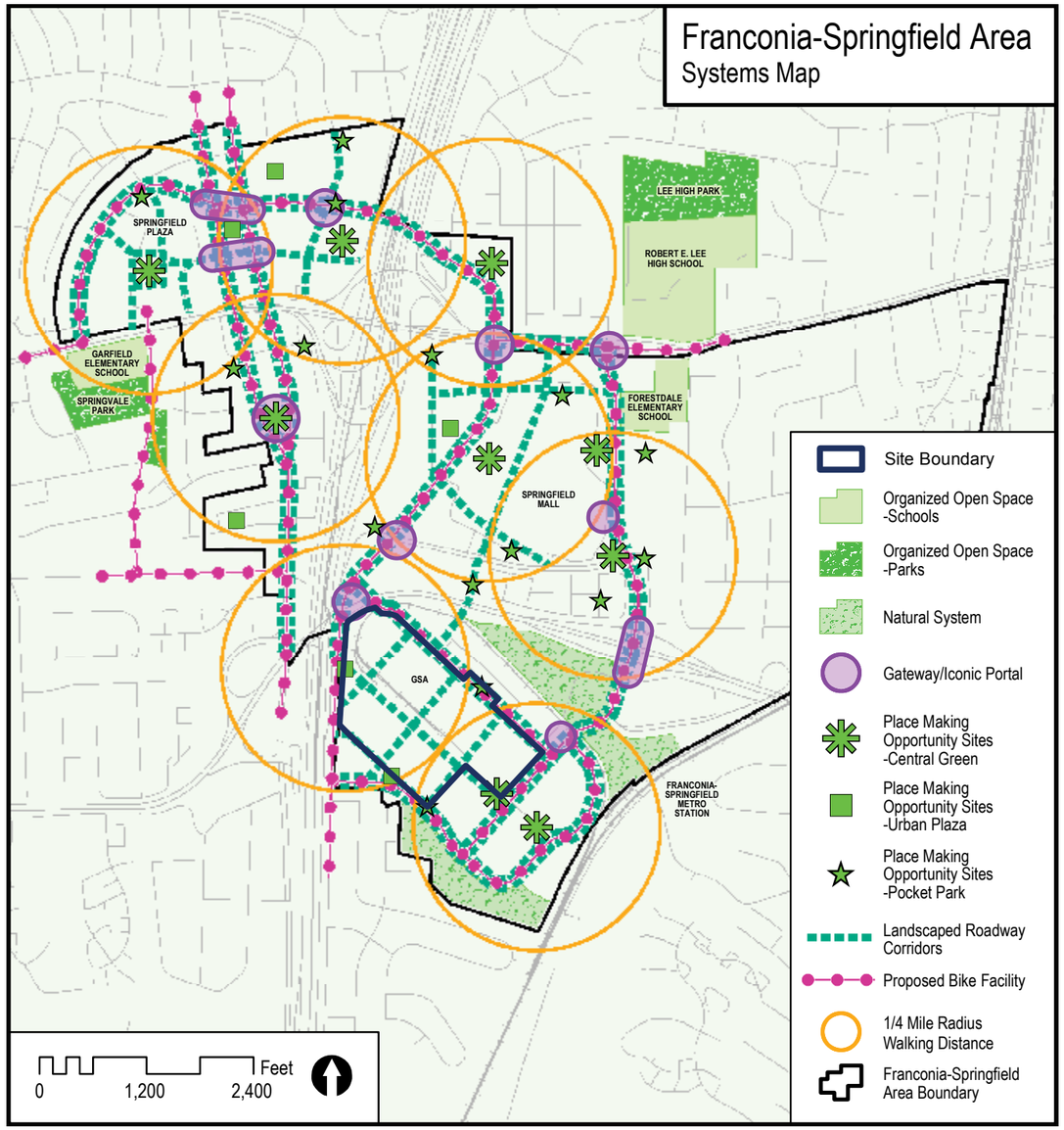


Approach to Franconia-Springfield VRE Station

Greyhound, MetroBus, and Fairfax Connector Bus bays at the Franconia-Springfield Metro Station

75 dBA is comparable to an alarm clock or vacuum cleaner (80 dBA) and freeway traffic at 50 feet (70 dBA)

Figure 7-10: Franconia-Springfield Comprehensive Plan: Future Systems Plan



Source: Fairfax County (2013b

The comprehensive plan is composed of the following three overarching attributes that work to achieve the vision of the plan:

Connectivity: The connectivity aspect of the comprehensive plan intends to improve the connectivity between the quadrants adversely affected by the regional roadways that divide the city of Springfield. These connectivity improvements would come in the form of enhanced physical connections, such as roadway and trail improvements; enhancements to networks such as open spaces; and uniform thematic elements, such as design consistency and place-making characteristics.

Revitalization: The revitalization component intends to improve the economic vitality of the Franconia-Springfield area primarily by to improve pedestrian and vehicular circulation though the Springfield Commercial Revitalization District and encouraging coordinated development,.

Implementation – This aspect of the plan provides guidance on how to implement the vision of the Franconia-Springfield area as a connected, multi-modal, mixed-use community.

The vision to transform the Franconia-Springfield area into a mixed-use, easily accessible, and interconnected place is broken down into a variety of principles intended to guide area development and land use. Those principles applicable to the Springfield site's potential impact to land use are summarized as follows:

- Provide opportunities for high-density, mixed-use redevelopment, which would allow residents, employees, and visitors to work, shop, exercise, and live in relative proximity to each other.
- Identify and minimize pedestrian and vehicular conflicts by separating the pedestrians from vehicular traffic, improving traffic circulation, and developing the pedestrian realm.
- Preserve and protect stable, low-density residential neighborhoods that surround the Franconia-Springfield area through screening, buffering, and tapering of development at the transitional boundaries.
- Utilize innovative design and engineering techniques to preserve, enhance, and restore the existing natural resources in the area.

These overarching principles are supplemented by specific area-wide recommendations for future development by city-wide elements. Contributing elements lay out guidelines for land use, urban design and streetscape, transportation, urban parks and open spaces, heritage resources, sustainability, noise, affordable housing and universal design, and schools. The following section summarizes these city-wide elements that are most applicable to the Springfield site.

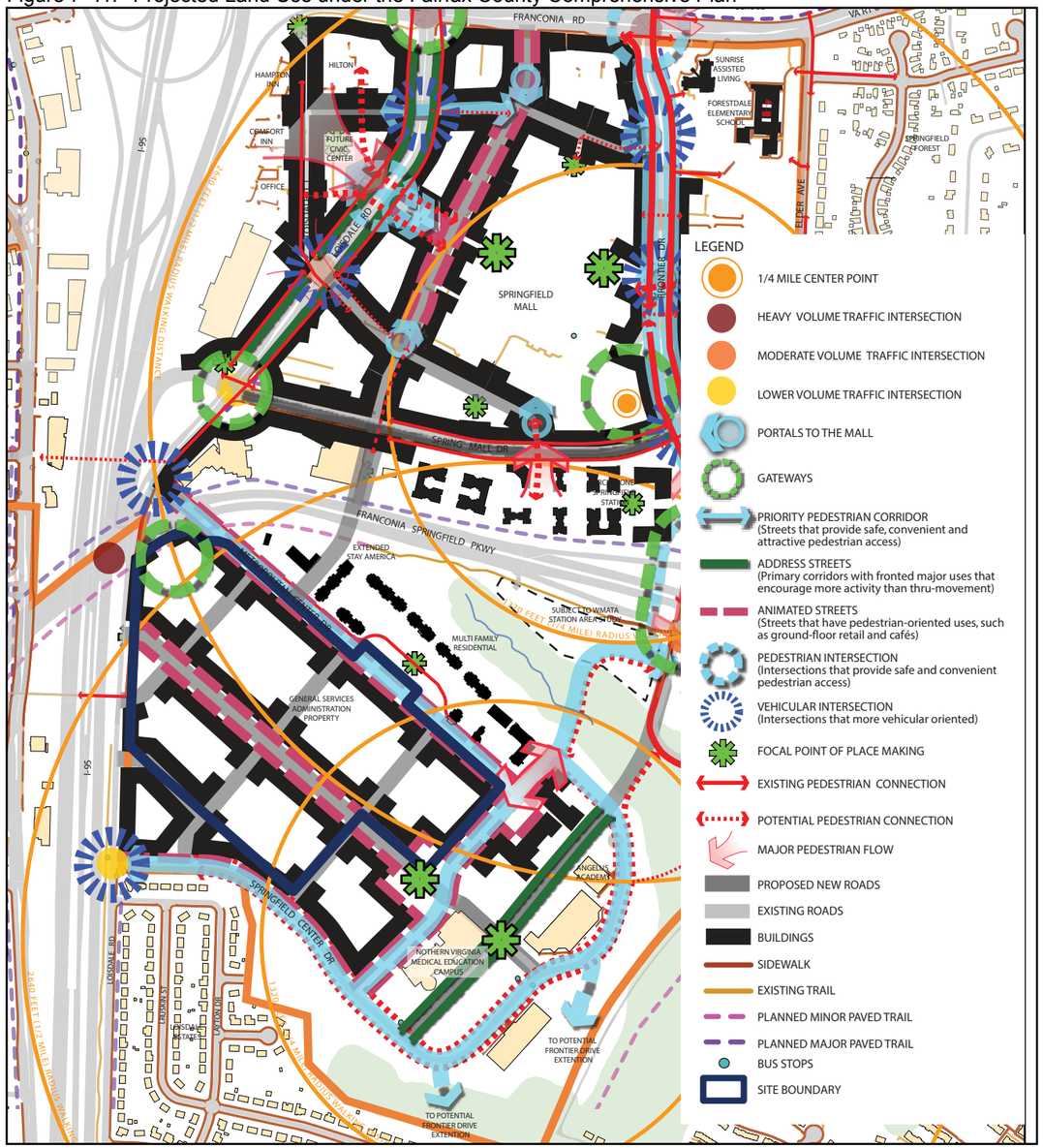
Land Use

Future land use should be a mixture of uses provided to create a vibrant, unique, and social place that extends activity beyond the normal working hours. The mixture of uses should include the success of the retail centers in the community business center and transit station area (Fairfax County 2013b) as well as more intense residential, office, hotel, and ground-floor retail uses. Additional, future redevelopment should enhance the development centers through consolidated, urban mixed-use projects, supported by a grid of streets and urban parks. Figures 7-10 and 7-11 portray the future potential land use outlined in the comprehensive plan.

Urban Design and Streetscape

The predominant urban design and streetscape element described in the plan is parking. Reducing the prominence of parking has the capability to transform the area into a dynamic, multi-modal place and, according to the comprehensive plan, parking should be consolidated into structures and integrated into the streetscape (Fairfax County 2013b). On-street and underground parking are prioritized over other forms of parking, such as surface parking lots or structured parking garages. On-street parking could be used as teaser parking for ground-floor, retail shops. Surface parking lots should be avoided or located in the rear of the buildings when necessary. In this case, space for trees and other landscaping features should be accommodated. The redesign and consolidation of existing, private, surface parking lots should be encouraged.

Figure 7-11: Projected Land Use under the Fairfax County Comprehensive Plan



Source: Fairfax County (2013b.

Noise

Given the proximity to I-95, the Franconia-Springfield Parkway, and other roadways, noise impacts from vehicular traffic are likely in some parts of the Franconia-Springfield area. Current comprehensive plan policies recommend against new residential redevelopment and other noise-sensitive uses in areas where current and future noise levels exceed 75 decibel (dBA) day-night loudness (DNL) (Fairfax County 2013b). However, residential development and other noise-sensitive uses may be planned and located in these areas due to the compact, urban nature of the Franconia-Springfield area plan. Such noise-sensitive uses in these locations may be considered only with the completion of a noise study during the review of the development, noise mitigation measures, and, potentially, the provision of disclose statement and a post-development noise study. For those studies that indicate noise levels in excess of 75 dBA DNL on proposed noise-sensitive issues, mitigation measures should be provided with the goal of achieving 45 dBA DNL for interior space and 65 dBA DNL for outdoor recreation areas.

Sustainability

According to the comprehensive plan, as the Franconia-Springfield area evolves into a multi-modal, mixed-use place, long-term sustainability is expected to be a key consideration in evaluating future development (Fairfax County 2013b). The plan states that, with increased redevelopment, the Franconia-Springfield area should promote increased quality of life for the public and improve the quality of natural resources. Considerations for sustainable practices that relate to land use include designing new renovated buildings to minimize impacts to the environment; protecting portions of a site that include substantial native habitat or wetlands, restoring native specie and removing invasive species; and enhancing pedestrian accessibility to minimize automobile dependence, supporting the connectivity goals of the Franconia-Springfield Comprehensive Plan.

Transportation

Springfield has extensive access to the regional highway network with its proximity to I-395, I-95, and I-95/I-495 (Fairfax County 2013b). In addition many transportation services and facilities serve the Franconia-Springfield area, including the Franconia-Springfield Metro Station, the Virginia Railway Express (VRE) commuter rail station, Greyhound Interstate bus service, Metrobus regional service, and county bus services.

Continued growth in the surrounding communities of Franconia-Springfield and throughout Northern Virginia would substantially increase the traffic levels. The comprehensive plan addresses these impacts by encouraging increased transit and walking trips and reducing peak hour automobile reliance. The future land use for Franconia-Springfield should focus on creating opportunities for transit, pedestrian, and bicycle travel along with land uses that achieve optimal densities and use mixes.

Land Unit O

The comprehensive plan includes specific recommendations for a series of land units, A-R, within the plan area. The Springfield site is a located in Land Unit O, a 93-acre unit that also contains the Extended Stay America hotel, Springfield Crossing Apartment Complex, and open space as shown in figure 7-9. (Fairfax County 2013b). A railroad spur and Long Branch separate the site from the Franconia-Springfield Metro Station to the northwest. Land Unit O is planned for industrial use up to .50 Floor-to-Area Ratio (FAR) to recognize existing uses and to minimize traffic generation in an area with limited transportation capacity. To enhance access to the nearby Franconia-Springfield Metro Station, the plan recommends a pedestrian and vehicular connection to the transit hub, which would, at a minimum, accommodate shuttle bus service to the Franconia-Springfield Metro Station.

Recommendations for the future private redevelopment of the GSA warehouse, should it be proposed for private redevelopment, are included in the comprehensive plan. The plan envisions a mixed-use development of uses that may include the following: biotech, office, entertainment, conference center, and hotel. These uses would complement the Northern Virginia Community College/Inova Medical Center located adjacent in Land Unit P, and the existing residential and hotel within the land unit. The plan outlines two options. The first option suggests up to 1,090,000 square feet (SF) of light industrial/research and development use, with an additional up to 160,000 SF for a conference center; and up to 40,000 SF of office and support retail use. Option 2 envisions an entertainment/conference center/hotel complex, which would include an entertainment center (such as performing arts facility and/or cultural center) with a capacity of up to 6,500 patrons, up to 160,000 SF for a conference center, up to 40,000 SF of office and support retail uses, up to 565,000 SF of hotel use, and integral open space and pedestrian amenities.

Springfield Connectivity Study

The Springfield Connectivity Study was initiated by Fairfax County Board of Supervisors, the Department of Planning and Zoning, and Fairfax County Department of Transportation (FCDOT) to address several challenges and opportunities facing the Springfield area (Fairfax County 2008). The study examines both the recommendations offered by a May 2006 Urban Land Institute Advisory Services Panel report and the challenges associated with the 2005 Base Realignment and Closure (BRAC) actions for Fort Belvoir, which would affect the Springfield area. The study's preferred alternative is a balanced and extensive mix of proposed land use and density for the area.

The study analyzes the short-term and long-term implications of development at the Springfield site, with reference to the GSA Site. In the preferred alternative, the study assumes 5,000 jobs would relocate to the GSA site by 2015 due to BRAC, and that other land uses would be developed consistent with the 2030 Comprehensive Plan, including office, light industrial, and supporting retail uses (Fairfax County 2008). In the long term, the preferred alternative would show redevelopment of the GSA site to further develop a mix of land uses including office, light industrial, supporting retail, and the addition of 9,000 BRAC jobs.

The study recommends several transportation improvements for the preferred alternative, including construction of a parking garage with up to 1,000 spaces on the old Circuit City site on Loisdale Road between Spring Mall Drive and Franconia Road (Fairfax County 2008), and various improvements for non-motorized transportation modes, including the introduction of many new bicycle lanes and sidewalk connections throughout the study area.

Franconia-Springfield Station Vision Plan

The Franconia-Springfield Station Vision Plan was commissioned by the Washington Metropolitan Area Transit Authority (WMATA) to identify station improvements and joint development potential at the Franconia-Springfield Metro Station in Fairfax County, Virginia (WMATA 2008). The goals of the vision plan are to improve accessibility to and from the station, improve station functionality and transit operations, and develop the highest and best use of the station's property that meets stakeholders' goals and plans for future joint development.

The Franconia-Springfield Metro Station is located within one the fastest growing areas in Fairfax County (WMATA 2008). The study proposes two alternatives that address the needs and potential of the site. In the short term, the plan envisions making substantial improvements to the pedestrian and bicycle environment while maintaining most of the existing station site design. New connections to local destinations, improved sidewalks, and safer pedestrian crossings would be implemented. In the short-term, the plan would provide an alternative which would remove the impetus for pedestrians accessing the Franconia-Springfield Metro Station from Frontier Drive to walk through the parking garage. The short-term vision does not anticipate any joint development because there is poor site access and the existing parking garage occupies much of the land.

In the long term, WMATA's approximately 60-acre Franconia-Springfield property is proposed for large-scale redevelopment around its principal transit function. This vision includes:

- Redevelopment of the parking garage into a mixed-use transit-oriented development that also houses transit functions such as bus bays and a taxi stand. The development would be located in three separate blocks that are oriented towards the transit station, including 430,000 SF of office, 36,000 SF of retail, and 660 residential units in buildings ranging from 2 to 15 stories tall.
- Two new roads running north-south through the site that would create a grid-like system of streets.
- A wetland park featuring native Virginian vegetation.
- A central transit plaza that creates a new sense of entry for the Metro Station.

Comprehensive Plan for the National Capital Region

The Comprehensive Plan for the National Capital is a document that guides future planning and development in Washington, D.C., and the surrounding region, known as the National Capital Region (NCR). The plan is divided into two components – the Federal Elements and the District Elements. The Federal Elements are prepared by NCPC and provide a policy framework for the Federal government in managing its operations and activity in the NCR. The District Elements, which are applicable only in the District, are developed by the District to address traditional city planning issues such as land use, housing, and economic development. For this site, only the Federal Elements are applicable and only as they apply to the future development of Federal facilities. The Federal Elements are described in detail in section 5.1.4.3.

Warehouse A

Views toward the Springfield site from the Franconia-Springfield Metro Station; Springfield Crossing in mid-ground.

Springfield Crossing Apartments

SPRINGFIELD VISUAL RESOURCES AFFECTED ENVIRONMENT OVERVIEW

- The Springfield site is home to numerous warehouse and storage buildings set throughout asphalt-paved parking lots.
- The general visual character of the surrounding area is typical of suburban landscapes with commercial and residential development interspersed with wooded areas.

7.1.5 Visual Resources

The proposed site houses numerous warehouses and storage buildings set throughout asphalt-paved parking lots. Building A is a large, low-slung, long warehouse stretching across the northern perimeter of the site, adjacent to the Springfield Crossing Apartment Complex and Extended Stay America hotel. Building B is a smaller square warehouse of similar height located in the southwestern corner of the site. Many smaller trailers and other modular structures are located on the remainder of the site. Parking is located at several points along the site boundary. Vegetation on the site is limited, and consists primarily of a thin row of trees along the northern border, with small clusters of trees and green areas sporadically situated on the western side of the site separating the parking lot from I-95. A single row of sparse trees borders the southeast side separating the apartment complex from an open grass-covered lot and the Northern Virginia Community College – Medical Campus. Denser vegetation outside the site but in proximity to the site boundary south of Springfield Center Drive and east of the site along Long Branch provide a visual barrier for the adjacent Loisdale Estates residential area and for residential areas to the east along Beulah Road. The Franconia-Springfield Parkway flies over I-95 in proximity to the northwestern corner of the site, and is not only visually prominent due to its height, but provides direct views of the site to both east and westbound traffic from above.

The general visual character of the surrounding area is typical of suburban landscapes with commercial and residential development interspersed with wooded areas. Currently, the Springfield Crossing Apartment Complex and the Extended Stay America hotel have views of the site from the north. Due to the presence of screening landscape vegetation, views from this area are limited at ground level, but increase with height in the middle and upper stories of these buildings. The adjacent commercial/office/industrial uses have similar views from the south and west; again the warehouses are sometimes screened from view at ground level by vegetation, but views from the south along Springfield Center Drive are relatively unobstructed.

7.1.6 Cultural Resources

GSA, in consultation with the Virginia Department of Historic Resources (VA SHPO) and in accordance with the regulations implementing Section 106 of the National Historic Preservation Act (NHPA), has determined the Area of Potential Effect (APE) of the Proposed Action on historic properties in the vicinity of the Springfield site. The APE for the Springfield site is illustrated in figure 7-12. The VA SHPO concurred with the APE on June 12, 2015 (A. Burke 2015). The APE for the Springfield site is shown in figure 7-12.

7.1.6.1 Archaeological Resources

In 2007, an archaeological survey was completed for the GSA warehouse site by New South Associates and Tetra Tech for the U.S. Army Corps of Engineers (USACE) (Joseph 2007). The study concluded that the GSA warehouse property has no potential to contain archaeological sites due to the extend of site disturbance during the construction of the warehouse facilities, subterranean utilities, and paving for parking areas and driveways, and did not warrant intensive survey. VA SHPO concurred with this assessment in December 2007 (Landwermeyer 2007).

7.1.6.2 *Historic Resources*

There are two large government warehouses built in 1953 on the Springfield site. All of the buildings on the warehouse site were determined not eligible for the National Register of Historic Places (NRHP) in 2007. The study found that, although the warehouses played an important role in GSA's early history as a storage depot for Federal offices, the property lacks significance under Criterion A (events). The study also found that the wooded truss structural system used in the warehouses is not significant under Criterion C (architecture) due to its commonality as well as its lack of integrity due to repairs and replacement of a number of the load-bearing trusses (Joseph and Price 2007). The VA SHPO concurred with the determination in 2007 (Landwermeyer 2007).

No additional architectural surveys have been completed within the APE for the Springfield site. Two residential subdivisions and one small cluster of residential post World War II housing are located within the APE for the Springfield site. Planned subdivisions within the APE are Louisdale Estates, developed around 1955-1962, and Beverly Forest, developed around 1952-1958. Springvale is a cluster of houses along Oriole Avenue, built in the 1950s, that is interspersed with more recent infill development. These subdivisions and clusters represent typical post World War II suburban development and within the Washington, D.C., metropolitan area and do not appear to be the first of their type, noteworthy for their design, or influential to other subdivisions in the area.

SPRINGFIELD CULTURAL RESOURCES AFFECTED ENVIRONMENT OVERVIEW

- A 2007 archaeological survey concluded that the Springfield site has a low potential to contain archaeological sites, and did not warrant intensive survey.
- The Springfield site has two large government warehouses built in 1953, both of which were determined not eligible for the NRHP in 2007. No additional architectural surveys have been completed within the APE for the Springfield Alternative.

Beverly Forest

Loisdale Estates

Figure 7-12: Springfield Historic Resource Map

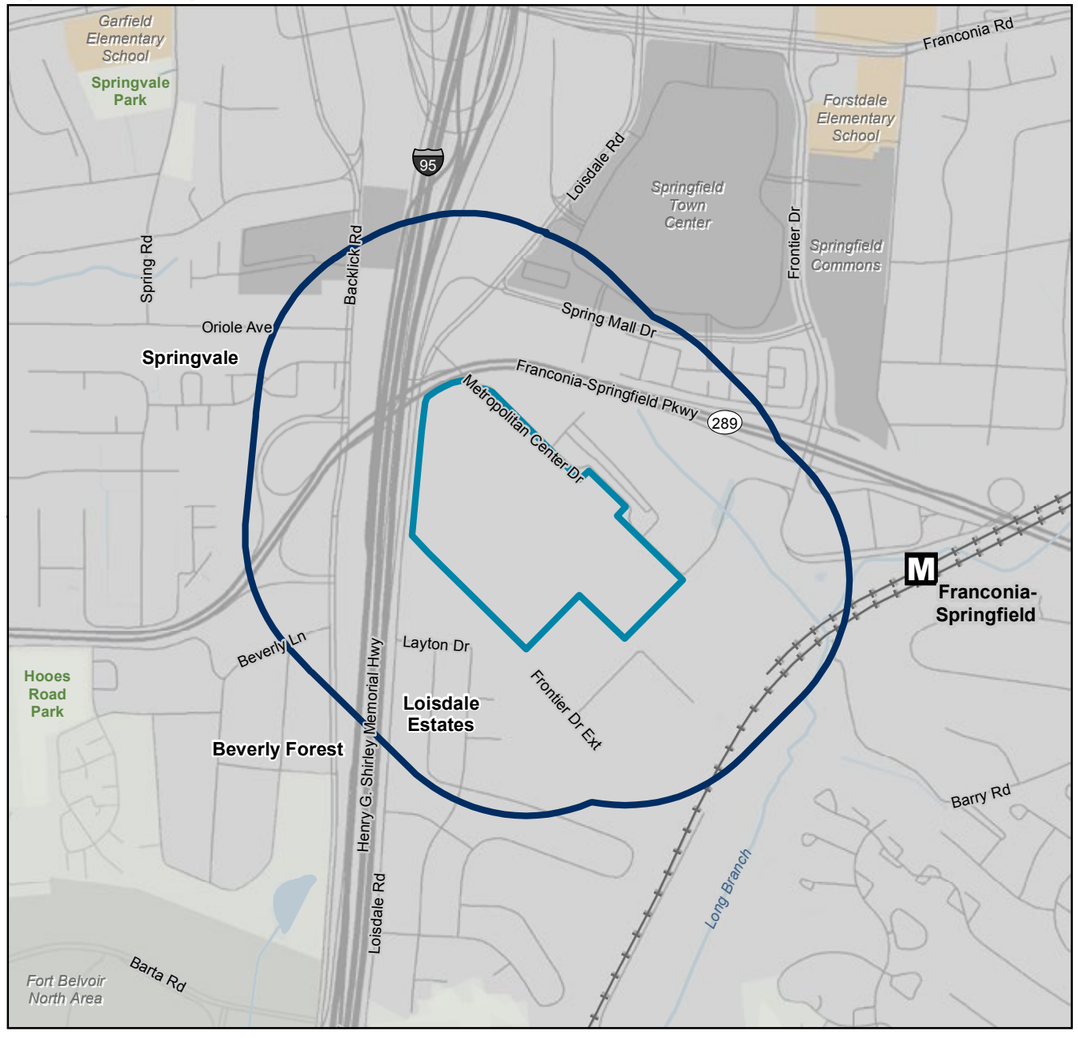
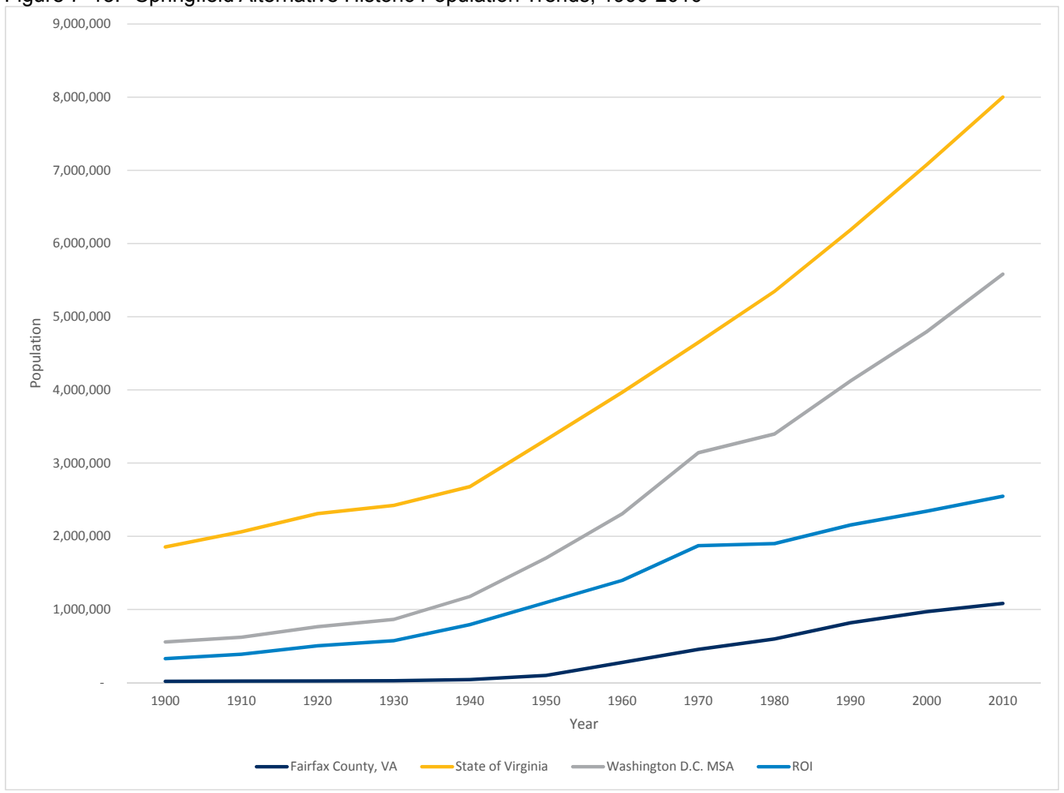


Figure 7-13: Springfield Alternative Historic Population Trends, 1900-2010



Source: U.S. Census Bureau (1990, 2000, 2010a)

7.1.7 Socioeconomics and Environmental Justice

The following sections describe the socioeconomic and environmental justice affected environment around the Springfield Parcel. Socioeconomic and environmental justice covers these subtopics: population, housing, employment, income, taxes, schools, community facilities, community services, recreation, environmental justice and protection of children. The region of influence (ROI) for socioeconomics and environmental justice is defined as the Washington-Arlington-Alexandria Metropolitan Statistical Area (Washington, D.C., MSA). See section 3.8 for more detailed information on the Washington, D.C., MSA and the methodology used for this section.

7.1.7.1 Population and Housing

Population

The population in Fairfax County almost tripled between 1950 and 1960, and then continued to increase steadily through 2010 when the most recent decennial census occurred, as shown in figure 7-13. The population in Washington, D.C., MSA and the Commonwealth of Virginia increased at greater rates than Fairfax County over the same period.[1]

Between 2000 and 2013, the total population in Fairfax County increased by 13.5 percent to approximately 1.1 million persons. This was a lower rate of growth than the population growth rate in the Commonwealth of Virginia (14.4 percent) but a higher rate of growth than the rate of population growth in the Washington, D.C., MSA (12.5 percent) over the same period (table 7-2).

The Metropolitan Washington Council of Governments (MWCOG),[4] which does not share the same boundary as the Washington, D.C., MSA, projects that the population of the metropolitan area would grow by 1.8 million people by 2040, resulting in a total population of 7,042,966 in 2040, which represents a 34 percent increase in population from 2010 (table 7-3). Fairfax County's population is projected to grow by 27 percent between 2010 and 2040, which is less than the projected growth in the Commonwealth of Virginia and the Washington, D.C., MSA (40 percent and 34 percent, respectively) over the same period (table 7-3).

Fairfax County had a high percentage of persons who identify themselves as Asian alone, at approximately 18 percent on average, annually between 2009 and 2013. This percentage is almost three times the amount of this same demographic in the Commonwealth of Virginia, and nearly twice the level of this demographic in the Washington, D.C., MSA (table 7-4). The percentage of those who identify themselves as a minority in Fairfax County is only slightly higher than in the Commonwealth. The population of those who identify as Black or African American alone, at approximately 9 percent on average, annually between 2009 and 2013, was at least half the level, as a percentage of the total population, of this same demographic in the Washington, D.C., MSA and the Commonwealth of Virginia.

[1] The current geographic boundaries for the MSA represent the boundaries as they existed in 2010. However, the geographic boundaries for counties and cities included in these combined area statistics have likely changed between 1900 and 2010. Therefore, the statistics in figure 7-13 and in the supporting paragraph are reflective of the total population of these areas as their boundaries existed at the time the statistics were recorded and are not based on the boundaries that existed in 2010.

[4] The population projection model is based on the 1983 definition of the Metropolitan Statistical Area (MSA) that includes the District of Columbia, Calvert County, Charles County, Frederick County, Montgomery County, and Prince George's County in Maryland; and Alexandria, Arlington County, Fairfax, Fairfax County, Falls Church, Loudoun County, Manassas, Manassas Park, Prince William County, and Stafford County in Virginia (MWCOG 2015). The 1983 definition of the MSA is not the current Washington, D.C., MSA definition used in this document.

Housing

Fairfax County and the Commonwealth of Virginia have rental vacancy rates of four and seven percent, respectively, as shown in table 7-5. These rates are lower than the national average vacancy rate of approximately 8 percent. The rate in Fairfax County is lower than the average vacancy rate of housing in the Washington, D.C., MSA, while the vacancy rate in the Commonwealth of Virginia is higher than average vacancy rate in the Washington, D.C., MSA. Approximately 18 percent of all housing units in the Washington, D.C., MSA are located in Fairfax County.

As stated in section 3.8, regional economic growth is expected to continue to attract new residents and increase the general demand for new housing. According to MWCOG, between 2005 and 2040, the number of households would grow in Fairfax County by 31 percent (MWCOG 2010). According to U.S. Census American Community Survey's One Year Estimates, current housing vacancy levels, at 17,519 vacant housing units, are the lowest they have been in previous 8 years (U.S. Census 2013a; U.S. Census 2013g).

Table 7-2: Population Growth for Fairfax County, Washington, D.C., MSA, and Commonwealth, 2000, 2009-2013*

County/Area	2000	2009-2013[a]	Percent Change, 2000 - 2013
Commonwealth of Virginia	7,078,515	8,100,653	14.4%
Washington, D.C., MSA	5,119,490	5,759,330	12.5%
Fairfax County, VA/Area	969,749	1,101,071	13.5%

[a] *This statistic is an annual average statistic from 2009-2013.*
Source: U.S. Census Bureau (2013, 2000)

Table 7-3: Population Projections, 2020-2040

	Year					2010 - 2040	
Area/County	2020	2025	2030	2035	2040	Total Change	Percent Change
Commonwealth of Virginia	2,727,518	2,903,287	3,046,179	3,175,769	3,297,418	937,679	40%
Washington, D.C., MSA	5,945,206	6,277,833	6,564,198	6,820,892	7,042,966	1,775,715	34%
Fairfax County, VA	1,153,456	1,212,464	1,265,650	1,317,578	1,369,001	287,270	27%

Source: MWCOG (2014)

Table 7-4: Racial Characteristics, 2009-2013[a]

Area or County	Total Population	White alone	Black or African American alone	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and Other Pacific Islander alone	Some other race alone	Minority Population[b]
Commonwealth of Virginia	8,100,563	63.50%	19.4%	0.3%	5.7%	0.1%	5.2%	35.7%
Washington, D.C., MSA	5,759,330	56.1%	25.5%	0.4%	9.3%	0.1%	8.7%	51.7%
Fairfax County, VA	1,101,071	63.5%	9.2%	0.4%	17.9%	0.1%	9.0%	46.1%

[a] *This statistic is an annual average statistic from the years 2009-2013.*
[b] *This is the total population minus the population of persons identifying themselves as non-Hispanic white alone. Minority population is separate from race and includes the Hispanic ethnicity.*
Source: U.S. Census Bureau (2013)

Table 7-5: Housing Supply, 2009-2013[a]

Geographic Area	Total Number of Housing Units	Percent Change in Number of Housing Units (2000 to 2013)	Total Number of Occupied Housing Units	Total Number of Vacant Housing Units	Percent of Vacant Housing Units	Total number of Renter-Occupied Units	Percent of Housing Units Available for Rent
Washington, D.C., MSA	2,249,459	N/A	2,091,301	158,158	1.50%	725,793	5.30%
Commonwealth of Virginia	3,381,332	16.4%	3,022,739	358,593	1.80%	933,701	6.7%
Fairfax County, VA	408,180	13.6%	389,908	18,272	0.90%	117,864	4.0%

[a] *This statistic is an annual average statistic from 2009-2013.*
Source: U.S. Census Bureau (2013, 2000)

SPRINGFIELD SOCIOECONOMICS AFFECTED ENVIRONMENT OVERVIEW

- The population in Fairfax County almost tripled between 1950 and 1960, and then continued to increase steadily through 2010 when the most recent decennial census occurred. Between 2000 and 2013, the total population in Fairfax County increased by 13.5 percent to approximately 1.1 million persons. Fairfax County's population is projected to grow by 27 percent between 2010 and 2040.
- In 2013, the total employed labor force in Fairfax County was 586,818 people, and the average, annual median wage between 2009 and 2013 was $110,292.
- Between 2000 and 2013, total unemployment in Fairfax County increased from a low of approximately 2 percent of the total labor force in 2000 to a high of approximately 5 percent of the total labor force in 2010. In 2013, Fairfax County's annual unemployment rate was 4.3 percent.
- In 2013, approximately 7 percent of all jobs were in state and local government industry and almost 8 percent of jobs were in the retail trade industry.
- Between 2005 and 2040, the number of households in Fairfax County is projected to grow by 31 percent.
- Fairfax County has a total of 195 public schools and learning centers and has the 10th largest school enrollment in the nation.

Figure 7-14: Springfield Alternative Unemployment Rates, 2000-2013

Table 7-6: Employment and Income, 2001, 2009-2013[a]

Area	Employed Labor Force 2013 (number)	Employment Change 2001 - 2013 (percent)	Median Household Income, 2009-2013[a]	Percentage of People Living Below Poverty, 2009-2013[a]
Washington, D.C., MSA	**3,078,147**	+ 16.4%	$90,540	8.2%
Commonwealth of Virginia	4,004,513	+ 12.8%	$63,907	11.3%
Fairfax County, VA	598,080	+ 10.4%	$110,292	5.9%

[a]Note: This statistic is an annual average statistic from the years 2009-2013.
Source: U.S. Census Bureau (2013a); BLS (2001. 2013)

7.1.7.2 Employment and Income

Total employment, unemployment, and income information is presented by place-of-residence. In 2013, the total employed labor force in Fairfax County was 598,080 people. Between 2001 and 2013, the total employed labor force (including Armed Forces) increased by approximately 10 percent in Fairfax County, which was lower than the employment growth rate in the Washington, D.C., MSA (16 percent) during this period (BLS 2013). Table 7-6 presents employed labor force, median household income, and percentage of people living below poverty in Fairfax County, the Washington, D.C., MSA, and the Commonwealth of Virginia.

Unemployment

Between 2000 and 2013, total unemployment in Fairfax County increased from a low of approximately 2 percent of the total labor force in 2000 to a high of approximately 5 percent in 2010 (BLS 2014). As a percent of the total labor force, unemployment levels in Fairfax County annually have exceeded those at the level of the Washington, D.C., MSA. In 2013, Fairfax County's annual unemployment rate, at 4.3 percent, was lower than the national average, at 7.4 percent, by almost half (figure 7-14).

Jobs by Industry

In 2013, in Fairfax County, approximately 7 percent of all jobs were in the state and local government industry while almost 8 percent of all jobs were in the retail trade industry in 2013. The construction industry contained approximately 5 percent of all jobs, which represents an 8 percent decline in jobs in this industry since 2001.

In the Commonwealth of Virginia, the largest industry by total number of jobs is the state and local government industry (11 percent). This is followed by the retail trade and professional, scientific, and technical services industries (both at 10 percent). The construction industry made up approximately 6 percent of all jobs in Virginia in 2013. Table 7-7 summarizes jobs by industry in 2013 and the total change in the percentage of jobs for each industry since the year 2001 (BEA 2013).

7.1.7.3 Taxes

In Fairfax County, Virginia, assessments occur annually, and both residential and commercial properties are assessed at 100 percent of the estimated market value, at $1.09 per $100 of assessed value (Fairfax County 2015m). Real property tax revenues for Fairfax County were approximately $2.2 billion in Fiscal Year (FY) 2014 (Fairfax County 2015n). Both the Commonwealth of Virginia and Fairfax County apply a general sales tax of 4.3 percent and 1 percent, respectively. In addition, the Commonwealth imposes an additional sales tax rate of 0.7 percent on counties in Northern Virginia, which includes Fairfax County, for an overall sales tax of 6.0 percent. In addition, sales taxes are also applied to transportation and food for home consumption in Virginia (Virginia Department of Taxation 2015a). Sales tax revenues in Fairfax County were approximately $322 million in FY 2014 (Virginia Department of Taxation 2015a).

The Commonwealth of Virginia does not disclose personal income tax revenues at the county level, but rather provides tax liabilities, which are tax collections prior to applying various credits. Total tax liabilities for Fairfax County were $2.5 billion in 2012, while total tax revenues for the entire state were $11.2 billion for FY 2014 (Virginia Department of Taxation 2015b).

Currently, the Springfield site is owned by GSA. According to U.S. Public Law, Federal real property is tax exempt in all jurisdictions (U.S. Code 1966).

Table 7-7: Springfield Alternative - Jobs by Industry, 2013

	Fairfax County, VA		Washington, D.C., MSA		Commonwealth of Virginia	
Industry	2013	Percent Change 2001-2013	2013	Percent Change 2001-2013	2013	Percent Change 2001-2013
Total employment	874,660	15.8%	4,019,399	16%	4,899,410	11.0%
Farm employment	188	1.6%	10,752	-12.5%	51,124	-17.7%
Forestry, fishing, and related activities	299	38.4%	3,273	(D)	13,081	5.1%
Mining	1,543	(D)	(D)	(D)	16,030	35.3%
Utilities	(D)	(D)	8,309	(D)	11,052	-9.6%
Construction	41,847	-8.0%	(D)	(D)	269,178	-8.4%
Manufacturing	6,923	(D)	57,571	(D)	243,606	-30.6%
Wholesale trade	(D)	(D)	71,248	(D)	122,545	-1.7%
Retail trade	68,281	-2.8%	316,461	4%	489,022	2.3%
Transportation and warehousing	16,250	(D)	86,532	(D)	141,192	2.0%
Information	26,909	-50.5%	93,241	(D)	85,568	-35.1%
Finance and insurance	40,783	31.6%	160,815	(D)	211,867	28.6%
Real estate and rental and leasing	45,817	49.9%	188,198	(D)	210,323	47.9%
Professional, scientific, and technical services	208,182	37.6%	(D)	(D)	517,714	35.9%
Management of companies and enterprises	23,276	40.4%	(D)	(D)	78,773	6.9%
Administrative and waste management services	57,924	10.6%	251,942	(D)	280,354	14.6%
Educational services	18,857	60.3%	129,519	(D)	97,482	46.8%
Health care and social assistance	66,566	32.8%	347,852	(D)	461,911	41.6%
Arts, entertainment, and recreation	18,562	26.9%	(D)	(D)	100,314	33.3%
Accommodation and food services	47,073	19.1%	(D)	(D)	336,867	23.3%
Other services, except public administration	49,128	17.6%	285,699	21%	292,622	19.5%
Federal, civilian	45,942	36.1%	389,596	15%	193,383	23.2%
Military	9,680	31.5%	66,531	-15.9%	140,677	-16.0%
State and local	60,469	14.3%	314,560	17.0%	534,725	10.5%

Note: (D) indicates information collected by BEA that is protected against public disclosure by the International Investment and Trade in Services Survey Act (P.L. 94–472, 90 Stat. 2059, 2 u.s.c. 3101–3108, as amended).
Source: BEA (2013)

Table 7-8: Number of Schools in Fairfax County

Type of School	Fairfax County, VA
Elementary Schools	139
Middle Schools	23
Secondary Schools[a]	3
High Schools	22
Academies[b]	N/A
Education Campuses	N/A
Adult Education Schools	N/A
Special Education Schools	7
Youth Engagement Schools	N/A
Vocational Centers	N/A
Alternative Schools	2
Public Charter Schools	N/A
Total	196

[a] Secondary schools include grades 7 through 12.
[b] Academies include grades from pre-kindergarten to 8th grade.
Source: DCPS (2014); Fairfax County (2014a); PGCPS (2014)
**N/A: This means that data for these was not available.*

SPRINGFIELD RECREATION AND OTHER COMMUNITY FACILITIES

- Fairfax County has nine indoor recreation centers with swimming pools and fitness rooms/gyms, eight golf courses, five nature and visitor centers, an ice skating rink, and several lakes and parks with campgrounds.
- Within 1 mile of the site, there are four childcare centers, three houses of worship, one university, and one library.

7.1.7.4 Schools

Fairfax County has a total of 196 public schools and learning centers (FCPS 2014). There are 48 alternative programs and learning centers. Approximately one of every six residents in Fairfax County is a public school student. Projected enrollment for the 2014-2015 school year in Fairfax County is 186,785 students. Table 7-8 shows the number of schools in Fairfax County.

Fairfax County has the largest school enrollment in Virginia and the tenth largest school enrollment in the nation. Seventy-four percent of graduates from county schools attend post-secondary programs. Fairfax County also sponsors a Youth Leadership Program to educate and motivate high school students to become engaged residents and leaders in the community (Fairfax County 2014a).

7.1.7.5 Community Services, Facilities, and Recreation

The following sections describe the existing conditions for a variety of community facilities, including police services, fire and emergency services, medical facilities, libraries, schools, childcare facilities, and houses of worship.

Police Services

The Fairfax County Police Department located in northern Virginia, is a full-service law enforcement agency that serves the population of the county. The Police Department currently has 1,369 sworn officers. This results in 1.23 officers per 1,000 residents. With the development going into the Springfield Town Center, Police are preparing for the new challenges and rapid growth and development of Springfield. Police response times increased 6 percent over all of Fairfax County between 2013 and 2014 while they decreased in the West Springfield area by 5 percent during this period.

The majority of patrol officers operate out of eight district stations: Mason District, McLean District, Mount Vernon District, Fair Oaks District, Franconia District, Reston District, Sully District, and West Springfield District (Fairfax County 2013c). The Springfield site is served by the Franconia District police station, located at 6121 Franconia Road, Franconia, Virginia 22310 and shown in figure 7-15. Further detail on police services for the Springfield site is provided in section 7.1.8.

Fire and Emergency Services

In Fairfax County, there are 38 fire and rescue stations (Fairfax County 2013c). There are 1,340 uniformed personnel in the fire department. This results in 1.2 fire fighters per resident in Fairfax County (FCFRD 2014). The closest fire department station to the Springfield site is Station 22, which is the Greater Springfield Volunteer Fire Department, located approximately 200 yards to the west of the site (shown in figure 7-15). The department is a combined system made up of career firefighters and paramedics who staff the station, and volunteers who provide supplemental staffing (GSVFD 2015). Further detail on fire and emergency services near the Springfield site is provided in section 7.1.3.

Medical Facilities

The Fairfax County Health Department operates three health centers located in Falls Church, Alexandria, and Reston (Fairfax County 2013c). The Fairfax County Community Health Care Network is a partnership of health professionals, physicians, hospitals, and local government formed to provide primary health services for low-income, uninsured residents of Fairfax County and the cities of Fairfax and Falls Church. Inova is a not-for-profit healthcare system in Northern Virginia that serves more than two million people each year. Inova's five hospitals include 1,753 hospital beds and 98,015 in-patient admissions in 2013 (Inova 2013). Inova Fairfax Hospital, Inova's flagship hospital, is an 833-bed, medical center serving the Washington, D.C., MSA. The nearest medical facility to the Springfield site is Inova Healthplex, located 0.65 mile from the site location (shown in figure 7-15). Inova Franconia-Springfield Surgery Center is a full-service ambulatory outpatient facility located off the Fairfax County Parkway at the Inova HealthPlex (Inova 2015).

Other Community Facilities

In addition to schools, police, fire and emergency, and recreation facilities, there are numerous other community facilities near the Springfield site that are commonly located in suburban environments, such as childcare centers, houses of worship, universities, and libraries. Unless noted otherwise, the following community resources were located using Fairfax County Geographic Information System (GIS) data and Google Maps (Fairfax County 2014b).

Four childcare centers cater to the suburban population and concentration of employment in Springfield. Those childcare centers within 1 mile of the Springfield site include Quality Home Childcare at 6711 Cimarron Street, Springfield; Laalee Day Care at 7205 Sumpter Lane, Springfield; Lily Pad at Metro Park at 6361 Walk Lane, C110, Alexandria; and Kingstowne KinderCare at 6301 Kingstowne Commons Drive, Kingstowne.

There is one library located within 1 mile of the Springfield site, which is the Richard Byrd Library at 7250 Commerce Street, Springfield.

Several houses of worship are located within 1 mile of the site as well as the Northern Virginia Community College located at 6699 Springfield Center Drive, Springfield.

Table 7-9 provides a comprehensive list of all the community facilities found within a 1-mile radius of the Springfield site, while figure 7-15 shows all community facilities found within the study area.

Recreation

Fairfax County has nine indoor recreation centers with swimming pools and fitness rooms/gyms, eight golf courses, five nature and visitor centers, an ice skating rink, and several lakes and parks with campgrounds (Fairfax County 2014b). The nearest recreational area to the Springfield Park is Hooes Road Park, located on 7233 Hooes Road, Springfield, Virginia 22150, about 1.5 miles from the Springfield site on the western side of I-95. Hooes Road Park offers recreational park areas and fields to play sports such as baseball and has multiple tennis courts. Manchester Lakes Recreation Center is located about 1.5 miles east of the Springfield site and includes a residential community, a clubhouse, two outdoor pools, tennis courts, an exercise facility, ponds, and several small parks (Manchester Lakes 2015).

Several parks are located in the surrounding areas of the Springfield site. Loisdale Park lies south of the site location along I-95 and offers fields for sports and a new synthetic turf. Beulah Park is located just over 1 mile from the site, located adjacent to Lane Elementary School and offers playing fields for sports such as softball. The closest regional park is Huntley Meadows Park, which is located more than 1 mile east of the Springfield site. Huntley Meadows Park has a number of visitor activities including exhibits, events, wildlife viewing and nature trails (Fairfax County 2015j). Lee District Park, including the Lee District Recreation Center, is adjacent to Huntley Meadows Park. This 193-acre park has one soccer field with two overlay T-ball fields, two football fields, two overlay softball fields, four basketball courts, an amphitheater, a playground, four tennis courts, a tennis practice wall, two sand volleyball courts, and walking trails (Fairfax County 2015f).

Three golf courses are located within a few miles of the Springfield site. Greendale Golf Course is located across the road from Lee District Park, approximately 3 miles from the site, while Hilltop Golf Club is located about 2 miles southeast of the site. The Fort Belvoir Golf Club is located just south of the Hilltop Golf Club. Recreation facilities located within 1 mile of the project site are noted in figure 7-15.

Table 7-9: Springfield Community Facilities

Facility	Map ID	Description
Child Care	1	Quality Home Childcare
	2	LaaLee Day Care
	3	Lily Pad at Metro Park
	4	Kingstowne KinderCare
Houses of Worship	5	First Baptist Church of Springfield, VA
	6	St. Christopher's Episcopal Church
	7	Springfield Methodist Church
University	8	Northern Virginia Community College
Library	9	Richard Byrd Library

Source: Google Maps (2014); ESRI (2013)

Figure 7-15: Springfield Community Services, Facilities, and Recreation

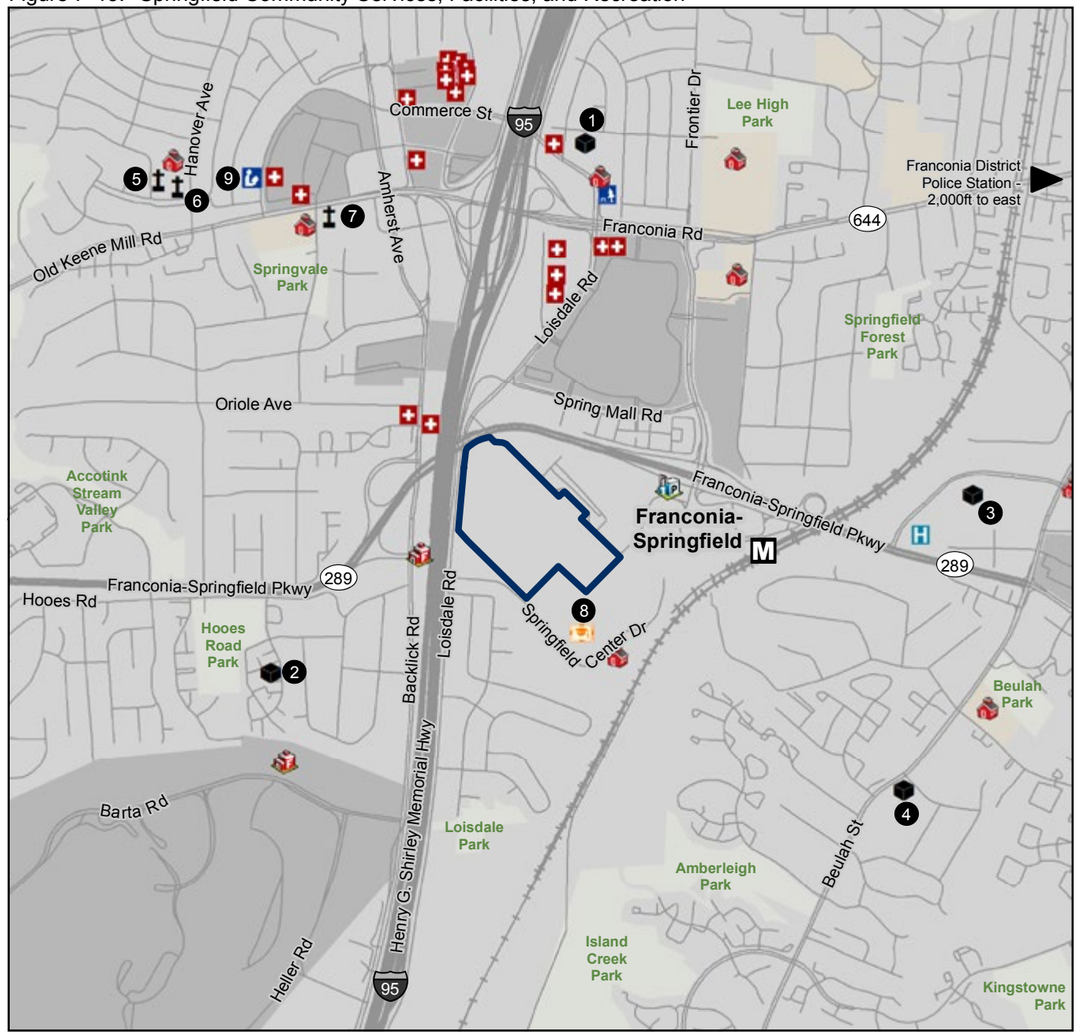
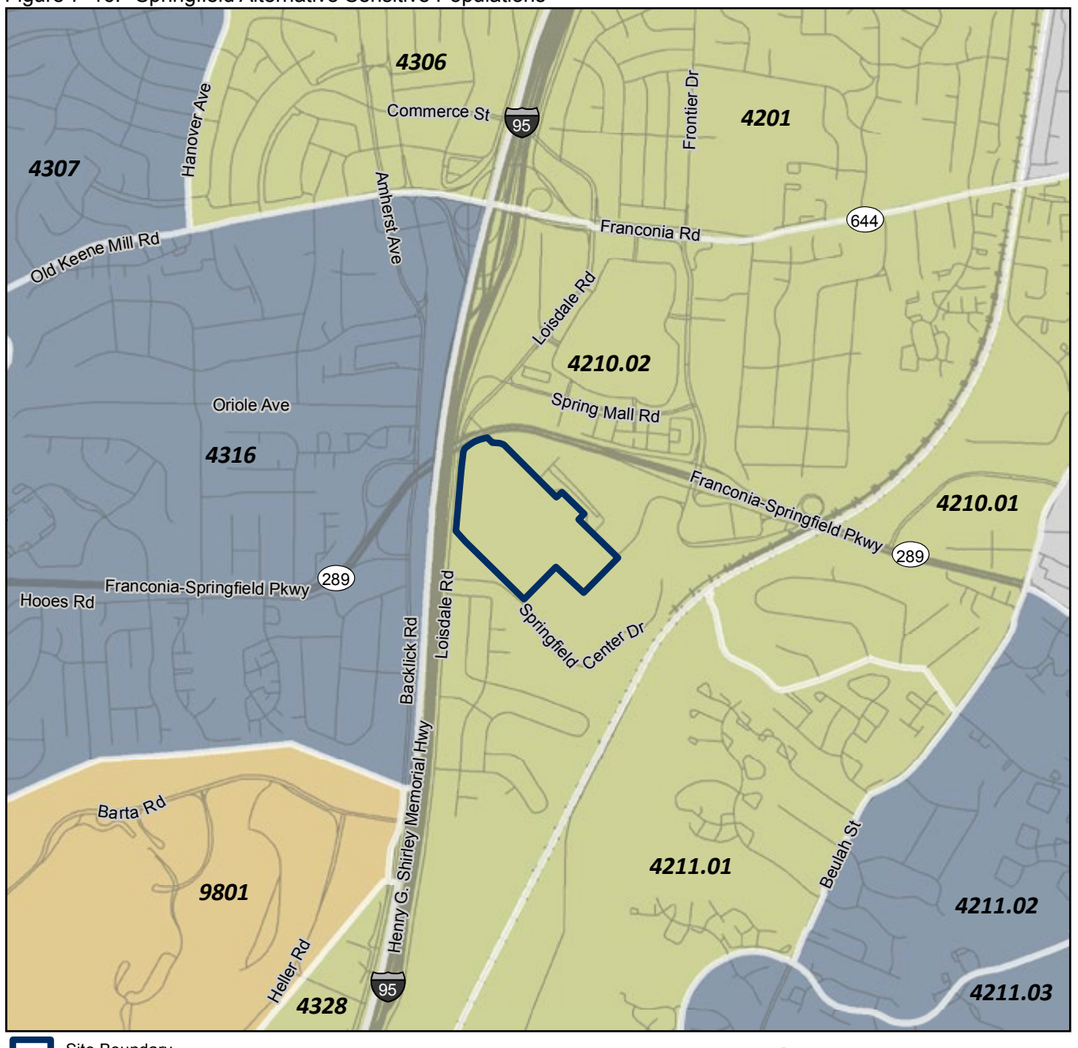


Figure 7-16: Springfield Alternative Sensitive Populations



SPRINGFIELD ENVIRONMENTAL JUSTICE AND PROTECTION OF CHILDREN

- Of the 655 census tracts within the ROI, 11 census tracts are located within 1 mile of the Springfield site. Of these, six census tracts have proportionately higher minority populations compared to the rest of the county.
- There are 50 preschools and childcare centers in Springfield, Virginia.

7.1.7.6 Environmental Justice

Minority and poverty information for the Commonwealth of Virginia and Fairfax County are provided in tables 7-4 and 7-6. Census tracts with minority and impoverished populations within 1 mile of the Springfield site in Fairfax County are identified in figure 7-16. There are 11 census tracts located within 1 mile of the Springfield site. Of these, six census tracts (4201, 4210.01, 4210.02, 4211.01, 4306, and 4328) have proportionately high minority populations compared to the rest of Fairfax County. One census tract, 9801, located within 1 mile of the site, has more than 20 percent of its population living in poverty and is identified as an poverty area. Therefore, a majority of the census tracts within 1 mile of the Springfield project site have either minority or low-income populations residing within them. Details on Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations are provided in section 3.8.3.3.

7.1.7.7 Protection of Children

There are 50 childcare centers and preschools in Springfield. There are three childcare centers that are located within 1 mile of the Springfield site: Laalee Day Care, Lily Pad at Metro Park and Kingstowne KinderCare. The closest elementary schools to the site are Lane Elementary School and Forestdale Elementary School. There are at approximately 1,400 children attending schools within 1 mile of the project site (FCPS 2015). There are neighborhoods located to the south of the project site and southwest of the project site across the across I-95. There is also an apartment complex located along the northern boundary of the project site. Children make up approximately 20 and 22 percent of the residents of the census tracts (4316 and 4210.02, respectively) that contain these neighborhoods (US Census 2013g). EO 13045, Protection of Children from Environmental Health and Safety Risk, is described in section 3.8.3.3.

7.1.8 Public Health and Safety/ Hazardous Materials

The current public health and safety concerns at the Springfield site are typical of a suburban environment and transit center, as described in the following sections.

7.1.8.1 Public Health and Safety

The Springfield site is located in the Springfield area of Fairfax County, and is protected by the Franconia District police station. The Franconia Station is located at 6121 Franconia Road in Alexandria, Virginia, an approximately 2.3 mile drive from the Springfield site. It employs approximately 140 sworn officers and 30 civilians who serve the 51 square mile Franconia District (Fairfax County 2015a). The Franconia-Springfield Metro Station, as with all WMATA facilities, is patrolled by the Metropolitan Transit Police Department (MTPD). MTPD is in the process of building a new facility in proximity to the site; however, it is not expected that MTPD would respond to incidents occurring outside of the Franconia-Springfield Metro Station.

Emergency services provided for the Springfield site are provided by Greater Springfield Volunteer Fire Department (GSVFD), a member of the Fairfax County Fire and Rescue Department. The department is a combined system made up of career firefighters and paramedics. GSVFD provides additional staffing on engines, trucks, and medical units, as well as additional reserve engines, ambulances, brush units, utility plows, and canteen/rehab units (Fairfax County 2015a). GSVFD, located at 7011 Backlick Road in Springfield, Virginia, is located across I-95 from the southeastern corner of the site. Fort Belvoir North Area has its own emergency services center to respond to emergencies within the installation.

Police and fire/emergency response times to the site are approximately 3 minutes, as shown in table 7-10.

SPRINGFIELD PUBLIC HEALTH AND SAFETY/HAZARDOUS MATERIALS

- The Springfield site is protected by the Franconia District Police Station, which employs 140 sworn officers and 30 civilians who serve the 51 square mile Franconia District.
- Emergency services provided for the Springfield site are provided by GSVFD, and the department is made up of career firefighters and paramedics.
- Police and fire/emergency response times to the site are approximately 4 to 7 minutes.
- A site assessment for the Springfield site concluded that environmental investigation and remediation began at the site in 1988 when soil and wipe samples indicated the presence of elevated PCB concentrations in site soils.
- Neither the Springfield site nor any nearby facilities within a 1.0-mile radius of the site were listed in the National Priorities List (NPL), Delisted NPL, or Proposed NPL databases.

Table 7-10: Springfield Emergency Response Times

Emergency Response	Response Time (min)	Distance (In miles)	Notes
Fire Station/Emergency Services	6.1	4.3	Fort Belvoir Emergency Services Center
	4.3	1.5	Springfield Fire Station
Police Station	7.0	2.7	Franconia Police Department
Hospital	3.9	1.2	Inova Surgery Center @ Franconia-Springfield

Note: Police and emergency response times were calculated by applying the ArcGIS Network Analyst routing function to a network dataset based on the 2014 ESRI Detailed Streets layer. The streets layer records the average travel time, in minutes, to traverse each road segment. Travel time data originates with TomTom North America, Inc. The route function summarizes the time cost for each route. Actual response times may vary from this reported time depending on traffic conditions and the average speeds of the response vehicles, which are unknown at this time.
Source: Google Maps and GIS Data

RESOURCE CONSERVATION AND RECOVERY ACT

RCRA is the principal U.S. law governing the disposal of solid and hazardous waste. One of its primary goals is to protect the health of humans and the natural environment from hazardous waste.

SMALL QUANTITY GENERATORS

Small Quantity Generators generate more than 100 kilograms, but less than 1,000 kilograms, of hazardous waste per month (USEPA).

CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR

Conditionally Exempt Small Quantity Generators generate 100 kilograms or less per month of hazardous waste or 1 kilogram or less per month of acutely hazardous waste (USEPA).

NON-GENERATOR/NO LONGER REGULATED

The RCRA Non-Generator/No Longer Regulated list contains a list of properties that may have been ongoing generators of hazardous waste at some time in the past, or may have been the site of a one-time hazardous waste event, but are now considered "closed" and no longer regulated under RCRA.

7.1.8.2 Hazardous Materials

GSA's commissioned a Phase I ESA for the Springfield site in November 2014 (Louis Berger 2014c). The ESA identified current Recognized Environmental Concerns associated with a wash water sump pit and two underground vaults.

The wash water sump pit is located in the Maintenance Handling Equipment space of Building A, which is sealed and no longer used. The sump pit formerly accepted runoff from washing of forklifts, scooters, and small battery-powered vehicles. The integrity of the sump pit walls and floor is unknown. The two underground vaults are also located in Building A. Each vault measures approximately 20 feet long by 5 feet wide, and both were welded shut at the time of field inspections conducted in support of the ESA. The vaults may be associated with repair operations formerly performed on track-mounted cargo vehicles. Because of the presence of these Recognized Environmental Concerns, soil contamination may exist at the site.

Records reviewed as part of the ESA indicated that environmental investigation and remediation began at the site in 1988 when soil and wipe samples indicated the presence of elevated PCB concentrations in site soils. Since that time, numerous releases from underground storage tanks (USTs) at the site have been reported and investigated. Approximately 10 to 12 USTs have been removed from the site, and one was abandoned in place. Approximately 24 monitoring, injection, and recovery wells were installed at the site by the mid-1990s, and remediation and reporting efforts continued until 2000 when the Virginia Department of Environmental Quality (VADEQ) determined that "No further corrective action was required." All wells were subsequently decommissioned and sealed at VADEQ's direction.

In addition to the current and historical Recommended Environmental Concerns, the Phase I ESA found that a 10,000-gallon diesel UST and a 6,000-gallon gasoline UST are present in a vehicle fueling area along the northeast corner of Building B, and used for government vehicles only. Another UST was abandoned in place in the vicinity of the sprinkler system pump house adjacent to Building A. The 4,000-gallon UST formerly contained fuel oil and was cleaned and filled with concrete because removal was not practical due to proximity to the pump house. Based on the early development of the property and former operations at the site, it is possible that additional unknown and undocumented USTs are present.

Asbestos-containing materials and lead-based paints abatement at the Springfield site is well-documented (Mactec 2008); a hazardous materials inspection and report conducted for the site in 2014 included asbestos-containing material inspections using U.S. Environmental Protection Agency (USEPA) guidelines for controlling asbestos-containing materials in buildings. The inspections confirmed the presence of numerous types of asbestos-containing materials in Buildings A and B (Louis Berger 2014d). The hazardous materials inspection also confirmed the presence of lead-based paint on numerous walls, ceilings, doors, and fixtures throughout Buildings A and B. In addition, the inspection documented the presence of lighting fixtures and ballasts suspected of containing PCBs.

Neither the Springfield site nor any nearby facilities were listed in the NPL, Delisted NPL, or Proposed NPL databases within a 1.0-mile radius of the site (USEPA 2015b). Information obtained from USEPA's Resource Conservation and Recovery Act (RCRA) database identified Fort Belvoir North Area, approximately 0.65 mile to the southwest of the Springfield site, as the closest contaminated site where corrective actions have been or are currently being conducted (USEPA 2015c).

The Springfield site is identified as a Conditionally Exempt Small Quantity Generator in the RCRA database. There are nine active Small Quantity Generators, one Conditionally Exempt Small Quantity Generator, and two Non-Generator/No Longer Regulated facilities were identified within a 0.25-mile radius of the site. The Phase I ESA did not identify any solid waste facilities or landfills, brownfields, or sites containing engineering controls such as caps or liners within 0.5 mile of the site. The ESA did find that the Springfield site, along with eight other listings within a 0.5-mile radius, appeared in the Leaking UST database. All eight of the off-site listings are identified as closed.

7.1.9 Transportation

The following sections describe the affected environment for the Springfield site and provide a summary of the existing transportation conditions in the study area as of May 2015.

7.1.9.1 Study Area Description

The larger vehicular transportation study area, as shown in figure 7-17, extends from just east of I-95 to the west, just north of Franconia Road to the north, Beulah Street to the east, and Fairfax County Parkway to the south. Section 3.10.1 contains the methodology used to identify the vehicular and other transportation mode's study area. The study area was established in consultation with Virginia Department of Transportation (VDOT) and FCDOT and includes 23 intersections for the Existing Condition analysis but does not have a clearly defined study boundary.

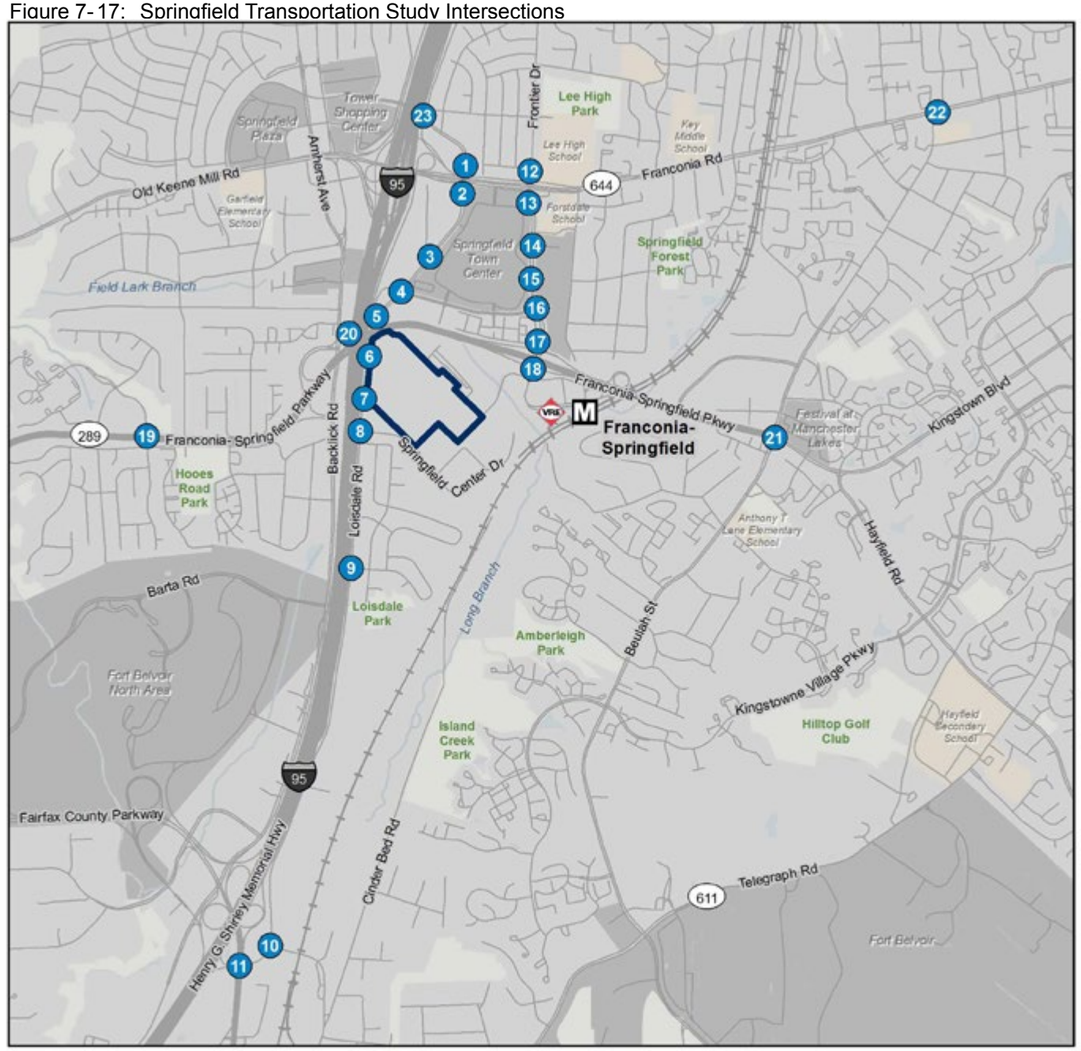
7.1.9.2 Project Area Accessibility and Roadway Functional Classification

The Springfield site is currently accessible via two access points from Loisdale Road on the western side of the site (Intersections #6 and #7). Loisdale Road connects with Franconia Road to the north and Fairfax County Parkway to the south, both of which are east-west arterial roads. Franconia Road and Fairfax County Parkway provide the closest access points to the north-south oriented I-95; however, northbound I-95 traffic destined for the Springfield site can also exit via Exit 169A, which exits as Loisdale Road, just north of the site. I-95, just west of the site, provides regional north-south connections and becomes I-395 about 1 mile north of the site, providing direct access to Arlington, Virginia, and Washington, D.C. Approximately 1 mile north of the site, I-95 intersects with the Capital Beltway (I-495), providing access to Northern Virginia and Montgomery and Prince George's Counties in Maryland. Franconia-Springfield Parkway also abuts the Springfield site to the northwest, but this roadway is not directly accessible from Loisdale Road where vehicles exit the site. Access to Franconia-Springfield Parkway from the site is provided via Metropolitan Center Drive or Spring Mall Road and then Frontier Drive.

The Springfield site is accessible by transit, including Metrorail, commuter rail, and local and intercity buses, as well as carsharing services. The site is served by sidewalks along its western and northern edges (Loisdale Road and Metropolitan Center Drive) and most of the roadways in the study area have sidewalks on at least one side of the street except for Springfield Center Drive south of the site, Franconia-Springfield Parkway as it travels over I-95 (although there is a pedestrian bridge that makes this connection), and various residential neighborhoods in the 0.5-mile non-vehicular study area. There are no bikeshare stations or bicycle lanes in the vicinity of the study area, but there are several mixed-use paths along Franconia-Springfield Parkway and portions of Loisdale Road and Frontier Drive.

A map of roadway functional classifications within the project area according to the geographic information systems (GIS) data collected from various local and state governments is shown in figure 7-18 (VGIN 2013). Functional classification is the process by which public streets and highways are grouped into classes according to the character of service they are intended to provide. Interstates, freeways, and expressways provide the highest level of service at the greatest speed for the longest uninterrupted distance, followed by principal arterials, minor arterials, collector roads, and local roads. The primary interstate within the study area providing regional access is I-95 just west of the Springfield site. Farther north and outside of the study area, I-395 and I-495 are two additional interstates that provide regional access. South of the site, Fairfax County Parkway provides regional east-west connectivity, and north of the site, Franconia-Springfield Parkway (Virginia State Route 289) also provides east-west connectivity. Both roadways are classified by VDOT as an other principal arterial. Other study area roadways classified as minor arterials include: Frontier Drive, Franconia Road/Old Keene Mill Road (Virginia State Route 644), Commerce Street, Amherst Avenue, Backlick Road, Loisdale Road, Beulah Street, and Telegraph Road (Virginia State Route 611). Collector roads provide the next roadway classification and Spring Mall Drive is the only collector road serving the study area. The other study area roadways, including Metropolitan Center Drive, Springfield Center Drive, and other smaller roadways, are classified by VDOT as local roadways.

Figure 7-17: Springfield Transportation Study Intersections



7.1.9.3 Roadway Descriptions

The following section describes the primary roadways within the study area, including the VDOT roadway classifications of minor arterial and above, according to the Virginia Geographic Information Network road centerline GIS data (VGIN 2013). This section also discusses the number of lanes in each direction, the latest average annual daily traffic (AADT) volumes (12-months of traffic volumes averaged) available from VDOT (2013a, 2013b), and any noteworthy characteristics such as a roadway's role within the transportation network. The information was collected from the Virginia Geographic Information Network GIS data, VDOT, observations in the field, and aerial imagery from Google Maps. These roadways are shown on figure 7-18.

Interstate 95 (I-95), is a north-south oriented interstate that traverses just west of the Springfield site and provides regional access, as well access along the east coast of the United States from Maine to Florida. The section of I-95 north of I-495 into Washington, D.C., is referred to as I-395. Traveling south and north, the roadway generally consists of four lanes and additional right-merging access lane(s) in each direction. In between the northbound and southbound lanes are two reversible lanes dedicated to High Occupancy Toll (HOT) lanes that travel northbound in the morning and southbound in the evening. The center HOT lanes are available for use by any vehicular user who opts to pay and available for free to users who have three or more passengers in their vehicle, transit vehicles, or motorcycles. The roadway connects to Old Keene Mill Road, Franconia Road, and Loisdale Road, and Spring Mall Drive (northbound exiting traffic only) north of the site. South of the site, I-95 connects to Franconia-Springfield Parkway and via access ramps to Loisdale Road, Backlick Road, Boudinot Drive, and Heller Road. The central HOT lanes of I-95 also connect to Franconia-Springfield Parkway, but the regular travel lanes of I-95 do not. Traveling on the regular lanes, the speed limit is 55 miles per hour (mph), while the speed limit is 65 mph in the HOT lanes. In 2013, the AADT for I-95 traversing through the study area was 110,000 vehicles (VDOT 2013a).

Franconia-Springfield Parkway, also known as Virginia State Route 289 (VA 289), travels east to west and is classified as a minor arterial road by VDOT (VGIN 2013). The road traverses north of the Springfield site connecting I-95 with Kingstowne Center on the east and Fairfax County Parkway on the west via a three-lane roadway in each direction with a protected median. The speed limit is 50 mph. In 2013, the AADT for the Franconia-Springfield Parkway was 45,000 vehicles (VDOT 2013a).

Franconia Road, also known as Virginia State Route 644 (VA 644), travels north of the study area with an east-west orientation and provides local access as well as access to many residential neighborhoods north and south of the roadway. According to VDOT, the roadway is classified as a minor arterial road (VGIN 2013). East of Frontier Drive, Franconia Road has three travel lanes at-grade in each direction; on the west side of Frontier Drive east of I-95, Franconia Road is an elevated roadway with two travel lanes in each direction. The roadway has a protected median throughout, several left turn lanes, and is flanked by two subsidiary connecting at-grade roadways between I-95 and Elder Avenue (just east of Frontier Drive). These parallel at-grade roadways are called Franconia Road East (to the south) and Franconia Road West (to the north), and they have two or three travel lanes in each direction. Franconia Road, or the at-grade Franconia Road East or West, connects to Loisdale Road, I-95, Frontier Drive, Commerce Street, and Backlick Road. The speed limit is 40 mph west of Frontier Drive and 35 mph east of Frontier Drive. West of I-95, Franconia Road becomes Old Keene Mill Road. The estimated AADT in 2013 for Franconia Road between I-95 and Loisdale Road was 58,000 vehicles, and east of Loisdale Road the estimated 2013 AADT was 36,000 vehicles (VDOT 2013b).

Old Keene Mill Road, also known as Virginia State Route 644 (VA 644), begins just west of I-95 and has an east-west orientation. According to VDOT, the roadway is classified as a minor arterial road (VGIN 2013). With a protected median throughout, the roadway changes between three to four lanes in each direction with periodic left-turn lanes (Cambridge Systematics, Inc. et al. 2008). The roadway connects to Backlick Road, I-95, and Commerce Street. The speed limit is 45 mph. East of I-95, Old Keene Mill Road becomes Franconia Road. The estimated AADT in 2013 for Old Keene Mill Road west of Backlick Road was 46,000 vehicles, and between Backlick Road and I-95, the estimated 2013 AADT was 74,000 vehicles (VDOT 2013b).

Commerce Street traverses I-95 with an east-west orientation, forming a curvilinear connection from Old Keene Mill Road east of I-95 to Franconia Road west of I-95, where it eventually forms a north-south orientation and becomes Loisdale Road south of Franconia Road. According to VDOT, the roadway is classified as a minor arterial road (VGIN 2013). East of I-95, the road maintains a two- to three-way roadway in each direction in addition to a protected median throughout. West of I-95, the road is composed of two lanes in each direction and the road centerline changes between a protected median, an unprotected median, and periodic left-turn lanes. The road connects to Old Keene Mill Road, Backlick Road, I-95, Franconia Road, and Loisdale Road. According to VDOT, Commerce Street is classified as a minor arterial road (VGIN 2013). The speed limit is 35 mph. The estimated AADT in 2013 for Commerce Street between Franconia Road and Backlick Road was 23,000 vehicles, and between Backlick Road and Old Keene Mill Road, the estimated 2013 AADT was 11,000 vehicles (VDOT 2013b).

Loisdale Road has a north-south orientation and traverses just west of the Springfield site. According to VDOT, the roadway is classified as a minor arterial road (VGIN 2013). North of Franconia-Springfield Parkway, the roadway changes between two and three lanes in each direction with occasional extra left-turn lane(s) and a protected median throughout. South of Franconia-Springfield Parkway, there is one lane in each direction with a shared center turning lane and no median. Along this southern stretch, there is an extra paved area on the eastern side of the road that does not allow parking north of Layton Drive, but in the residential area south of Layton Drive on-street parking is allowed. According to VDOT, the roadway is classified as a minor arterial road (VGIN 2013). To the north of the site, Loisdale Road connects to Franconia Road, Commerce Street, Loisdale Court at the western Springfield Town Center entrance, Spring Mall Drive, and Metropolitan Center Drive. South of the site, Loisdale Road connects to Springfield Center Drive and Lois Drive, and farther south it connects to Fairfax County Parkway. The speed limit is 35 mph. The estimated AADT in 2013 for Loisdale Road north of Spring Mall Road was 21,000 vehicles (VDOT 2013b). Between Spring Mall Road and Newington Road, the estimated 2013 AADT was 9,600 vehicles, while the estimated AADT between Newington Road and Fairfax County Parkway was 15,000 vehicles.

Frontier Drive is a north-south oriented collector roadway as classified by VDOT (VGIN 2013). South of Franconia Road, Frontier Drive generally has three travel lanes in each direction with additional left-turn lane(s) throughout. Extending from Franconia-Springfield Parkway to Franconia Road, there is a narrow protected median. South of Franconia Road, Frontier Drive becomes the sole access roadway to the Franconia-Springfield Metro Station. At the intersection with Franconia Road to the north, Frontier Drive traverses underneath Franconia Road into a primarily residential area with one lane in each direction and no median.

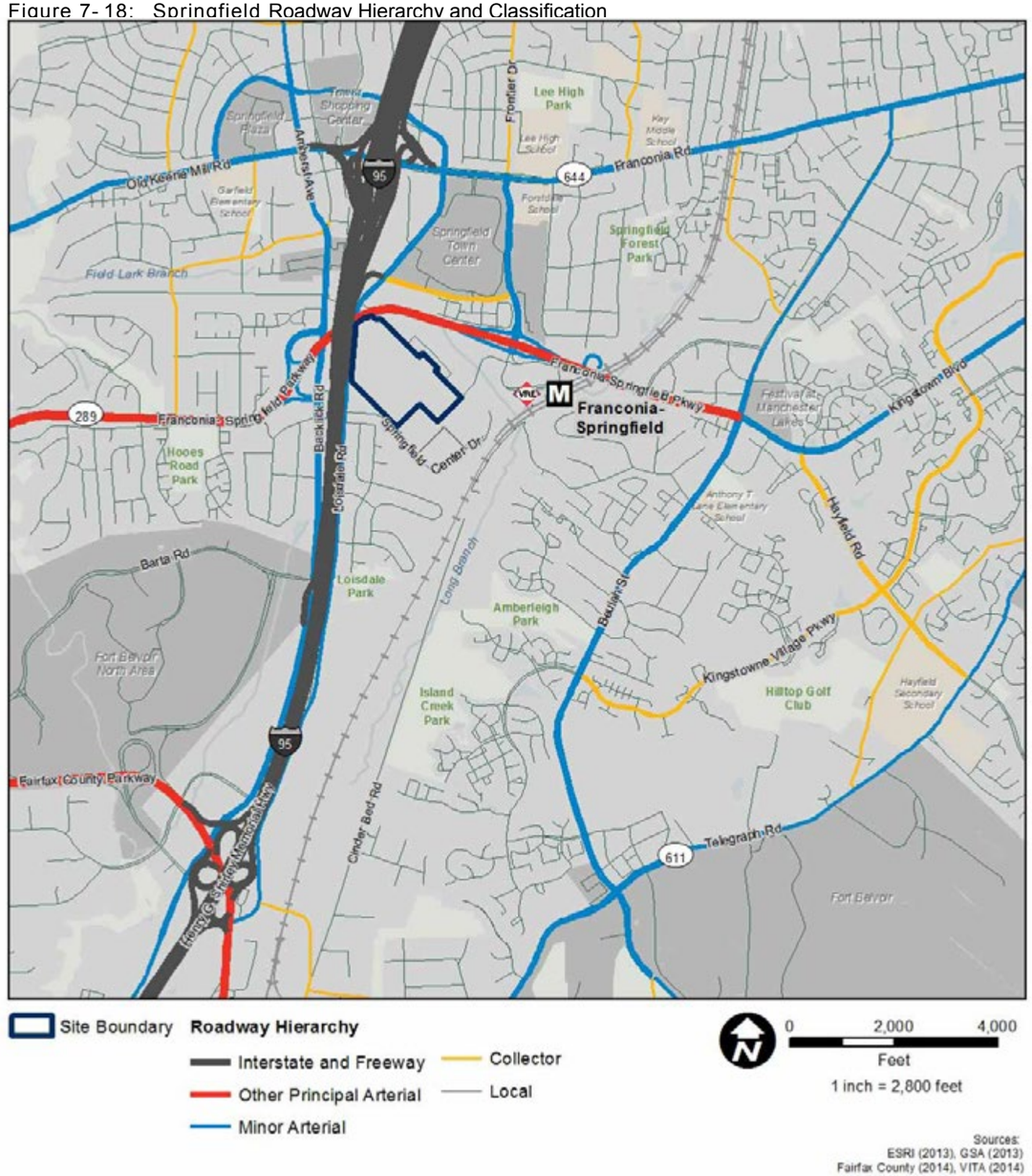
Frontier Drive connects to Franconia Road, Spring Mall Drive, Franconia-Springfield Parkway, and Joseph Alexander Road (which turns west to become Metropolitan Center Drive). The speed limit is 35 mph. The estimated AADT in 2013 for Frontier Drive between Franconia Road and Spring Mall Road was 26,000 vehicles, and south of Spring Mall Road, the estimated 2013 AADT was 34,000 vehicles (VDOT 2013b).

Spring Mall Drive has an east-west orientation that extends from Loisdale Road to Frontier Drive north of the site. According to VDOT, the road is classified as a local roadway (VGIN 2013). Containing a protected median and periodic left-turn lanes, Spring Mall Drive serves the Springfield Town Center to the north and several commercial properties and a multi-family residential neighborhood to the south. The roadway has two travel lanes in each direction, and the speed limit is 35 mph. The estimated AADT in 2013 for Spring Mall Drive was 17,000 vehicles (VDOT 2013b).

Springfield Center Drive has a curvilinear shape around the south perimeter of the Springfield site. According to VDOT, the road is classified as a local road and connects to Loisdale Road on the west (VGIN 2013). The roadway has one wide lane in each direction with no median. The speed limit is 25 mph.

Metropolitan Center Drive has a northwest -southeast orientation that travels along the northeast perimeter of the Springfield site. According to the VDOT, this roadway is classified as a local roadway (VGIN 2013). Metropolitan Center Drive has a one-way travel lane in each direction with no median. The road connects to Loisdale Road on the west and turns at the eastern end of the residential development to become Joseph Alexander Road, which then connects to Frontier Drive on the east, south of the intersection with Franconia-Springfield Parkway. The speed limit towards the residential section of Metropolitan Center Drive is 5 mph.

Figure 7-18: Springfield Roadway Hierarchy and Classification



Backlick Road is located west of the site and I-95 and is north-south oriented. According to VDOT, the road is classified as a minor arterial road south of where it merges with Amherst Avenue and a local road north of that point (VGIN 2013). South of Commerce Street, Backlick Road primarily has two travel lanes in each direction with periodic left-turn lanes and a protected median south of Old Keene Mill Road. At Old Keene Mill Road, Backlick Road is split, preventing through north-south travel due to a continuous median on Franconia Road. Paralleling Backlick Road, Amherst Avenue crosses over Old Keene Mill Road and becomes a one-way southbound road when Backlick Road becomes a one-way northbound road north of Commerce Street. North of Commerce Street, Backlick Road becomes a one-way road with three travel lanes and one wide outside parking lane. Backlick Road connects to Commerce Street, Old Keene Mill Road, Amherst Avenue, Franconia-Springfield Parkway, and the Fairfax County Parkway south of the site. The speed limit is generally 30 mph; however, south of Franconia-Springfield Parkway the speed limit rises to 45 mph. The estimated AADT in 2013 for Backlick Road south of Franconia-Springfield Parkway was 25,000 vehicles; north of Franconia-Springfield Road to Franconia Road, the estimated 2013 AADT for Backlick Road was 42,000 vehicles (VDOT 2013b).

Amherst Avenue has a north-south orientation and is located west of the Springfield site. The roadway parallels Backlick Road north of Old Keene Mill Road and has two lanes in each direction, with periodic left-turn lanes, and a protected median. According to VDOT, Amherst Avenue is classified as a minor arterial road (VGIN 2013). The roadway connects to Commerce Street, Backlick Road, and Old Keene Mill Road. The speed limit is 30 mph. The estimated AADT in 2013 for Amherst Avenue south of Franconia Road was 28,000 vehicles; north of Franconia Road the estimated 2013 AADT for Amherst Avenue was 15,000 vehicles (VDOT 2013b).

Beulah Street is located east of the site, has a southwest-northeast orientation, and connects Telegraph Road to the south with Franconia Road to the north via a connection with Franconia-Springfield Parkway. Within the study area, Beulah Street generally has two through lanes in each direction, left and right turn lanes at intersections, a protected median, and bike lanes in each direction. Beulah Street is classified as a minor arterial road by VDOT, and the speed limit is 35 mph (VGIN 2013). The estimated AADT in 2013 for Beulah Street north of Franconia-Springfield Parkway was 23,000 vehicles; south of Franconia Road the estimated 2013 AADT for Beulah Street was 15,000 vehicles (VDOT 2013b).

Fairfax County Parkway is located south of the site and has an overall northwest-southeast orientation connecting areas as far north as Reston and Herndon near Route 7 to the Newington and Fort Belvoir areas near its terminus at Route 1 in the south. According to VDOT, the roadway is classified as a principal arterial (VGIN 2013). West of I-95, the Fairfax County Parkway provides limited access primarily to other regional roadways via grade-separated interchanges, has a speed limit of 50 mph, has a protected median, and generally has three through lanes in each direction. East of I-95, Fairfax County Parkway generally provides access to multiple road classifications via at-grade intersections, has two through lanes in each direction, left and right turning lanes at intersections or access points, a protected median, and a speed limit of 40 mph. The estimated AADT in 2013 for this section of the Fairfax County Parkway was 28,000 vehicles (VDOT 2013b).

As part of the field data collected, a detailed inventory of the lane geometry was conducted through field reconnaissance and a study of aerial imagery. The existing lane geometry and traffic control type (signalized or unsignalized) are shown in figure 7-19.

7.1.9.4 Data Collection

Section 3.10.4.1 provides an overview of all data collected as part of the study. After examining the collected count data for the study area, the peak AM and PM traffic hours were determined for both the arterial transportation system (via intersection counts) and the interstate system (via automated Traffic Recorder [ATR] for the mainlines and a combination of ATR and intersection counts for the ramps). These peak hours are shown as yellow bands on the charts in figures 7-20 through 7-22 (cumulative represents all turning movement volumes for all study area intersections summed together). The determination of a peak hour relied on the arterial system peak hour because the arterial system would be most impacted by the addition of a consolidated FBI HQ facility. In addition, the interstate system morning peak hour is within 15 minutes of the arterial system, and afternoon flows remain near the peak through the arterial system peak hour. The overall weekday AM peak hour used for the analysis occurs between 7:30 AM and 8:30 AM, and the weekday PM peak hour occurs between 5:00 PM and 6:00 PM. Figure 7-23 shows the existing AM and PM weekday peak hour turning movement volumes occurring in the study area.

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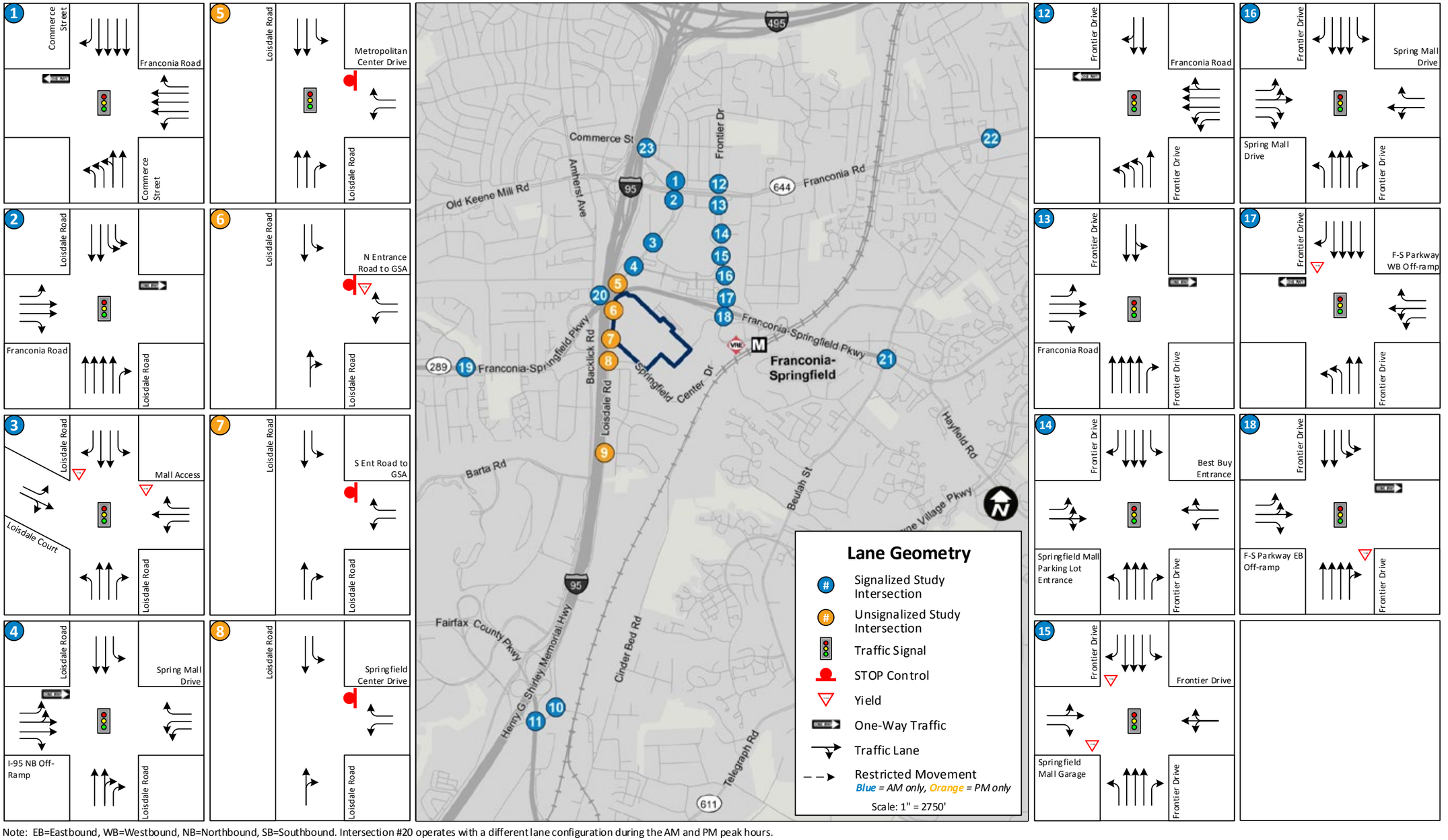
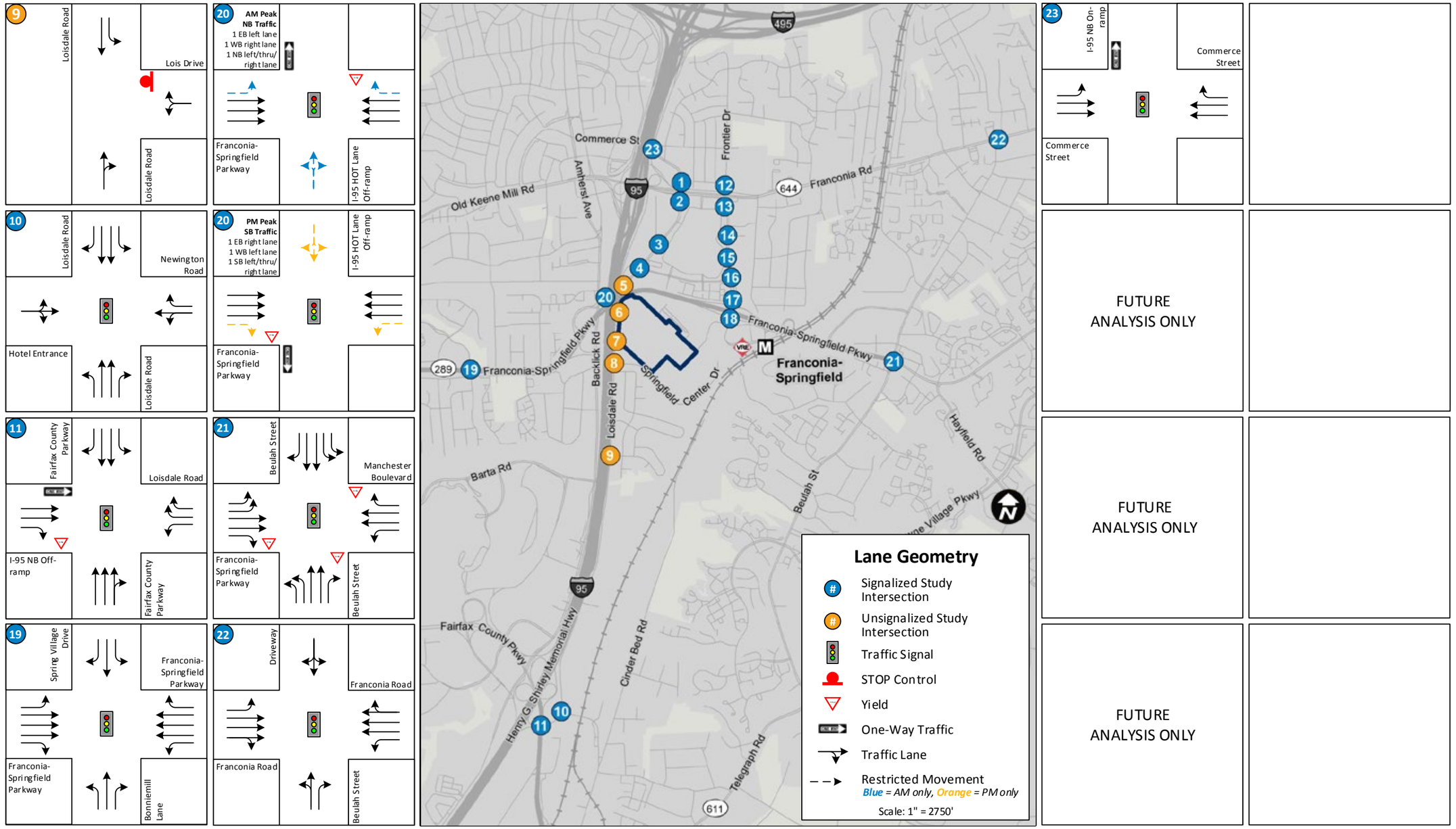
Figure 7-19: Springfield Existing Lane Geometry and Traffic Control Type



Note: EB=Eastbound, WB=Westbound, NB=Northbound, SB=Southbound. Intersection #20 operates with a different lane configuration during the AM and PM peak hours.

Figure 7-19: Springfield Existing Lane Geometry and Traffic Control Type (continued)



Note: EB=Eastbound, WB=Westbound, NB=Northbound, SB=Southbound. Intersection #20 operates with a different lane configuration during the AM and PM peak hours.

Figure 7-20: Springfield Intersection (Arterial) Cumulative AM Volumes

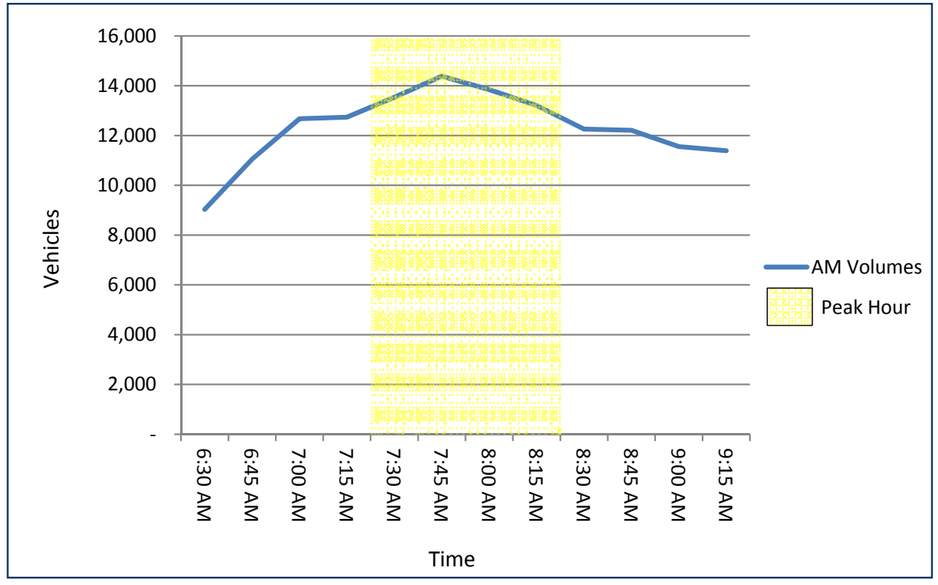


Figure 7-21: Springfield Intersection (Arterial) Cumulative PM Volumes

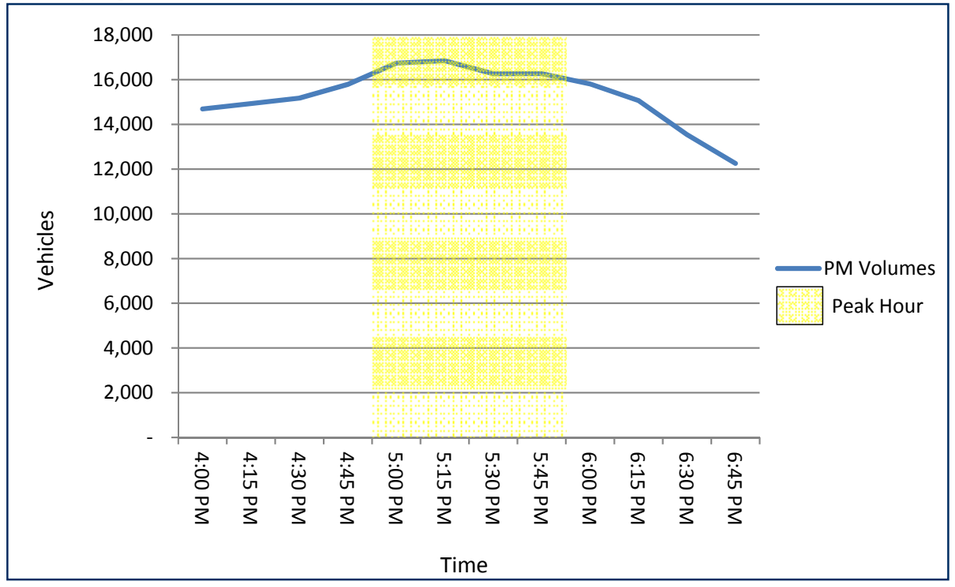


Figure 7-22: Springfield Interstate Volumes

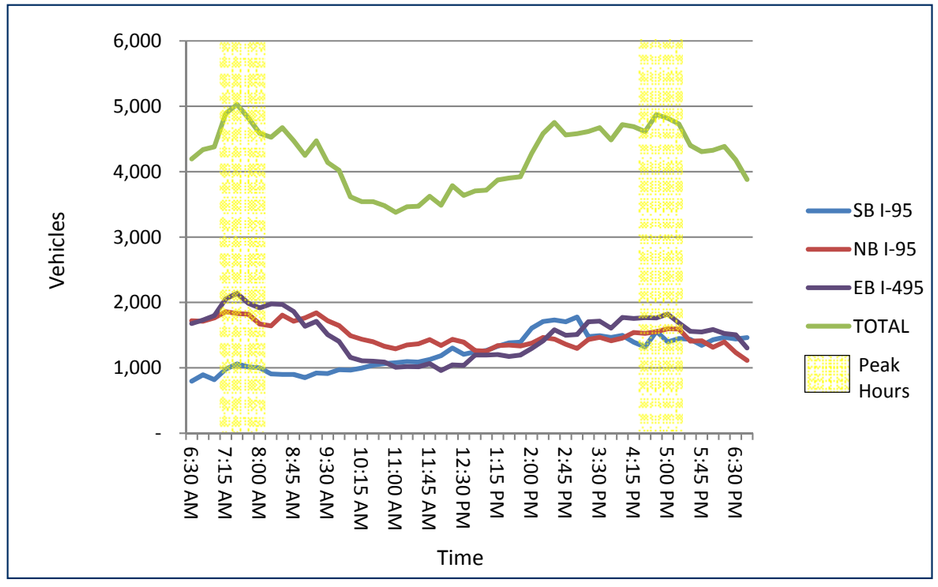


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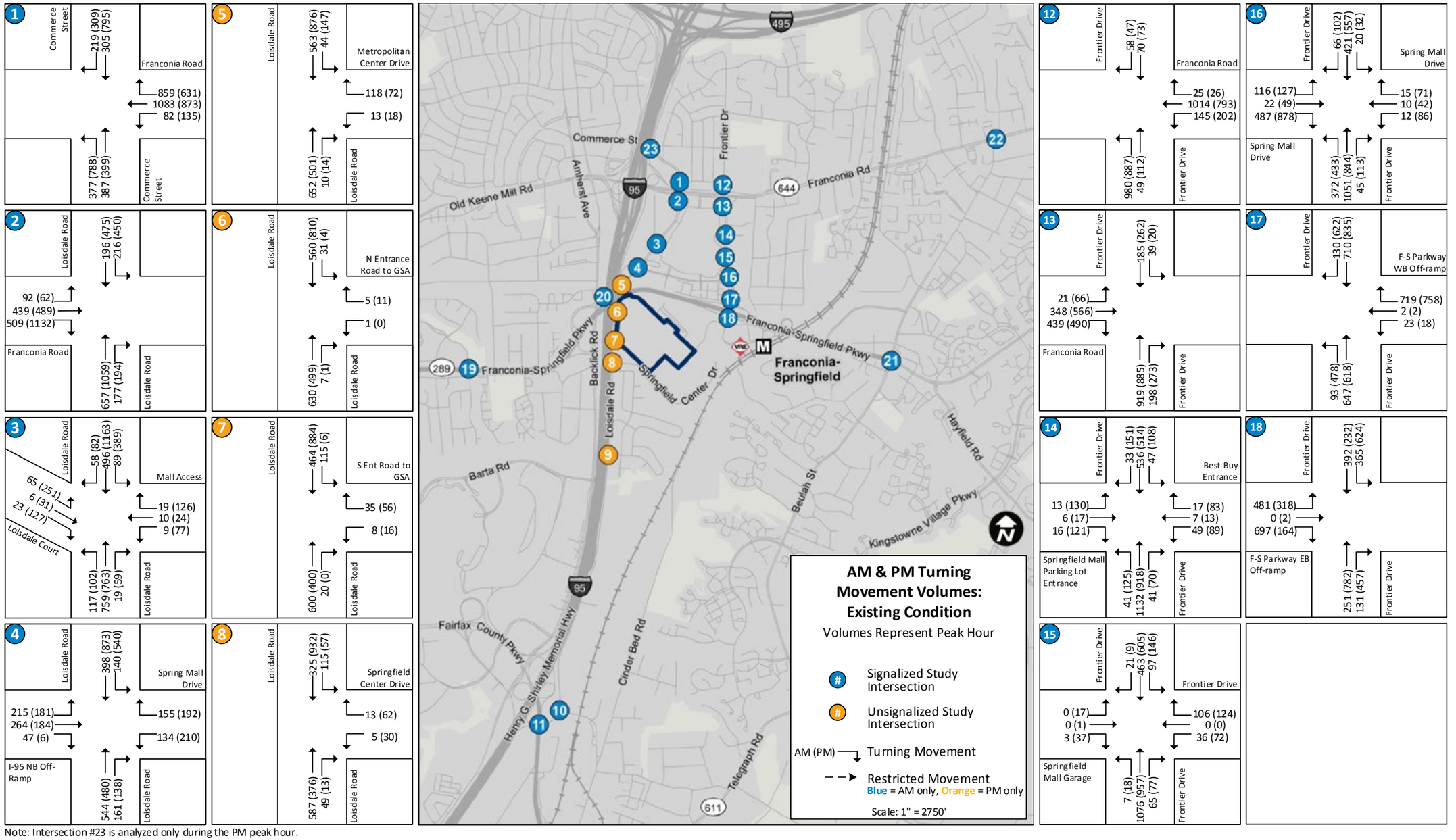
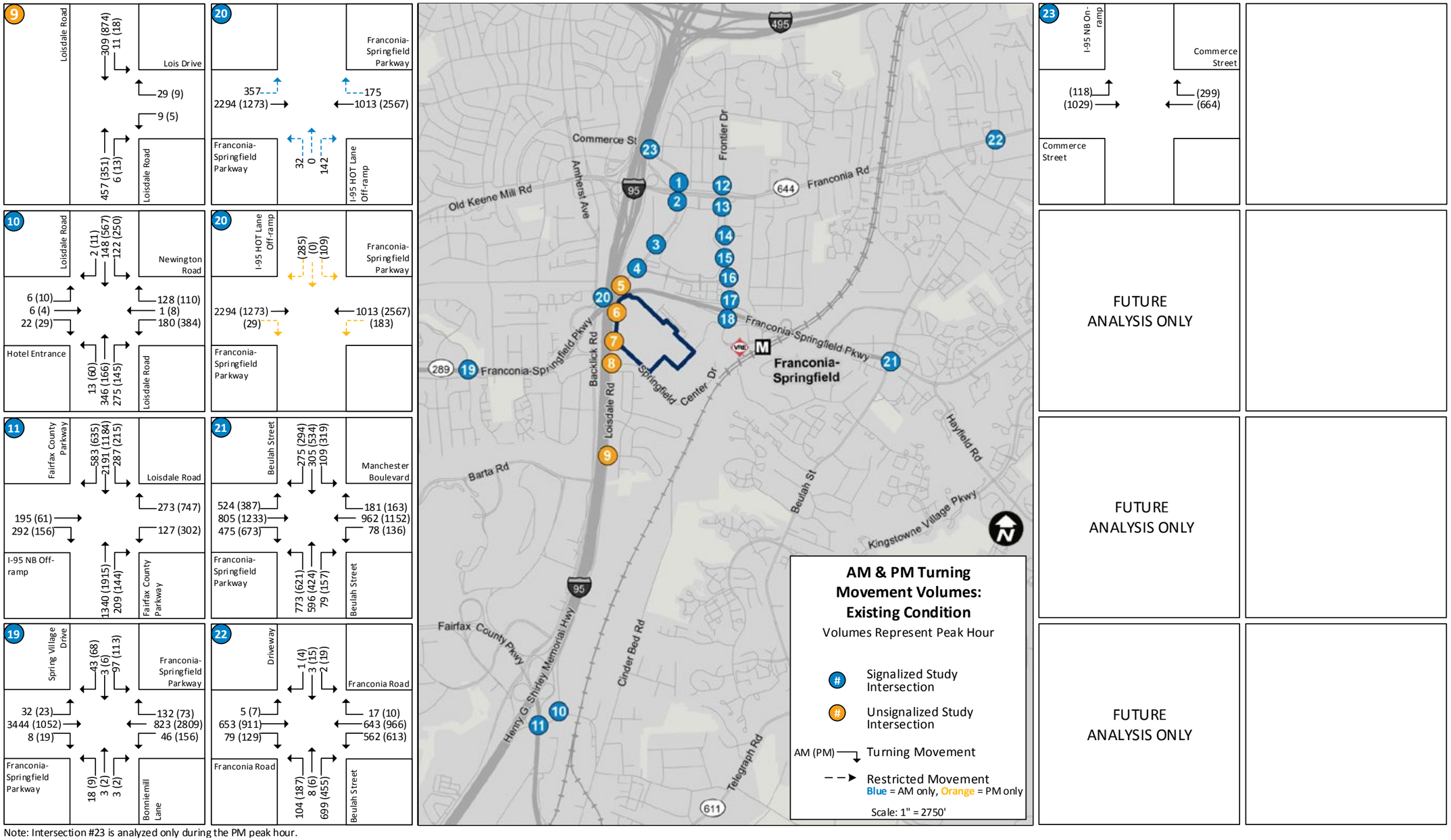
Figure 7-23: Springfield Existing AM and PM Peak Hour Turning Movement Volumes



Note: Intersection #23 is analyzed only during the PM peak hour.

Figure 7-23: Springfield Existing AM and PM Peak Hour Turning Movement Volumes (continued)



Note: Intersection #23 is analyzed only during the PM peak hour.

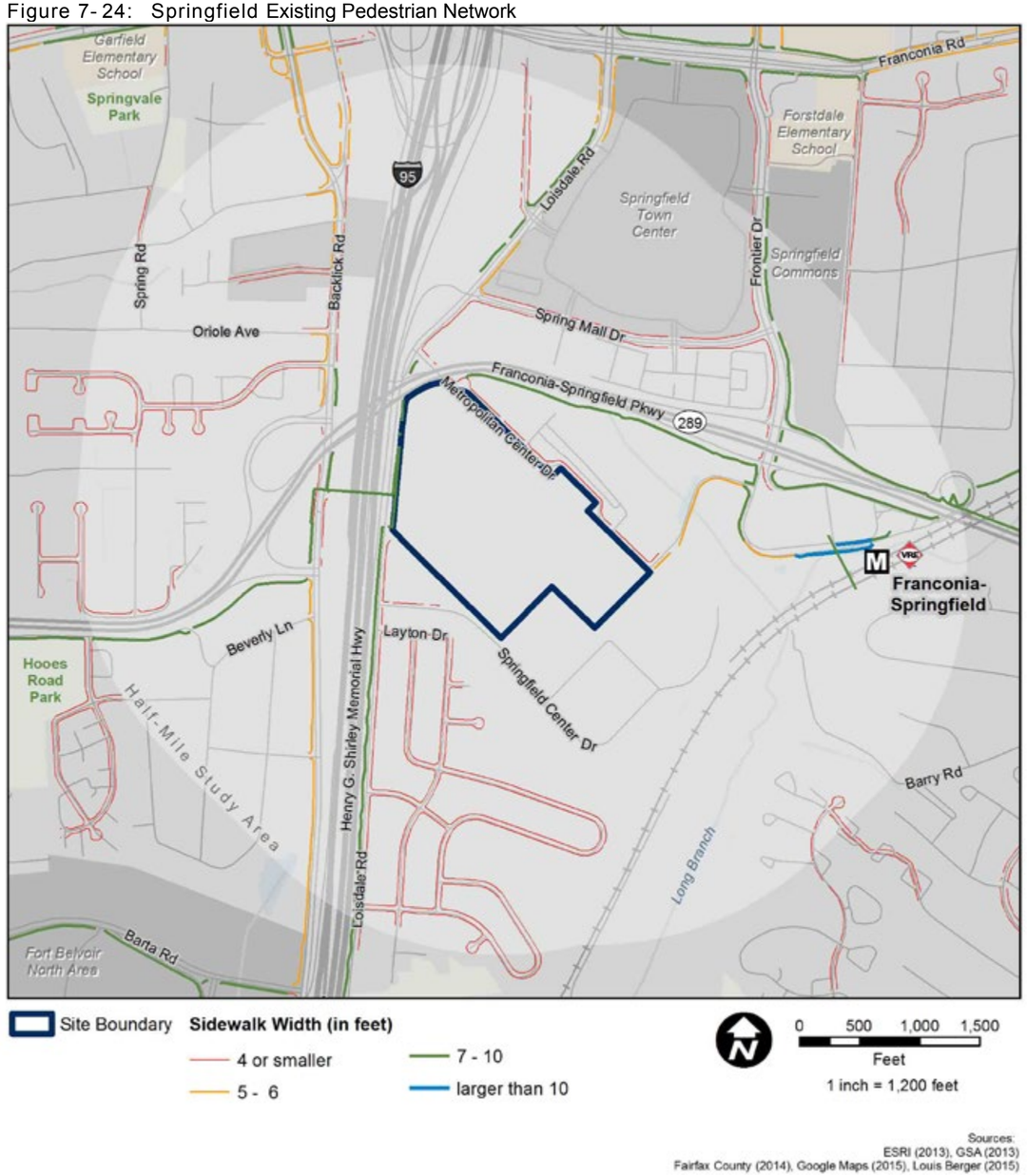
PEDESTRIAN DESIRE PATHS

Pedestrian desire paths are those routes most often used by pedestrians; they are often the most direct path between origin and destination locations.

SPRINGFIELD PEDESTRIAN NETWORK AND ADA COMPLIANCE

- Sidewalk accommodations are provided on most streets in the 0.5-mile radius non-vehicular study area. Within the study area, there are minor issues with width, vegetation overgrowth, and/or accessibility compliance at intersection, but the overall quality of the pedestrian network is adequate.
- Intersections in the study area have a mixed level of accommodations for pedestrians, ranging from adequate (crosswalks, traffic lights, and pedestrian signals) to inadequate (traffic lights with no crosswalks, ramps, or pedestrian signs/signals

Figure 7- 24: Springfield Existing Pedestrian Network



7.1.9.5 Pedestrian Network

Sidewalk accommodations are provided on most streets in the 0.5-mile radius non-vehicular study area. Within this study area, there are minor issues with width, vegetation overgrowth, and/ or accessibility compliance at intersections, but the overall quality of the pedestrian network is adequate. Facilities are considered adequate if sidewalk conditions are in decent condition (only small amounts of overgrowth, cracks, or uneven pavement) and are at least 4-feet wide. Adequate pedestrian facilities at intersections include crosswalks, pedestrian signs/signals, and ramps.

Sidewalk Description and Pedestrian Activity

Sidewalks are provided along a majority of the roads throughout the study area, including Franconia-Springfield Parkway, Loisdale Road, Metropolitan Center Drive, Spring Mall Drive, Frontier Drive, and Backlick Road, as shown in figure 7- 24. There are sections of road along Franconia-Springfield Parkway, Loisdale Road, Backlick Road, and Metropolitan Center Drive that do not have walkways on both sides of the roadway. Intersections in the study area have a mixed level of accommodations for pedestrians, ranging from adequate (crosswalks, traffic lights, and pedestrian signals) to inadequate (traffic lights with no crosswalks, ramps, or pedestrian signs/signals).

The origins and destinations of pedestrian trips in the area are a mix of retail, transportation-oriented, and residential. The Franconia-Springfield Metro Station, a transit hub with Metrorail, commuter rail, and bus service, is located to the east of the Springfield site and sees high numbers of pedestrians throughout the day, particularly during the morning and afternoon peak hours. The Springfield study area contains a variety of residential neighborhoods that produce dispersed pedestrian traffic along roadways and between residential neighborhoods and local retail stores. Similar to the destination points, commonly used walkways around the site include paths used to navigate to public transportation, retail areas, and restaurants. Pedestrian-desire paths are those routes used most often by pedestrians whether there is a sidewalk along the path or not; they are often the most direct path between origin and destination locations. The main pedestrian-desire paths within the area are illustrated with red arrows in figure 7-25. Walkways used frequently by pedestrians to navigate to public transportation include paths on Frontier Drive and the roadways surrounding the Franconia-Springfield Metro Station. Frontier Drive and Elder Avenue are popular pedestrian paths between the retail stores in Springfield Town Center and residential areas. Backlick Road, Amherst Avenue, Franconia Road, and Commerce Street are also popular pedestrian paths between retail locations (Cambridge Systematics Inc. et al. 2008). Additional pedestrian pathways include walkways throughout residential neighborhoods.

As indicated in table 7-11, pedestrians and bicyclists share multi-use pathways for recreational opportunities such as walking, biking, and skating. These pathways also provide a transportation function. The multi-use pathways within the 0.5-mile study area include the Franconia-Springfield Metro Station Access Road, Barry Road Connector, Frontier Drive, Franconia-Springfield Parkway, and Loisdale Road.

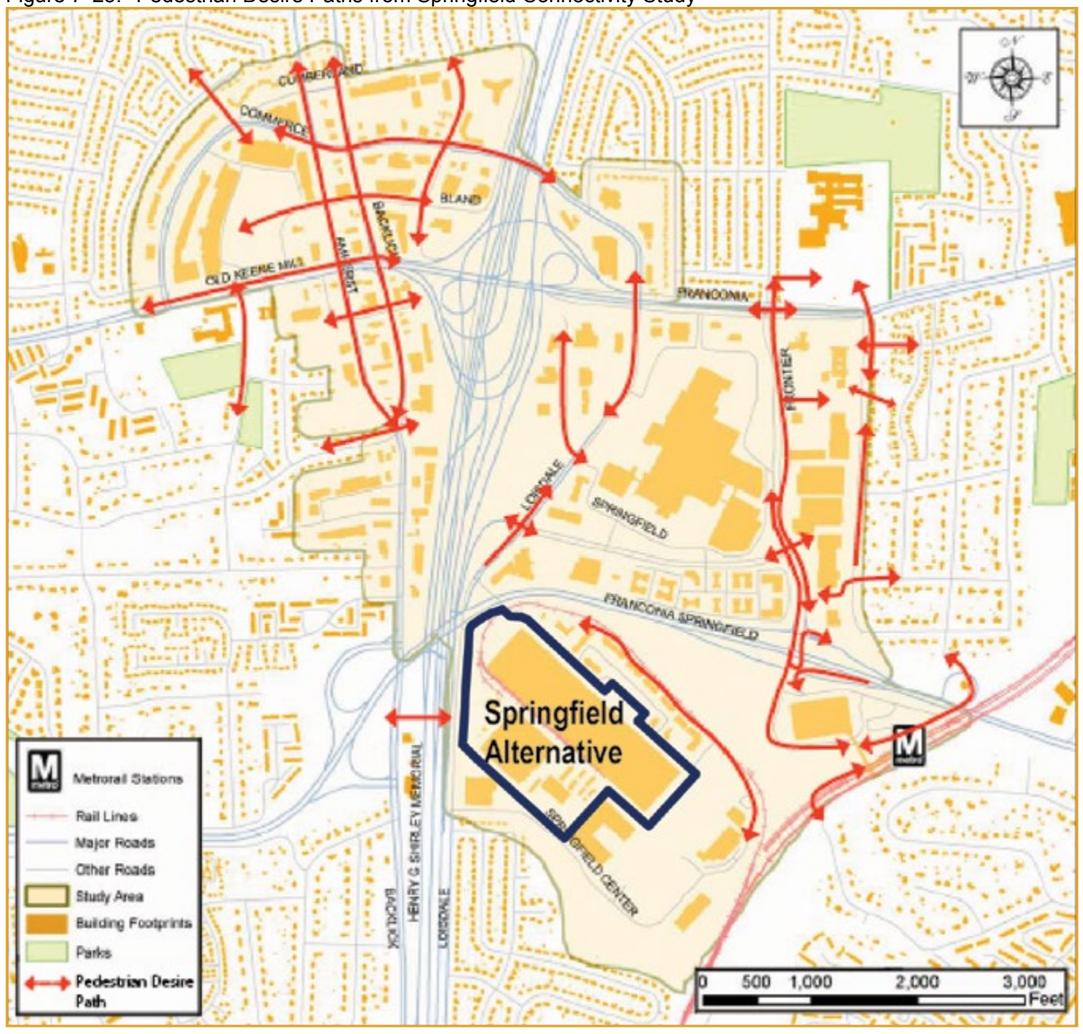
The study area is dominated by vehicle infrastructure, and pedestrian movement is complicated by high vehicle speeds and volumes and wide roadway cross-sections in some locations. The major roads in the study area, such as Franconia-Springfield Parkway and I-95, divide the area and complicate non-motorized transportation.

ADA Compliance

Refer to section 3.10.4.3 for the Americans with Disabilities Act (ADA) compliance guidelines. The majority of intersections in the study area have adequate accommodations, and more than half of the intersection crosswalks in the study area have ADA-compliant ramps. The main intersection between the Springfield site and the Metro Station meets these ADA standards.

The minimum sidewalk width requirement, as determined by the Federal Highway Administration (FHWA), is met within most of the study area; however, residential community sidewalks, including Metropolitan Center Drive and portions of the walkways along Spring Mall Drive, Frontier Drive, and Backlick Road, were observed to be less than 5.0 feet and therefore do not meet FHWA guidelines. Because many of the sidewalks narrower than 5.0 feet wide do not have 5-foot turn-arounds at periodic locations, they also are not ADA compliant.

Figure 7-25: Pedestrian Desire Paths from Springfield Connectivity Study



Source: Cambridge Systematics Inc. et al. (2008)

Table 7-11: Bicycle Facilities in the Springfield Study Area

Name	To/From	Type
Franconia Springfield Metro Station Access Road	From Franconia-Springfield Parkway to Franconia-Springfield Metro Station, with connection to Franconia-Springfield Parkway via underpass	Multi-Use Path
Barry Road Connector	Franconia-Springfield VRE Station to Barry Road	Multi-Use Path
Frontier Drive	From Franconia-Springfield Parkway to south of Franconia Road	Multi-Use Path
Frontier Drive	From Spring Mall Drive to Franconia-Springfield Parkway	Bicycle Lane
Franconia-Springfield Parkway	Full length within study area adjacent to roadway; from Beulah Street east of the station, past the Franconia-Springfield Metro Station, across I-95 via the pedestrian bridge, and west along the parkway to Rolling Road and Fairfax County Parkway	Multi-Use Path
Loisdale Road	Metropolitan Center Drive south to Fairfax County Parkway	Multi-Use Path
Segment north of and parallel to Metropolitan Center Drive[a]	Franconia-Springfield Parkway Trail to Frontier Drive Extension	Multi-use Path

[a] *Although the "segment north of and parallel to Metropolitan Center Drive" is shown as an existing off-road trail in the Fairfax County Bicycle Master Plan, this pathway appears to be very overgrown based on Google aerial imagery from 2015 and may need improvements to be considered a usable mixed-use trail.*
Source: FCDOT (2014); Google maps aerial imagery; site visit LBG (May 2015)

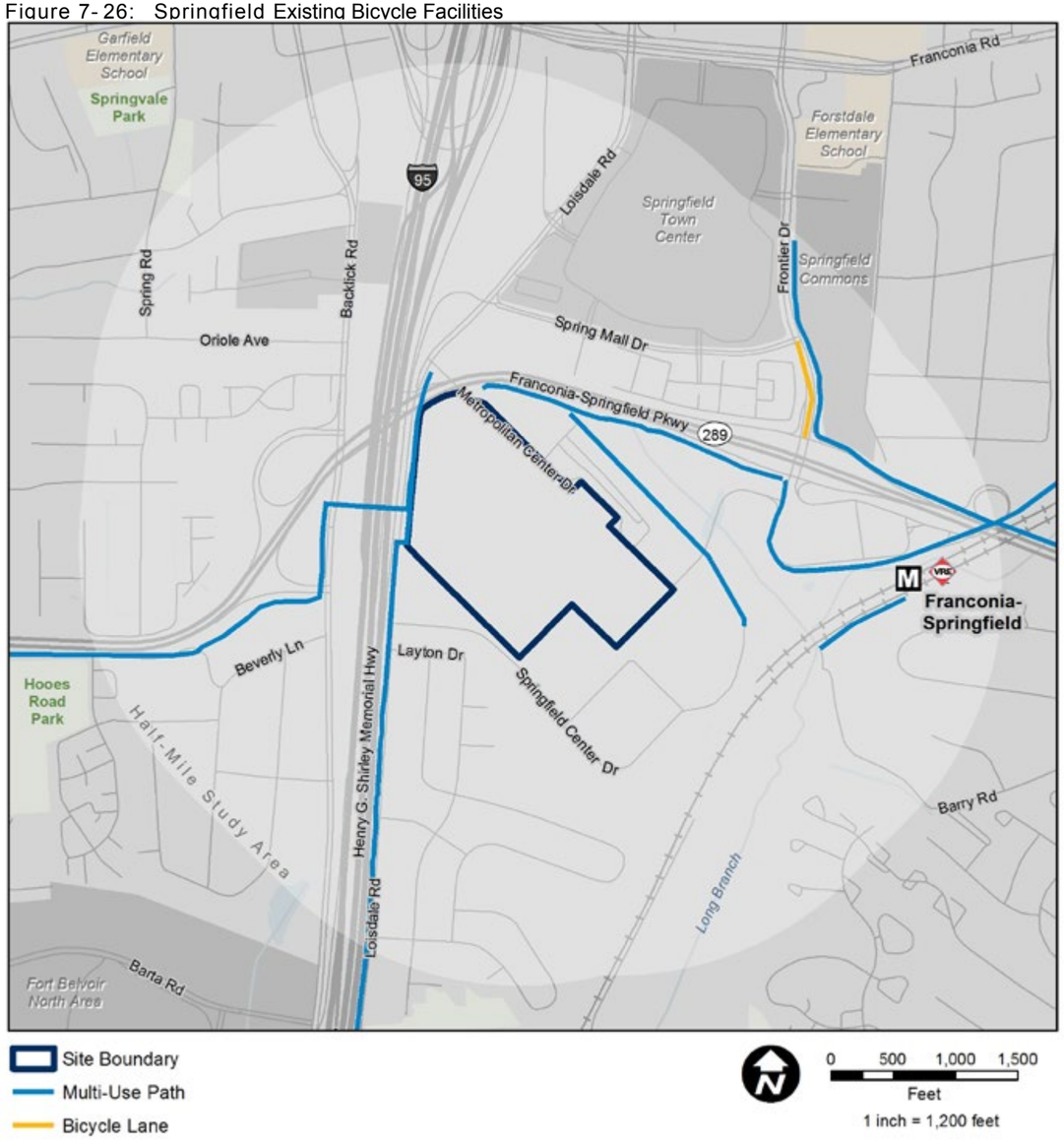
SPRINGFIELD BICYCLE NETWORK

- The only on-road bicycle facilities in the immediate area surrounding the Springfield site are recent bicycle lanes that were added in early 2015 along Frontier Drive between Franconia-Springfield Parkway and Spring Mall Drive.

7.1.9.6 Bicycle Network

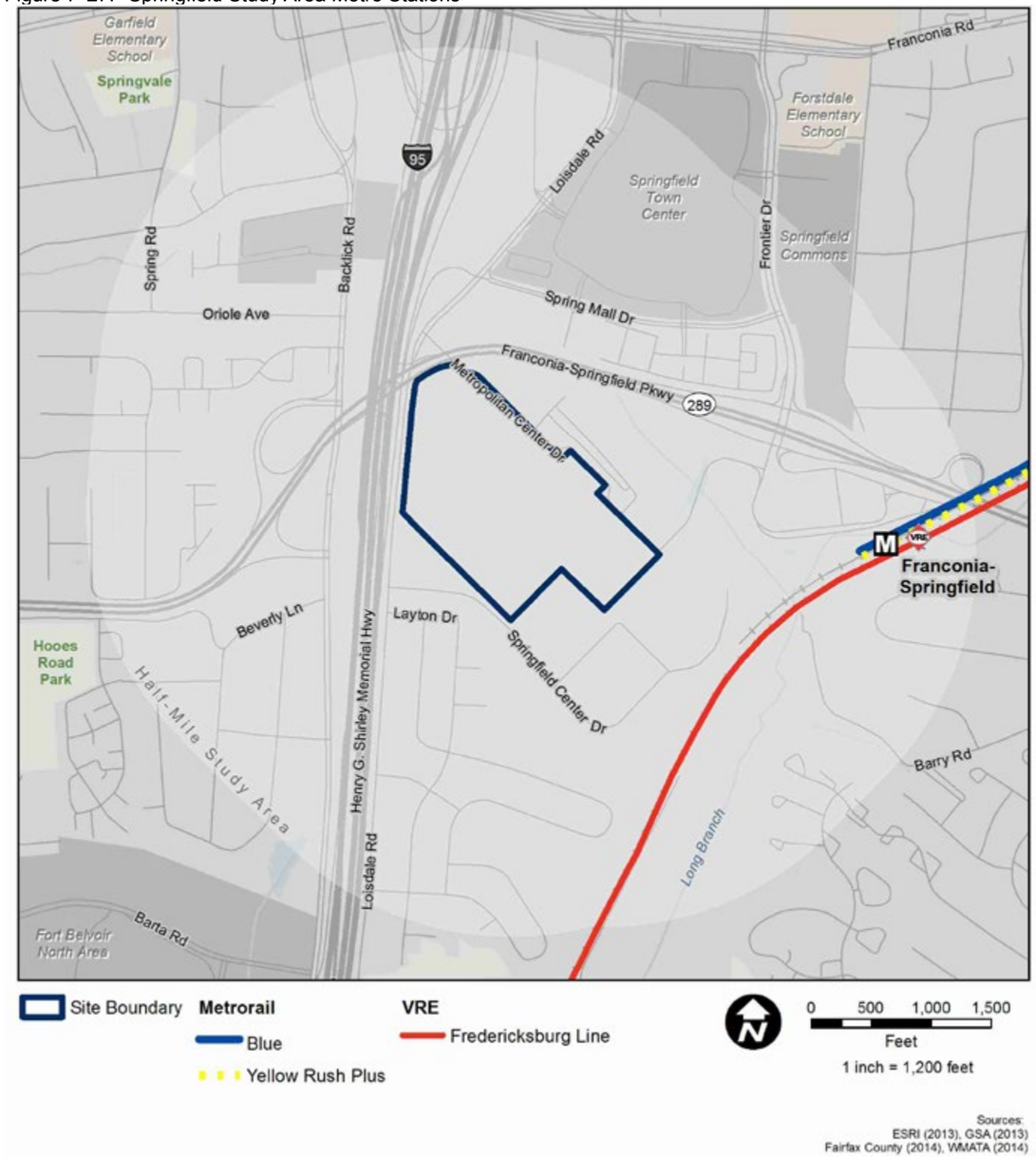
The only on-road bicycle facilities in the immediate area surrounding the Springfield site are recent bicycle lanes that were added in early 2015 along Frontier Drive between Franconia-Springfield Parkway and Spring Mall Drive (Site Visit, May 8, 2015). Additionally, there are several multi-use paths, as well as a few sidewalk accommodations that appear wide enough to be considered a multi-use path (portions of Frontier Drive) within the study area (see table 7-11 and figure 7-26). A multi-use path is present on the northern side of the site, along Franconia-Springfield Parkway. This trail follows the Franconia-Springfield Parkway and crosses I-95 via a pedestrian bridge near the site, then continues west for several miles, before becoming the Fairfax County Parkway Trail. Near this transition, the trail also connects with the Cross County Trail. There are several other multi-use paths in the study area, including one extending south from the site along Loisdale Road, paths around the Franconia-Springfield Metro Station and along the Franconia-Springfield Metro Station Access Road, a path that connects the Metrorail station to Barry Road through the VRE station, and a multi-use path or wide sidewalk along the eastern side of Frontier Road north of Spring Mall Drive. The Fairfax County Bicycle Master Plan also shows a segment north of and parallel to Metropolitan Center Drive as an existing off-road trail; however, this pathway appears to be very overgrown based on Google aerial imagery from 2015 and may need improvements to be considered a usable mixed-use trail (Fairfax County 2014c; Google maps 2015).There is no bikeshare service within the study area.

Figure 7-26: Springfield Existing Bicycle Facilities



Sources:
ESRI (2013), GSA (2013)
Fairfax County (2014), Google Maps (2015), Louis Berger (2014)

Figure 7-27: Springfield Study Area Metro Stations



7.1.9.7 Public Transit

This section describes the existing conditions of Metrorail, commuter rail, local and intercity bus, shuttles, ridesharing (slugging), and carsharing within the Springfield study area. The main transit hub in the study area is the Franconia-Springfield Metro Station, about 0.5 mile from the Springfield site, which collectively consists of the Metrorail station and parking garage, the Springfield VRE Station, and the bus stops at the Metrorail station served by various providers.

Franconia-Springfield Metro Station

The Springfield site is located adjacent to the Franconia-Springfield Metro Station (figure 7-27). The WMATA Metrorail Blue line serves this station during all operating hours (see table 7-12), and the Yellow line serves the station during peak periods.

Franconia-Springfield Station Frequency of Service

Franconia-Springfield Metro Station is served by the Blue line during all operating hours, and by the Yellow line during portions of the AM and PM peak periods (6:30 AM to 9:00 AM and 3:30 PM to 6:00 PM) under what WMATA calls “Rush Plus” service. During weekday peak periods, a Blue line and Yellow line train are scheduled to serve Franconia-Springfield Metro Station every 12 minutes, making the effective wait time between trains only 6 minutes if trains are on-time because a total of 10 trains are scheduled to serve the station every hour (five Blue and five Yellow). During weekday midday and evening hours, a Blue line train is scheduled to service the station every 12 minutes. After 9:30 PM, trains are scheduled to service Franconia-Springfield every 20 minutes. On weekends, trains are scheduled to service the station every 12 to 20 minutes. Table 7-12 summarizes Metrorail frequency and span of service at the station.

Franconia-Springfield Metro Station Ridership

Average weekday ridership for the Franconia-Springfield Metro Station was obtained for October 2014 (WMATA 2014m). During this period, the station saw 7,566 entries (boardings) and 7,801 exits (alightings) on average.

The majority of entries into the Franconia-Springfield Metro Station occur between 6:00 AM and 9:00 AM. The peak hour for entries is between 7:00 AM and 8:00 AM, when 1,755 passengers enter the station. The number of entries decreases throughout the day, but increases again slightly between 3:00 PM and 6:00 PM with an afternoon peak of 285 entries between 5:00 PM and 6:00 PM. The high number of entrances in the morning compared to the low number in the afternoon shows that many riders who enter at the Franconia-Springfield Metro Station use the Metrorail system to commute to Arlington, Virginia, Washington, D.C., or points beyond.

The majority of exits from the station occur between 4:00 PM and 6:00 PM. The peak hour for exits is between 5:00 PM and 6:00 PM, when 1,616 passengers exit the station. The number of exits averages between 100 and 200 before 1:00 PM, and then slowly begins to increase into the afternoon, before dropping off again after 6:00 PM. Figure 7-28 and table 7-13 summarize entries and exits by hour at the Metrorail station.

Franconia-Springfield Metro Station Capacity Analysis

A capacity analysis was conducted for the vertical elements at the Metrorail station as well as the station's faregates and fare vending machines. The analysis used the peak 15-minute period of ridership at the station according to October 2014 faregate data provided by WMATA (2014). (March or October data are commonly used by transit agencies for analysis because these months are considered stable months that are less affected by tourism, weather, and holidays than other months.) At the Franconia-Springfield Metro Station, the peak 15-minute period of total ridership activity (entries and exits) was between 5:00 PM and 5:15 PM.

At the station, there are three sets of vertical elements, those between the Metrorail platform and the mezzanine, those between the mezzanine and the street level (the bus loop and the Kiss & Ride lot), and those between the mezzanine and the Springfield VRE Station platforms. Only vertical elements between the mezzanine and Metrorail platform were analyzed, however, because the Metrorail station has higher ridership. None of the vertical elements, faregate aisles, or fare vending machines are above capacity, defined as a volume-to-capacity (v/c) ratio of 0.7. Additionally, there is sufficient capacity to accommodate the peak number of passengers on the station platform simultaneously at pedestrian Level of Service (LOS) B. The Springfield Transportation Impact Assessment (TIA) (Appendix E) contains additional details the Franconia-Springfield Metro Station capacity analysis.

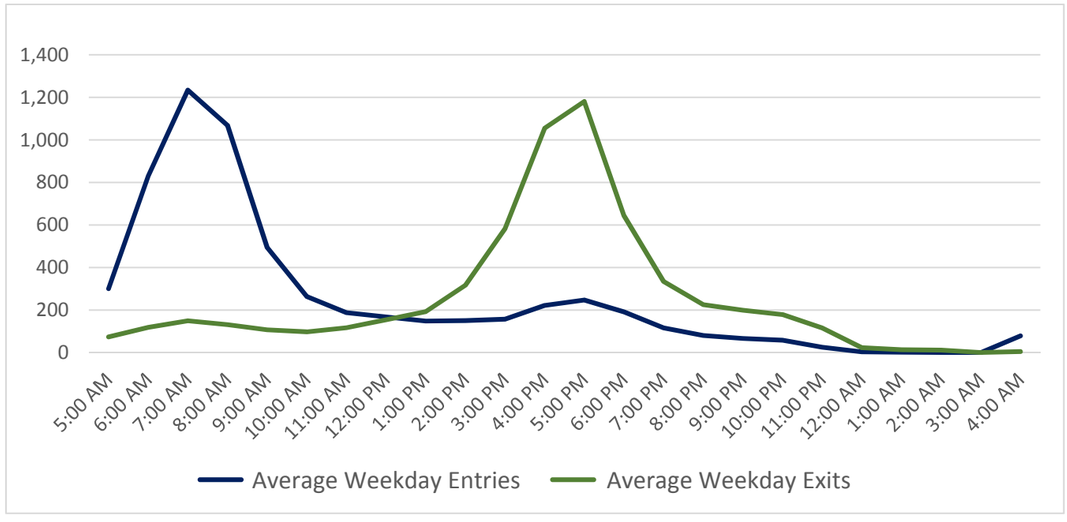
The Springfield TIA (Appendix E) contains the Franconia-Springfield Metro Station mode of access, station infrastructure, bus loop, peak 15-minute ridership by station entrance, Metrorail origin-destination data, and emergency evacuation information.

Table 7-12: Metrorail Frequency of Service at Franconia-Springfield Metro Station

Day	Period	Span of Service	Headway (Minutes)		
			Blue	Yellow Rush +	Effective Headway
Weekday	Peak	5:00 AM to 9:30 AM/ 3:00 PM to 7:00 PM	12	12	6
	Midday	9:30 AM to 3:00 PM	12	-	-
	Evening	7:00 PM to 9:30 PM	12	-	-
	Late Night	9:30 PM to 12:00 AM[a]	20	-	-
Saturday	Daytime	7:00 AM to 9:30 PM	12	-	-
	Late Night	9:30 PM to 3:00 AM	20	-	-
Sunday	Daytime	7:00 AM to 9:30 PM	15	-	-
	Late Night	9:30 PM to 12:00 AM	20	-	-

[a] *Service is extended to 3:00 AM on Fridays.*
Note: Effective headways are calculated by dividing an hour (60 minutes) by the total number of trains that are scheduled to serve the station during an hour (12-minute headways = 5 trains/hour, 5+5 = 10 trains/hour and 60 ÷ 10 = 6-minute headways).
Source: WMATA (2014b)

Figure 7-28: Average Weekday Entries and Exits by Hour at the Franconia-Springfield Metro Station



Source: WMATA 2014m

Table 7-13: Average Weekday Entries and Exits by Hour at the Franconia-Springfield Metro Station

Hour	Average Weekday Entries	Average Weekday Exits
5 AM	400	121
6 AM	1,106	156
7 AM	1,755	177
8 AM	1,308	136
9 AM	566	104
10 AM	338	108
11 AM	240	146
12 PM	219	208
1 PM	190	265
2 PM	154	418
3 PM	181	793
4 PM	242	1,424
5 PM	285	1,616
6 PM	172	826
7 PM	104	463
8 PM	66	281
9 PM	71	229
10 PM	51	177
11 PM	13	103
12 AM	3	20
1 AM	1	11
2 AM	1	8
3 AM	0	0
4 AM	101	12
Total	7,566	7,801

Source: WMATA (2014m)

AVERAGE WEEKDAY ENTRIES

At the Franconia-Springfield Metro Station, weekday entries peak between 7:00 AM and 8:00 AM. Weekday exits peak between 5:00 PM and 6:00 PM.

Table 7-14: FY2014 Ridership at Springfield VRE Station

Direction	On (Boarding	Off (Alighting)
Inbound (Northbound)	769	1,825
Outbound (Southbound)	1,730	1,012
Total	2,500	2,837

Source: VRE (2014)

Table 7-15: VRE Trips that Experience Overcrowding, 2015

Line	Northbound Trips	Southbound Trips
Fredericksburg	-	3:35 PM, 4:10 PM, 4:40 PM
Manassas	-	3:45 PM

Source: VRE (2015a)

Commuter Rail

The VRE Fredericksburg line serves the study area at Springfield VRE Station, which is adjacent to the Franconia-Springfield Metro Station as shown in figure 7-27. The Fredericksburg line connects major destinations, including Fredericksburg, Virginia; Alexandria, Virginia; and Crystal City (Arlington, Virginia) to Washington, D.C., at L'Enfant Plaza Station and Union Station. The station is located at ground level directly south of the Metrorail station platform and is accessible via an escalator, staircase, and elevator from the Metrorail mezzanine. There are cash sale vendors located at the station, as well as three ticket vending machines. The station has two platforms (northbound and southbound) that are connected via a pedestrian overpass. There is also a pedestrian walkway that connects the northbound platform to Barry Road and a large residential neighborhood in Springfield (VRE 2015a).

Six trips on the Fredericksburg line serve Springfield VRE Station in the northbound direction (Fredericksburg, Virginia, to Washington, D.C.) during weekday AM peak periods (between 6:11 AM and 8:35 AM). In the southbound direction, seven trips serve the station between 1:25 PM and 7:11 PM (VRE 2015b). No weekend or major holiday service is provided.

Ridership to and from the Springfield VRE Station was available for FY 2014 (VRE 2014). Overall, there were more outbound (southbound) boardings than inbound (northbound) boardings, and more inbound alightings than outbound alightings (alightings are represented in the "Off" column in table 7-14). This trend is likely due to Metrorail providing parallel service on the Blue and Yellow lines between the station and points north, so many users ride VRE from points south to Springfield, then board Metrorail at the Franconia-Springfield Metro Station for points north. Table 7-14 summarizes average weekday boardings and alightings at the Springfield VRE Station for FY 2014.

According to the updated FY 2015 VRE Performance Measures (VRE 2015c), three Fredericksburg line trips and one Manassas line trip averaged passenger loads that exceeded capacity. Additionally, the 3:45 PM and 5:05 PM Manassas line southbound trips exceeded capacity during midweek peak periods (Tuesdays through Thursdays). Table 7-15 summarizes VRE trips that experience overcrowding.

Bus: Local

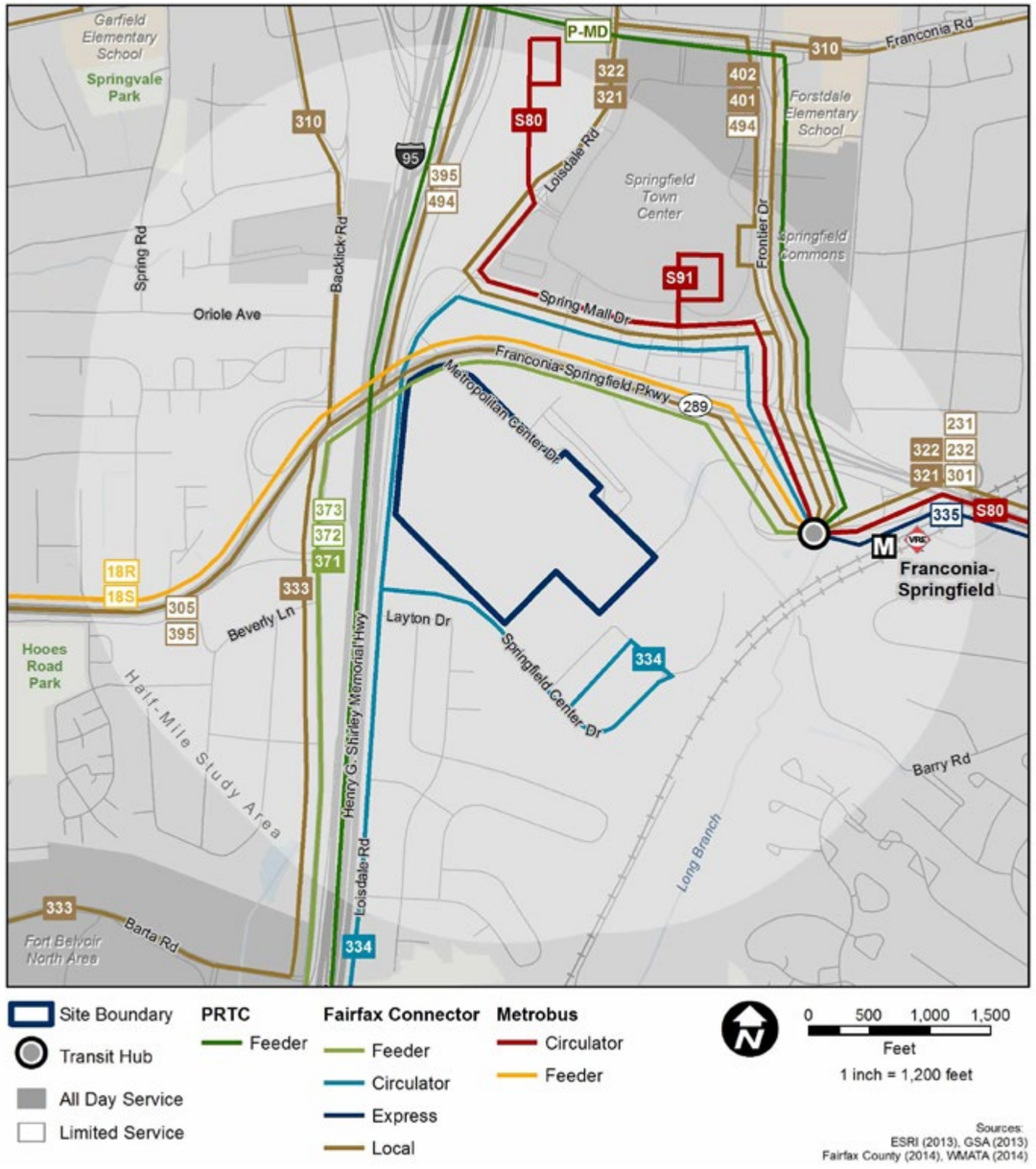
The Springfield non-vehicular site study area, an area extending 0.5 mile from the site boundary, is served by WMATA Metrobus, the Potomac and Rappahannock Transportation Commission (PRTC), and Fairfax Connector (FXC) bus routes. All routes connect the Franconia-Springfield Metro Station with various parts of Fairfax County, including Burke, Tysons Corner, and Lorton. The PRTC Prince William Metro Direct (P-MD) route is the only local bus service that travels outside Fairfax County; this route serves the Woodbridge and Dale City portions of Prince William County. The Springfield site does not provide bus service to Maryland or Washington, D.C. Table 7-16 and figure 7-29 summarize the major characteristics of bus routes serving the Springfield study area; all of the bus routes in this table and figure serve the Franconia-Springfield Metro Station.

Table 7-16: Major Service Characteristics of Bus Routes Serving the Springfield Study Area

Route	Agency	Description	Route Type	Major Destinations
18R	WMATA	Burke Central Line	Feeder	Rolling Valley Mall, Gambrill Road, Franconia-Springfield Metro Station
18S	WMATA	Burke Central Line	Feeder	Rolling Valley Mall, Old Knee Mill Road, Franconia-Springfield Metro
S80	WMATA	Springfield Circulator	Circulator	Franconia-Springfield Metro Station, Springfield Town Center, Hilton Springfield
S91	WMATA	Springfield Circulator	Circulator	Franconia-Springfield Metro Station, Springfield Town Center, Hilton Springfield
P-MD	PRTC	Prince William Metro Direct	Feeder	PRTC Transit Center, Potomac Mills, Horner Road Commuter Lot, Franconia-Springfield Metro Station
231	FXC	Kingstowne Counter - Clockwise	Local	Franconia-Springfield Metro Station, Van Dorn Street Metro Station
232	FXC	Kingstowne Clockwise	Local	Franconia-Springfield Metro Station, Van Dorn Street Metro Station
301	FXC	Telegraph Road	Local	Franconia-Springfield Metro Station, Huntington Metro Station
305	FXC	Newington Forest - Silverbrook Road	Local	Lorton VRE Station, Gambrill Park and Ride, Franconia-Springfield Metro Station
310	FXC	Franconia Road - Rolling Valley	Local	Rolling Valley Park and Ride, Franconia-Springfield Metro Station, Huntington Metro Station
321	FXC	Springfield Counter - Clockwise	Local	Franconia-Springfield Metro Station, Van Dorn Street Metro Station
322	FXC	Springfield Clockwise	Local	Franconia-Springfield Metro Station, Van Dorn Street Metro Station
333	FXC	Patriot Ridge - Saratoga	Local	Saratoga Park and Ride, Franconia-Springfield Metro Station
334	FXC	DLA Circulator	Circulator	Franconia-Springfield Metro Station, Northern Virginia Community College Medical College, Defense Logistics Agency
335	FXC	Fort Belvoir "Eagle Express"	Express	Franconia-Springfield Metro Station, Middleton Road Post Office
371	FXC	Lorton - Franconia-Springfield Metrorail	Feeder	Lorton Park and Ride, VRE Lorton Station, Franconia-Springfield Metro Station
372	FXC	Lorton - Franconia-Springfield Metrorail	Feeder	Lorton Park and Ride, VRE Lorton Station, Franconia-Springfield Metro Station
373	FXC	Lorton - Franconia-Springfield Metrorail	Feeder	Lorton Park and Ride, VRE Lorton Station, Franconia-Springfield Metro Station
401	FXC	Backlick - Gallows Northbound	Local	Franconia-Springfield Metro Station, Springfield Town Center, Inova Fairfax Hospital, Dunn Loring Metro Station, Tysons Corner Metro Station
402	FXC	Backlick - Gallows Southbound	Local	Tysons Corner Metro Station, Dunn Loring Metro Station, Inova Fairfax Hospital, Springfield Town Center, Franconia-Springfield Metro Station
494	FXC	Springfield - Tysons	Express	Franconia-Springfield Metro Station, Tysons West Park Transit Center

Source: Fairfax County (2015k); WMATA (2014n); PRTC (2015)

Figure 7-29: Bus Routes Serving the Springfield Study Area



Bus Frequency of Service

The majority of routes serving the site are commuter-oriented routes that operate primarily during the AM and PM peak periods. The PRTC P-MD and FXC Routes 401 and 402 are the only routes that operate before 6:00 AM and after 11:00 PM. WMATA Routes S80 and S91 and FXC Routes 401 and 402 are the only routes that operate regularly from 6:00 AM until 11:00 PM. These routes also have the most frequent service. The FXC routes operate primarily during the AM and PM peak periods. During peak periods, the FXC routes generally operate with 30 to 45 minute headways. Routes 301, 305, 335, 372, 373, and 494 do not operate after 7:00 PM. Table 7-17 summarizes headways and spans of service on routes that serve the Springfield site.

WMATA routes S80 and S91 are Transportation Association of Greater Springfield (TAGS) routes. TAGS is a non-profit organization dedicated to achieving improvements to the Springfield transportation system. TAGS routes are operated by WMATA and offer a low-cost shuttle service through Springfield's business district. TAGS offers free service between the Franconia-Springfield Metro Station and Metro Park and a $0.50 fare to other destinations (TAGS 2014).

Service changes to FXC routes were implemented on May 16, 2015, in response to rider feedback and to improve on-time performance, enhance connectivity between routes and Metrorail, and expand connections in the I-95 and I-395 corridors (Fairfax County 2015i). Schedule adjustments were made to Routes 401 and 402, and Route 493 was extended to the Lorton VRE Station and the Saratoga Park & Ride.

Ridership by Route

Average weekday ridership on routes that serve the study area are summarized in table 7-18. Overall, FXC Routes 401, 402, and 310 have the highest ridership, each with more than 1,500 average weekday boardings. Routes 401 and 402 connect Springfield with Merrifield and Tysons Corner, while Route 310 connects Springfield with Huntington. For WMATA, the highest ridership is on Route S80, with just more than 500 average weekday boardings.

Ridership by route and direction and stop level ridership can be found in the Springfield TIA (Appendix E).

Bus: Intercity

Currently, Greyhound Express commuter bus service serves the Franconia-Springfield Metro Station at the street-level bus loop. From this location, passengers can board buses that travel the I-95 corridor in both directions (i.e., southbound toward Richmond, Virginia, and northbound towards Washington, D.C.; Baltimore, Maryland; Philadelphia, Pennsylvania; and New York, New York). Service is provided seven days per week.

Bus: Commuter

There are no bus routes serving the Springfield study area that operate with commuter bus characteristics. The PRTC P-MD route, while called a commuter bus route on the agency's website, is more like a local feeder bus in nature because it operates continuously all day and on Saturdays, unlike commuter buses that typically only run during the peak-hour and peak direction only. For more details on the PRTC P-MD route, see sections 3.4.3 and 3.4.3.1.

Table 7-17: Frequency of Service on Bus Routes Serving the Springfield Study Area

Route & Direction	Agency	Weekday								Saturday		Sunday	
		Headways (minutes)						Number of Trips	Span of Service	Headway (Minutes)	Span of Service	Headway (Minutes)	Span of Service
		4 AM - 6 AM	6 AM - 9 AM	9 AM - 3 PM	3 PM - 7 PM	7 PM - 11 PM	11 PM - 4 AM						
18R East	**WMATA**	**-**	**45**	**-**	**-**	**-**	**-**	**4**	**6:13 AM to 8:31 AM**	**-**	**-**	**-**	**-**
18R West	WMATA	-	-	-	40	2 trips	-	7	3:45 PM to 7:44 PM	-	-	-	-
18S East	WMATA	-	45	-	-	-	-	4	6:02 AM to 8:37 AM	-	-	-	-
18S West	WMATA	-	-	-	40	80	-	9	4:07 PM to 8:53 PM	-	-	-	-
S80	WMATA	-	14	16	15	2 trips	-	53	6:02 AM to 7:31 PM	-	-	-	-
S91	WMATA	-	22.5	180	30	2 trips		20	7:12 AM to 7:48 PM	-	-	-	-
P-MD	PRTC	2 trips	45	51	40	48	1 trip	10	5:10 AM to 11:23 PM	60	7:35 AM to 11:05 PM	-	-
231	FXC	-	30	-	-	60	-	22	4:50 AM to 10:14 PM	-	-	-	-
232	FXC	-	30	-	-	60	-	24	4:39 AM to 10:28 PM	-	-	-	-
301	FXC	-	30	-	-	-	-	26	5:40 AM to 8:20 PM	-	-	-	-
305	FXC	-	30	-	-	-	-	34	5:00 AM to 9:43 PM	-	-	-	-
310	FXC	-	25	-	30	60	-	88	4:22 AM to 1:08 AM	60	5:54 AM to 12:54 AM	60	5:54 AM to -11:54 AM
321	FXC	-	30	-	60	60	-	30	4:02 AM to 10:55 PM	60	6:33 AM to 11:17 PM	60	6:33 AM to 11:17 PM
334	FXC	-	25	-	45	45	-	32	5:23 AM to 11:15 PM	-	-	-	-
335	FXC	-	30	-	-	-	-	14	6:15 AM to 6:59 PM	-	-	-	-
371	FXC	-	-	-	30	60	-	39	4:02 AM to 1:15 AM	40	5:26 AM to 1:49 AM	50	5:26 AM to 12:50 AM
372	FXC	-	30	-	-	-	-	28	6:01 AM to 8:40 PM	-	-	-	-
373	FXC	-	30	-	-	-	-	29	5:38 AM to 7:58 PM	-	-	-	-
401	FXC	-	20	-	30	30	-	58	3:25 AM to 2:27 AM	30	4:40 AM to 12:46 AM	30	4:40 AM to 12:46 AM
402	FXC	-	20	-	30	30	-	62	4:06 AM to 2:27 AM	30	5:30 AM to 1:42 AM	30	5:30 AM to 1:42 AM
494	FXC	-	16	-	2 trips	-	-	27	5:22 AM to 7:30 PM	-	-	-	-

Source: Fairfax County (2015k); WMATA (2014n); PRTC (2015)

Table 7-18: Average Weekday Ridership by Bus Route Serving the Springfield Study Area

Route	Agency	Description	Average Weekday Boardings
401	FXC	Backlick - Gallows Northbound	2,683
310	FXC	Franconia Road - Rolling Valley	1,650
402	FXC	Backlick - Gallows Southbound	1,572
321	FXC	Springfield Counter-clockwise	826
371	FXC	Lorton - Franconia-Springfield Metrorail	772
322	FXC	Springfield Clockwise	694
S80	WMATA	Springfield Circulator	510
333	FXC	Patriot Ridge - Saratoga	241
232	FXC	Kingstowne Clockwise	228
231	FXC	Kingstowne Counter-clockwise	212
301	FXC	Telegraph Road	206
305	FXC	Newington Forest - Silverbrook Road	192
335	FXC	Fort Belvoir "Eagle Express"	188
334	FXC	DLA Circulator	141
S91	WMATA	Springfield Circulator	107
18S	WMATA	Burke Central Line	105
373	FXC	Lorton - Franconia-Springfield Metrorail	88
372	FXC	Lorton - Franconia-Springfield Metrorail	81
18R	WMATA	Burke Central Line	75
494	FXC	Springfield - Tysons	9
PW-MD	PRTC	Prince William Metro Direct	N/A

Note: Ridership data unavailable for PRTC.
Source: WMATA 2014o, Fairfax County 2015b.

SPRINGFIELD PARKING

- Parking near the Springfield site includes restricted and non-restricted surface lots, structured parking garages, and on-street parking. On-street parking, as noted below, is limited to parallel parking in the study are and includes permit-only on-street parking and non-restricted on-street parking.
- Within 0.5 mile of the Springfield site, there are a variety of restricted and non-restricted surface lots, including a permit only surface parking available at Springfield Crossing and a Park & Ride facility, respectively

Shuttles

Currently, the Department of Defense (DOD) operates an employee shuttle between the Franconia-Springfield Metro Station and the Mark Center, a DOD facility in Alexandria, Virginia. The shuttle operates during peak periods only with a 15-minute headway. The shuttle is only available to employees or contractors with a Common Access Card (Department of Defense 2012). Additionally, at least one nearby residential community, Springfield Crossing Apartment Complex, currently offers a shuttle to/from the Franconia-Springfield Metro Station (Kettler or Springfield Crossing n.d.).

Ridesharing (Slugging)

According to slug-lines.com (2014), there are existing "slug lines" in proximity to the study area. Slugging is a casual unplanned carpool system where drivers pick up riders at parking lots on their way to a shared destination, allowing all users to take advantage of the time savings afforded by using high-occupancy vehicle (HOV) or HOT lanes. The closest lines operate along I-395 with designated pick-up areas in Fairfax County and Prince William County and drop-off locations in downtown Washington, D.C.

Carsharing

Previously, Zipcar was the only carshare servicing the Springfield site, with one vehicle parked in the commuter garage at the Franconia-Springfield Metro Station (Zipcar 2015). Beginning on June 1, 2015, WMATA began a new partnership with Enterprise CarShare and ended its partnership with Zipcar (WMATA 2015b). Enterprise currently has two vehicles available at the Franconia-Springfield Metro Station (Enterprise CareShare 2015).

7.1.9.8 Parking

Parking near the Springfield site includes restricted and non-restricted surface lots, structured parking garages, and on-street parking, as shown in figure 7-30. On-street parking is limited to parallel parking in the study area and includes permit-only on-street parking and non-restricted on-street parking. Information about parking in the study area was gathered through the use of Google Maps that consisted of images from fall 2014 and on-site observations from a May 8, 2015, site visit.

Within 0.5 mile of the Springfield site, there are a variety of restricted surface lots. A facility immediately adjacent and southwest of the site, on the corner of Springfield Center Drive and Loisdale Road, has approximately 135 parking spots restricted to the tenants of the facility, including DaVinci Virtual Office Solutions, Blair Inc., (GIS analysis using Google street maps, March and April 2014). About 0.25-mile north of the Springfield site, there are several thousand spots of restricted surface parking at the Springfield Town Center, intended for those who shop at the Springfield Town Center and adjacent retail buildings. South of the Springfield Town Center are the Residences at Springfield Station apartments. This apartment complex is a gated community that provides several hundred parking spots to its residents, but there is no public access. Directly to the northeast and bordering the Springfield site, permit-only surface parking is available at the Springfield Crossing Apartment Complex, high-rise and garden-style apartments. Adjacent to Springfield Crossing is the Extended Stay America hotel. The hotel has approximately 110 parking spots, with no visual parking restrictions; however, it is assumed that parking is intended for those using the hotel. Immediately beside the southeastern portion of the Springfield site is the Northern Virginia Community College. The college has a parking garage that has several hundred parking spots reserved for students of the community college and their visitors. Parking adjacent to the other businesses to the southeast of the site is restricted to tenants and visitors of the building only based on posted signs.

Directly to the west of the Springfield site, there is a Park & Ride facility, a non-restricted parking lot where drivers can leave their cars and transfer to local public transportation. The Park & Ride facility, called Backlick North and located at 6831 Backlick Road, has approximately 265 available parking spots open to the public (Commuter Connections 2015). The lot is located on the west side of I-95 but has a pedestrian bridge to connect it to the east side of I-95 where the Springfield site and the Franconia-Springfield Metro Station are located. Also due west of the Springfield site and across I-95 via the pedestrian bridge, the Springfield Masonic Lodge off of Backlick Road has approximately 80 parking spots on its lot. However, the spots are restricted for those intending to use the Masonic Lodge. Although there are several public Park & Ride lots northwest of the site, parking west of I-95 and north of Franconia-Springfield Parkway was not analyzed due to the walking distance and general inaccessibility for pedestrians; it is unlikely that FBI employees would walk to the Springfield site from that area.

A variety of structured parking is available within the vicinity of the Springfield site. There are several parking garages in the Springfield Town Center that are located about 0.5 mile away from the Springfield site; however, these garages are typically restricted for use by the customers of the surrounding malls. One of the Springfield Town Center's parking garages, the Macy's parking garage located at 6717 Frontier Drive, has 500 free parking spaces open to commuters (Commuter Connections 2015). There is also a WMATA parking garage for the Metrorail and Metrobus users directly to the east of the Springfield site, located at 6880 Frontier Drive at Franconia-Springfield Parkway. The WMATA parking garage is approximately 0.5 mile from the site and has 5,069 available spots according to WMATA's website (WMATA 2015d). The Springfield Connectivity Study from 2008 includes a table of Park & Ride lots in the general study area with the average percent filled (Cambridge Systematics Inc. et al. 2008). According to that study, all of the area Park & Ride lots except for the Springfield Town Center spaces were more than 90 percent full on average, with some averaging 100 percent full.

In addition to the surface lots and structured parking garages, on-street parking is present in the study area on residential streets. Loisdale Estates is approximately 0.3 mile south of the Springfield site and does not have restricted parking. East of the railroad tracks, Barry Road street parking is restricted to permitted vehicles only during the day, Monday through Friday. Some residential streets immediately east of the railroad tracks and west of I-95 (Wesley Road and Oriole Avenue) do not have parking restrictions and are narrow; however, the grass and/or gravel areas alongside the roads are used for private, residential parking.

7.1.9.9 Truck Access

Trucks accessing the Springfield site currently use both the north and south vehicular entrances to/from Loisdale Road. Trucks access the site primarily during business hours, Monday through Friday, 8:00 AM to 6:00 PM. Based on correspondence with GSA staff, there do not appear to be pronounced peak truck access times (Absher 2015).

Figure 7-30: Parking in the Springfield Study Area

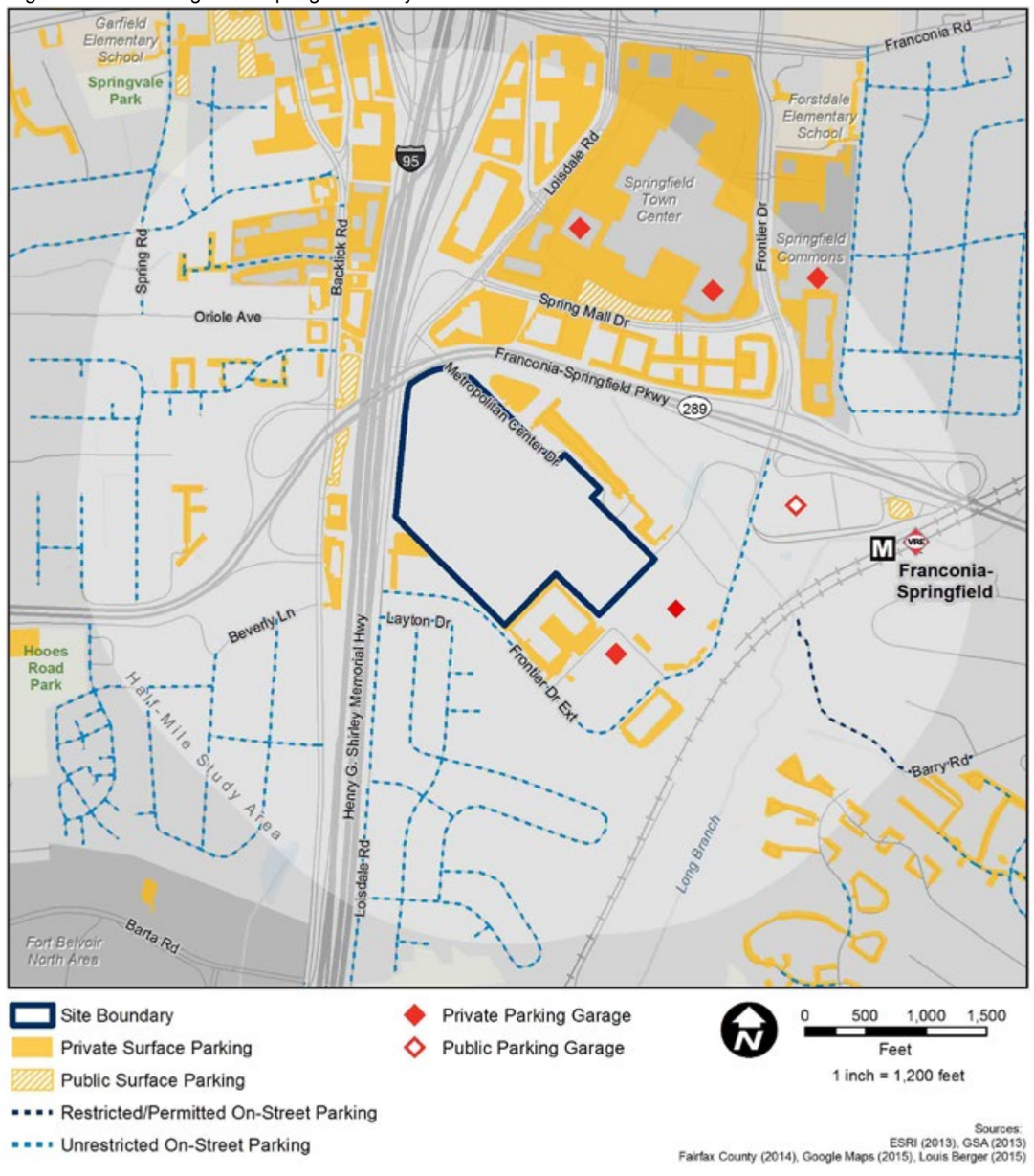


Figure 7-31: Franconia-Springfield Comprehensive Plan Area for Acceptable LOS E

7.1.9.10 Traffic Analysis

Section 3.10.4.3 explains the analysis methodology, tools, concepts, and definitions for analyzing the traffic operations as well as the process used to analyze the study area intersections. The following section provides the traffic analysis results. The analysis for the freeways is performed in the Springfield TIA (Appendix E). Figure 7-31 shows this Franconia-Springfield District, which includes both the Commercial Revitalization District and the Transit Service Area, which includes the Springfield site (roughly outlined in purple and labeled with GSA) and most of the Springfield transportation study area. This Franconia-Springfield District does not include the following existing signalized study area intersections: Loisdale Road and Newington Road (Intersection #10), Loisdale Road and Fairfax County Parkway (Intersection #11), Franconia-Springfield Parkway and Spring Valley Drive (Intersection #19), I-95 HOT off-ramps to Franconia-Springfield Parkway (Intersection #20), Franconia-Springfield Parkway and Beulah Street (Intersection #21), and Franconia Road and Beulah Street (Intersection #22). The Franconia-Springfield District (figure 7-31) also does not include the following unsignalized study area intersection: Loisdale Road and Lois Drive (Intersection #9).

For these intersections that are not included in the comprehensive plan district, LOS A through LOS D are considered “passing operation,” and LOS E and LOS F are considered “failing operations.”

The 23 Existing Condition intersections analyzed consisted of 18 signalized intersections and 5 unsignalized intersections.

Intersection Operations Analysis

Section 3.10.4.3 introduces the traffic analysis methods used for each study area intersection and which tools were used to obtain the results. Based on the Synchro™ analysis, the majority of study intersections operate at acceptable overall conditions during the morning and afternoon peak hours. However, the following intersection in the study area operates with overall unacceptable conditions:

- Franconia-Springfield Parkway/Manchester Boulevard and Beulah Street (Intersection #21) during the AM and PM peak hours.

A total of 12 signalized intersections experience unacceptable conditions for one or more turning movements. The Springfield TIA (Appendix E) contains a more detailed Existing Condition traffic operations analysis.

The overall intersection LOS grade are depicted in figure 7-32 for AM and PM peak hours. Table 7-19 shows the results of the LOS capacity analysis and the intersection vehicle delay for the existing conditions during the AM and PM peak hours.

Intersection Queuing Analysis

Section 3.10.4.3 introduces the queuing analysis methods used for each study area intersection and which tools were used to obtain the results. Based on the Synchro™ and SimTraffic™ analysis, 11 signalized intersections would experience queuing lengths that would exceed the available storage capacity. The remaining intersections in the study area would provide sufficient storage for the anticipated demand. The Springfield TIA (Appendix E) contains a more detailed Existing Condition traffic queuing analysis.

Figure 7-32: Springfield Existing Condition AM and PM Peak Hour Operations Analysis

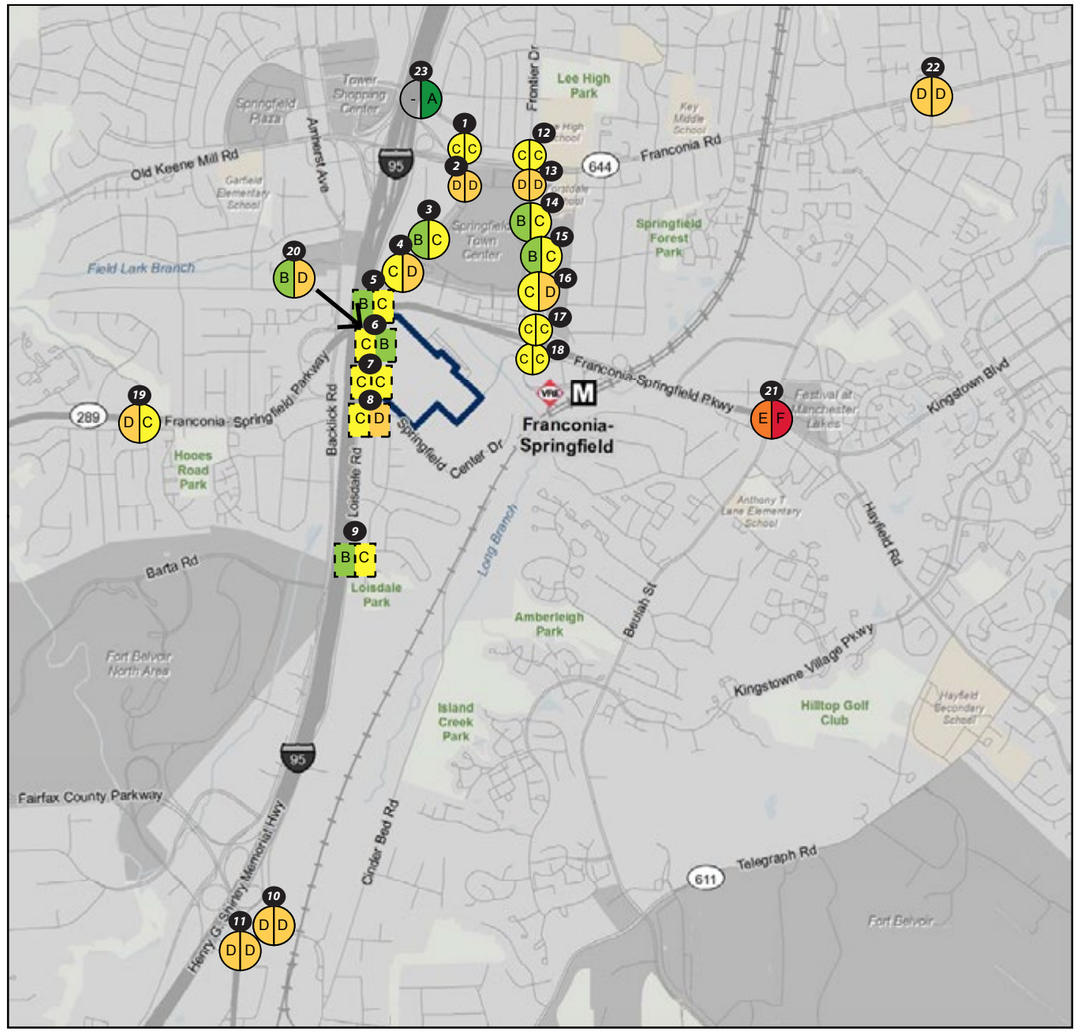


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Table 7-19: Springfield Signalized Intersection Control Delay and LOS Thresholds – HCM 2000 Method

#	Intersection	AM Peak Hour Overall			PM Peak Hour Overall		
		Delay (sec/veh)	LOS	Check	Delay (sec/veh	LOS	Check
1	Loisdale Road/Commerce Street & Franconia Road (Westbound) (Signalized)	24.0	C	Pass	33.2	C	Pass
2	Loisdale Road/Commerce Street & Franconia Road (Eastbound) (Signalized)	37.4	D	Pass	36.7	D	Pass
3	Loisdale Road & Loisdale Court/Mall Access (Signalized)	13.4	B	Pass	33.2	C	Pass
4	Loisdale Road & Ramp from NB I-95/Spring Mall Drive (Signalized)	28.3	C	Pass	39.3	D	Pass
5	Loisdale Road & Metropolitan Center Drive (TWSC)	-	-	Pass	-	-	Pass
6	Loisdale Road & Northern Entrance Road to GSA Facility (Access to Building A, 66808 & 6610 Loisdale Road) (TWSC)	-	-	Pass	-	-	Pass
7	Loisdale Road & Southern Entrance Road to GSA Facility (Access to Building B, 7000 Loisdale Road) (TWSC)	-	-	Pass	-	-	Pass
8	Loisdale Road & Springfield Center Drive (TWSC)	-	-	Pass	-	-	Pass
9	Loisdale Road & Lois Drive (TWSC)	-	-	Pass	-	-	Pass
10	Loisdale Road & Hotel Entrance/Newington Road (Signalized)	42.9	D	Pass	39.5	D	Pass
11	Loisdale Road/I-95 (N) Ramp C & D & Fairfax County Parkway (Signalized)	41.7	D	Pass	49.9	D	Pass
12	Frontier Drive & Franconia Road (Westbound) (Signalized)	30.4	C	Pass	24.2	C	Pass
13	Frontier Drive & Franconia Road (Eastbound) (Signalized)	37.1	D	Pass	38.3	D	Pass
14	Frontier Drive & Best Buy/Springfield Mall Parking Lot Entrance (Signalized)	13.7	B	Pass	32.7	C	Pass
15	Frontier Drive & Home Depot/Springfield Mall Garage Entrance (SMGE) (Signalized)	16.8	B	Pass	22.4	C	Pass
16	Frontier Drive & Spring Mall Drive (Signalized)	30.5	C	Pass	45.0	D	Pass
17	Frontier Drive & Franconia-Springfield Parkway (Westbound) (Signalized)	23.3	C	Pass	21.1	C	Pass
18	Frontier Drive & Franconia-Springfield Parkway (Eastbound) (Signalized)	33.2	C	Pass	33.4	C	Pass
19	Franconia-Springfield Parkway & Spring Village Drive/Bonniemill Lane (Signalized)	39.0	D	Pass	27.4	C	Pass
20	Franconia-Springfield Parkway & I-95 HOT Lane Ramps (Signalized) [a]	19.2	B	Pass	52.8	D	Pass
21	Franconia-Springfield Parkway/Manchester Boulevard & Beulah Street (Signalized)	77.7	E	Fail	86.5	F	Fail
22	Franconia Road & Beulah Street (Signalized)	37.5	D	Pass	49.4	D	Pass
23	I-95 NB On-ramp & Commerce Street (Signalized) [b]	-	-	-	3.0	A	Pass

Notes:

LOS = Level of Service

TWSC = Two-way STOP-Controlled unsignalized intersection (TWSC intersections do not have an overall LOS)

Delay is Measured in Seconds Per Vehicle.

Red cells denote intersections operating at unacceptable conditions.

[a] Intersection would continue to operate with a different lane configuration during the AM and PM peak hours.

[b] Intersection is not analyzed during the AM peak hour.

Table 7-20: Springfield Two Highest Ozone and $PM_{2.5}$ Values, 2010 to 2014

Monitoring Station	Year				
	2010	2011	2012	2013	2014
#510590030 – St 46-B9, Lee Park, Fairfax County, VA 8-Hour Ozone (ppm) 24-Hour $PM_{2.5}$ ($\mu g/m^3$)	 0.095/0.091 35.5/33.7	 0.099/0.096 29.0/27.8	 0.106/0.097 38.1/26.6	 0.076/0.068 24.4/23.9	 0.078/0.072 26/24
#510590018 – Mt Vernon Sherwood Hall Lane, Fairfax County, VA 8-Hour Ozone (ppm)	 0.075/0.075	 N/A	 N/A	 N/A	 N/A

Source: USEPA (2014a)

SPRINGFIELD GREENHOUSE GAS EMISSIONS AND AIR QUALITY

- Fairfax County is within the same airshed (AQCR 47) as the JEH parcel.
- An AQI over 300 has not been recorded in the area in the 2010-2014 period.

Table 7-21: Air Quality Index (AQI) Data for Fairfax County, Virginia

Year	AQI - 101 to 150 Unhealthy for Sensitive Groups (days)	AQI - 151 to 200 Unhealthy (days)
2010	13	0
2011	9	2
2012	10	3
2013	1	0
2014	0	0

Source: USEPA (2014d)

7.1.10 Greenhouse Gas Emissions and Air Quality

The following sections describe the affected environment for air quality and greenhouse gases (GHGs) relevant to the Springfield site.

7.1.10.1 Global Climate Change and Greenhouse Gases

The affected environment for GHGs and climate change for the Springfield site is the same as described for the J. Edgar Hoover (JEH) parcel in section 4.1.10.2.

7.1.10.2 Air Quality

Fairfax County is located within the same airshed (AQCR 47) as the JEH parcel. All airshed-wide indicators are provided in section 4.1.10.2. The Springfield site is located in a nonattainment area for the 8-hour ozone (O_3) standard and a maintenance area for particulate matter smaller than 2.5 micrometers ($PM_{2.5}$).

Ambient air quality is monitored in the study area by stations meeting USEPA's design criteria for State and Local Air Monitoring Stations and National Air Monitoring Stations. There were previously two monitoring stations within Fairfax County that measured O_3, $PM_{2.5}$, and meteorological conditions in the county. Currently, only one monitor is operating. The highest and second highest values recorded at this station from 2010 through 2014 are shown in table 7-20, which shows a general decline in the pollutant concentration over the last three years.

Regional Air Quality Index Summary

As described in section 3.11.2, USEPA calculates the Air Quality Index (AQI) for five major air pollutants regulated by the Clean Air Act (CAA). Table 7-21 displays the recent AQI data for Fairfax County, Virginia, and shows that an AQI over 300 was not recorded in the area in the 2010-2014 period.

7.1.11 Noise

Noise at the Springfield site is regulated by the Fairfax County, Virginia, Code of Ordinances, Ordinance No. 34-14-F-27. The city noise ordinance permits construction noise, including the delivery and operation of machinery from 7:00 AM to 9:00 PM on weekdays (Fairfax County 2015l). Maximum sound levels, shown in table 7-22, are established in the Fairfax County Code of Ordinances (Chapter 108; Section 108-4-1), which are applicable for specific zoning locations but do not distinguish between day and nighttime.

The Springfield site exists within a developed suburban area. The site is bordered by the Franconia-Springfield Parkway (SR 286), I-95 to the west, rail corridors to the east, and residential dwellings and educational facilities and open areas to the southeast. Development in proximity to the site includes single-family residential, low-rise apartment complexes, suburban office and commercial parks, hotels, and educational facilities. The primary noise sources within the site area include the vehicular traffic along I-95 and the Franconia-Springfield Parkway; rail activity from the WMATA Metrorail, VRE Commuter Rail, and CSX rail lines; and activities associated with the Springfield Town Center and the Northern Virginia Community College – Medical Campus. The site is occupied by existing office and warehouse space; noise generated at these facilities is consistent with these uses.

Sensitive noise receptors in the study area include the Northern Virginia Community College – Medical Campus, the Extended Stay America hotel, and single-family residences directly adjacent to the site.

7.1.12 Infrastructure and Utilities

The following sections describe the affected environment for infrastructure and utilities for the Springfield site. Infrastructure and utilities include water, wastewater, electric power, natural gas, telecommunications, and stormwater management.

7.1.12.1 Water Supply

Water service for the Springfield site is provided by the Fairfax County Water Authority (Fairfax Water). Fairfax Water was commissioned in 1957 as a public water utility (Fairfax Water 2011a) and serves more than two million residents, as well as 800,000 employees (Fairfax Water 2014), in the county and communities of Northern Virginia with more than 3,000 miles of distribution mains (Fairfax Water 2011b). Although most public water service in Fairfax County is provided by Fairfax Water, some areas of the county have water service provided by other jurisdictions.

In addition to customers in Fairfax County, treated water is supplied to Loudoun and Prince William Counties, Fort Belvoir, and Washington Dulles International Airport (Fairfax Water 2011b). Fairfax Water has two water treatment plants (WTPs), the Corbalis WTP has a capacity of 225 million gallons per day (MGD) and the Griffith WTP has a capacity of 120 MGD. The combined capacity is 345 MGD (Fairfax County 2015b). To meet daily demand, Fairfax Water produces approximately 170 MGD on average. The Corbalis WTP relies on the Potomac River as its raw water source, and the Griffith WTP makes use of the Occoquan Reservoir. Treatment consists of flocculation and sedimentation, ozonation, sand and carbon filtration, and chemical additions for chlorination, fluoridation, and pH control, as well as a corrosion inhibitor to prevent lead from leaching out of household plumbing (Fairfax Water 2015a). The existing distribution system associated with the GSA warehouse at the Springfield site consists of a 12-inch water main looped around the site along Springfield Center Drive, which is connected to both the 12-inch and 24-inch water mains on Loisdale Road. There are three transmission lines serving the area, a 24-inch along Franconia Road, as well as 30-inch and 36-inch water mains along Backlick Road. Additionally, there is a major storage facility north of the area, in Annandale. The current design pressure for the area is within the 70 to 80 pounds per square inch (psi). There is a currently a single 12-inch connection to the aforementioned loop with a master meter servicing the existing GSA development. All of the water infrastructure on the GSA side of the meter is maintained by GSA (Fairfax Water 2015b).

SPRINGFIELD NOISE

- Noise in the vicinity of the site is regulated by the Fairfax County, Virginia, Code of Ordinances.
- The Springfield site area exists within a developed urban area. As a result, the primary noise sources include vehicular traffic, rail activity, and activities associated with Springfield Town Center and Northern Virginia Community College – Medical Campus.

Table 7-22: Fairfax County Maximum Noise Levels

Zone	Maximum Noise Level (dBA)
Residential Zone	55
Commercial Zone	60
Industrial Zone	72

Source: Fairfax County (2015l)

SPRINGFIELD INFRASTRUCTURE AND UTILITIES

- Water service for the Springfield site is provided by the Fairfax County Water Authority, known as Fairfax Water. Fairfax Water has two water treatment plants (WTPs). Wastewater is provided by the Fairfax County Department of Public Works and Environmental Services.
- The current electric power service the Springfield site is provided by Dominion Virginia Power.
- Washington Gas is the sole natural gas purveyor in the region.
- Verizon, RCN, Cox, and Comcast are the major telecommunications service providers in the Washington Metropolitan region. The Springfield site is within the service area for Verizon and Cox.

7.1.12.2 Wastewater Collection and Treatment

Wastewater service for the Springfield site is provided by the Fairfax County Department of Public Works and Environmental Services, Wastewater Management Program. This program oversees wastewater collection services within a sewer service area of approximately 234 square miles that serves about 340,000 residential and commercial customers (Fairfax County 2015c). Fairfax County has several interjurisdictional agreements allowing up to 161 MGD of wastewater to be collected and conveyed to one of six regional wastewater treatment plants (Fairfax County 2015d).

The collection system includes approximately 3,300 miles of wastewater collection, 65 pump stations, and 299 sewage grinder pumps (Fairfax County 2015e). The collection system is divided into six sewersheds, or treatment areas, corresponding to the treatment facility serving the area: Upper Occoquan, Blue Plains, Arlington County, Alexandria Renew Enterprise, Noman Cole, and H.L. Mooney (Fairfax County 2015d). Owned and operated by Fairfax County, the Noman M. Cole Jr. Plant is the largest Advanced Wastewater Treatment Plant (AWTP) in Virginia with a design capacity of 67 MGD. It uses a combination of physical, biological, and chemical treatment processes to treat an average daily flow of 45 MGD (Fairfax County 2015f).

Available mapping of the on-site collection system illustrates that it consists of 8-inch and 10-inch pipes that convey wastewater to the southern corner of the site where it is discharged to a 12-inch sewer. The 12-inch sewer continues eastward beneath the CSX railroad right-of-way and connects to a 24-inch trunk line approximately 1,400 linear feet east of the primary connection. The 24-inch trunk line increases in diameter to 27 inches then to 30 inches as it conveys wastewater southward to the 7.1-MGD Long Branch pump station in Lorton on its way to the Noman M. Cole Jr. Pollution Control Plant (Fairfax County 2011; Fairfax Water 2015b).

7.1.12.3 Electric Power

The current electric power service for the Springfield site is provided by Dominion Virginia Power, a subsidiary of Dominion, which provides natural gas and power supply to utilities and retail energy customers in 12 states. Dominion Virginia Power has approximately 24,600 megawatts of power generation capacity; 12,400 miles of natural gas lines (transmission, collection, and storage); and 6,455 miles of electric transmission lines (Dominion 2015a). Dominion Virginia Power operates a wide range of plants, including nuclear, coal, hydro, natural gas, and renewables, such as wind and solar.

Dominion Virginia Power recently expanded its electric generation capacity in Northern Virginia with the commissioning of the 1,329-megawatt Warren County Power Station in 2014. This natural gas-fueled plant is the largest of its kind in the Commonwealth (Dominion 2015b). Dominion Virginia is currently constructing another natural gas-fueled plant in Brunswick County, the 1,358-megawatt Brunswick County Power Station (Dominion 2015c).

Dominion Virginia Power presently provides electric service to the Springfield site via the Franconia substation, circuit 749, which is approximately 2.25 miles south of the site. There are planned upgrades to expand the number of transformers at the Franconia substation. There is a single delivery point and one 2,000 kilovolt-ampere, 3-phase transformer (PN32) with primary voltage at 34.5 kilovolts (kV). The 34.5-kV Hayfield substation is the next closest facility capable of providing the required service to the Springfield site and is within 1.5 miles east of the site (Dominion 2015d).

7.1.12.4 Natural Gas

Washington Gas is the sole natural gas purveyor in the region. A description of the service area is found in section 4.1.12.4.

There is currently a network of active gas mains within and around the site operating at 20 psi. There are 6-inch mains along Springfield Center Drive, just to the west of the existing facility. There are also 4-inch mains on the east and south sides of the facility. There are 12-inch and 24-inch transmission lines along Loisdale Road. The 4-inch gas main east of the GSA storage facility is connected directly to one of these transmission pressure lines in Loisdale Road north of the Springfield site (Washington Gas 2015).

7.1.12.5 Telecommunications

Verizon, RCN, Cox, and Comcast are the major telecommunications service providers in the Washington Metropolitan region. Verizon, Cox, and Comcast are the most common providers of telecommunications service in Fairfax County; the Springfield site is within the service area for Verizon and Cox. Secure fiber service exists on-site and the site is reported to be within the Verizon service corridor (Army 2008).

7.1.12.6 Stormwater Management

Fairfax County Department of Public Works and Environmental Services operates a public storm drainage system and oversees the county-wide stormwater management district (Fairfax County 2015g). A stormwater collection system exists on the site. Runoff from southern portion of the site is collected in conduits ranging from 21 inches to 72 inches in diameter and flows to detention pond DP0366, some via DP0367. Discharge from these ponds is conveyed through a culvert beneath the CSX railroad right-of-way/Metrorail tracks to Long Branch. Runoff from northern portion is collected in conduits ranging from 15 inches to 36 inches in diameter and discharges to Long Branch directly, as well as via DP0296 (Fairfax County 2011).

Fairfax County is considered a large municipal separate storm sewer system (MS4) regulated area and has a Phase I National Pollutant Discharge Elimination System (NPDES) permit (VA0088587) for stormwater discharges from the MS4. This permit requires the county to reduce stormwater runoff related pollutants through watershed mapping; watershed assessments; management programs for stormwater, erosion and sediment control, illicit discharges; public outreach; restoration projects; and funding (MDE n.d.).

7.2 Environmental Consequences

The following sections describe the environmental consequences of the Springfield Alternative. Both direct and indirect impacts are evaluated under the Springfield Alternative for each resource topic. The evaluation of these impacts use the No-action Alternative as a baseline for comparison. Under the No-action Alternative at Springfield, the GSA Franconia Warehouse Complex would continue to operate as a GSA warehouse facility. This EIS assumes there would be no substantial changes from the existing condition.

To comprehensively understand the impacts of the Proposed Action, the impacts described in this chapter would be paired with the indirect impacts caused by the future redevelopment of the JEH parcel. Descriptions of the No-action Alternative as well as the Springfield Alternative and the Reasonably Forseeable Development Scenarios (RFDSs) at the JEH parcel can be found in section 2.4.4. The impacts at the JEH parcel are described in section 4.2.

In addition to the regulatory requirements described in section 3.3.4, the Springfield Alternative would be required to satisfy the permitting requirements for land development in Fairfax County, according to the following provisions of the Fairfax County Code:

Erosion and Sedimentation Control Law (Chapter 104): The purpose of this statute is to conserve and protect the land, water, air, vegetation and other natural resources of Fairfax County; to alleviate erosion, siltation and other harmful effects of land-disturbing activities on neighboring land and streams, and to preserve and protect trees and other vegetation during all phases of any land-disturbing activity, pursuant to statewide statute (Code of Virginia 62.1, Chapter 3.1, Article 2.4)

Chesapeake Bay Preservation Ordinance (Chapter 118): The purpose of this statute is to protect existing high quality state waters; to restore all other state waters to a condition or quality that would permit all reasonable public uses and would support the propagation and growth of all aquatic life, including game fish; and to remediate past pollution and prevent future pollution of the County's waters, pursuant to the statewide statute (§ 62.1-44.15:67 et seq.).

Stormwater Management Ordinance (Chapter 124): The purpose of this statute is to ensure the general health, safety, and welfare of the citizens of Fairfax County and to protect property, state waters, stream channels, and other natural resources from the potential harm of illicit discharges of pollutants and unmanaged stormwater by establishing requirements for managing stormwater and procedures whereby those requirements shall be administered and enforced, pursuant to the statewide statute (§ 62.1-44.15:24 et seq.). Under Article 4 of the Fairfax County Stormwater Management Ordinance (Section 124–4), stormwater leaving the site must meet water quantity standards that vary depending on the type of conveyance system

7.2.1 Earth Resources

The following sections describe the environmental consequences for earth resources under both the No-action Alternative at Springfield and the Springfield Alternative

EARTH RESOURCES ASSESSMENT OF SIGNIFICANCE

Impacts to earth resources would not be significant, as defined in section 3.2.3.

7.2.1.1 Geology and Topography

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to either geology or topography, since the continued operation of the site as the continued operation of the GSA warehouse complex would not disturb geologic features or alter the topography of the site.

Springfield Alternative

Under the Springfield Alternative, there would be no measurable long-term impacts to topography at the Springfield site. Minimal re-grading of the site likely would likely occur during construction, however the site would remain relatively flat once construction is complete. There would be direct, short-term, adverse impacts during the construction period, because the existing topography would be regraded to accommodate a consolidated FBI HQ campus.

Land disturbance associated with development of a consolidated FBI HQ would directly impact geology, primarily through construction activities, including excavation, grading, leveling, filling, compaction, the drilling of footers, and the installation of below-grade campus components. The geologic features at the site already have been disturbed and their natural composition altered by the previous construction of the GSA warehouse complex, and as such, the Springfield Alternative would not affect any features that have not been previously impacted. Given the fact that there would not be a substantial change in site characteristics at the Springfield site, the potential for adverse impacts to geologic features would be reduced. In summary, under the Springfield Alternative there would be long-term, adverse impacts to geology, however these impacts would be minimal.

Transportation Mitigations

Widening along approximately 860 linear feet of Loisdale Road would occur, as shown in figure 7-48. This area is currently very flat, therefore there would be no measurable impacts to topography. The potential impacts to geology in these areas would be minimal because they would occur within previously disturbed areas adjacent to existing roadways. Given the small area of new disturbance, there would be no impacts to significant geologic features. Therefore, any impacts to geology associated with traffic mitigation measures would be direct, long-term, and adverse.

SPRINGFIELD GEOLOGY & TOPOGRAPHY ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Direct, short-term, adverse impacts to topography, and direct, long-term, adverse impacts to geology.

SPRINGFIELD SOILS ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Direct, short-term, adverse impacts.

7.2.1.2 Soils

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to soils because the continued operation of the site as a GSA warehouse complex would not disturb or alter the soil resources of the site.

Springfield Alternative

Land disturbance associated with development of the Springfield Alternative would directly impact soils. The soils within the Springfield site have been previously altered by commercial development and are classified as Urban. Construction activities would temporarily impact soils primarily through excavation, grading, leveling, filling, compaction, the drilling of footers, and the installation of below-grade campus components. The majority of the potential impacts to soil resources would be short-term, limited in geographic extent, and associated with the construction phase only. Soils at the site have been previously disturbed, their natural composition altered, and all productivity removed by historic construction activities, and as such, the consolidation of FBI HQ on the site would not impact any soils that have not been previously impacted.

During construction, there would be direct, short-term, adverse impacts resulting from soil disturbance that would temporarily expose soils and potentially lead to increased erosion from stormwater runoff. Stormwater runoff carrying sediment could enter the MS4 stormwater system and discharge downslope to Long Branch, a tributary of Accotink Creek, and exacerbate the water quality issues within the watershed. This potential for adverse impacts stemming from erosion would be minimized by compliance with applicable regulations required under local, state, and Federal law, and the implementation of required sediment and erosion control plans, stormwater pollution prevention plans, and Best Management Practices (BMPs), as described in section 3.3. 4.

In addition to the short-term impacts from construction activities, establishing landscaped and vegetated areas could reduce the overall amount of impervious surface and erosion potential at the site, and could result in improved soil productivity. Based on the conceptual site plans, there would be a 45.4 percent increase in the amount of pervious surface. This increase in pervious surface cover creates opportunities for improving infiltration and soil productivity. Soils might need to be improved and/or stormwater BMPs implemented to increase infiltration and soil productivity.

Transportation Mitigations

Widening along approximately 860 linear feet of Loisdale Road, as shown in figure 7-48, would have the potential to disturb soils during construction. The potential impacts to soils in these areas would be minimized because they would occur within previously disturbed areas adjacent to existing roadways. Therefore, impacts to soils associated with traffic mitigation measures would be direct, short-term, and adverse. Over the long term, it is expected that the engineering and design of the improvements would minimize any continuing adverse impacts to the extent that they are not measurable.

7.2.2 Water Resources

The following sections describe the environmental consequences for water resources under both the No-action Alternative at Springfield and the Springfield Alternative.

WATER RESOURCES ASSESSMENT OF SIGNIFICANCE

Impacts to water resources would not be significant, as defined in section 3.3.3.

7.2.2.1 Surface Water

No-action Alternative

Under the No-action Alternative at the Springfield site, the continued operation of the site as a GSA warehouse complex would have no measurable impacts to surface waters because there are no surface water features on the site.

Springfield Alternative

No surface waters occur within the site. Therefore, there would be no measurable long-term impacts to surface water as a result of the Springfield Alternative.

However, there could be direct, short-term, adverse impacts to surface waters in the vicinity of the site. During construction, soils would be temporarily exposed, which would increase the potential for the transport of sediment into Long Branch and other downstream surface waters. Operation of construction equipment would increase the likelihood of accidental leaks or spills of fuel, lubricants, or other materials which could contaminate nearby surface water. Soil disturbance and the use of construction equipment would increase the potential for the transport of sediments or contaminated solids into surrounding surface waters and increase sediment loading.

Construction activities would be required to comply with applicable Federal, county, and local regulations designed to minimize adverse impacts to surface water, including but not limited to the Fairfax County Phase I MS4 NPDES permit, and the Virginia Stormwater Management Program permit to minimize or prevent the discharge of sediment and other pollutants into surface waters. Using these practices would minimize adverse impacts to surface water quality and quantity to the extent they are not measurable. In addition, sediment loading is limited according to targets outlined in the Chesapeake Bay Total Maximum Daily Load (TMDL) for Virginia, Fairfax County, and Federal land. Sediment targets are met through a focus on the implementation of urban stormwater management projects outlined in Virginia's Watershed Implementation Plan. Compliance with NPDES permits, stormwater and sediment and erosion control plans, and implementation of BMPs would minimize adverse impacts to surface waters to the extent they would not be measurable.

Construction within the Springfield site boundaries would not disturb or develop the Chesapeake Bay RPA surrounding Long Branch and the intermittent stream; however, the required transportation mitigation would disturb and develop within the Resource Management Area. As such, the development permit would be subject to review and approval by Fairfax County under the Chesapeake Bay Preservation Ordinance of 1993. Minimization of land disturbance and impervious surfaces within RPAs would be encouraged.

Transportation Mitigations

Widening along approximately 860 linear feet of Loisdale Road, as shown in figure 7-48, would have the potential to adversely impact surface water. Impacts would be minimized because construction activities would conform to existing regulations and BMPs and would occur within previously disturbed areas adjacent to existing roadways. Public roads are exempt from the regulations of Virginia's Chesapeake Bay Preservation Ordinance but must comply with applicable state and local erosion and sediment control and stormwater regulations Therefore, impacts to surface water associated with traffic mitigation measures would be direct, short-term, and adverse.

7.2.2.2 Hydrology

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to hydrology because the continued operation of the site as a GSA warehouse complex would not disturb or alter the existing hydrology of the site.

Springfield Alternative

There would be direct, short-term, adverse impacts to stormwater hydrology as a result of the temporary alteration of the existing stormwater drainage pattern during construction. Construction activities would disturb the site and temporarily alter existing stormwater drainage patterns. The conceptual site plans would increase the amount of pervious surface on the site by 26.1 acres (45.4 percent of total site acreage), resulting in a total of 30.6 pervious acres (53.2 percent of total site acreage). Over the long term, this increase in pervious area would increase the infiltration of stormwater and reduce stormwater runoff volume leaving the Springfield site, thereby beneficially impacting hydrology.

Transportation Mitigations

As shown in figure in figure 7-48, widening along approximately 860 linear feet of Loisdale Road would have the potential to adversely impact hydrology. Transportation mitigation actions outside of the site would create more impervious surface and disturb stormwater drainage and existing stormwater management infrastructure. These adverse impacts would be mitigated by conforming to permitting and regulatory requirements and the implementation of BMPs both during and after construction. Direct, short-term, adverse impacts to stormwater hydrology would result from temporary alteration of the existing stormwater drainage patterns during construction. Over the long term, the implementation of recommended traffic mitigations are not expected to noticeably alter hydrologic processes within the study area.

7.2.2.3 Groundwater

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be new no measurable impacts to groundwater because the continued operation of the site as a GSA warehouse complex would not alter the condition of groundwater on the site. The presence of both active and abandoned underground storage tanks on the site, a wash water sump pit, and underground vaults may continue to adversely impact groundwater.

Springfield Alternative

Under the Springfield Alternative, there could be direct, short-term, adverse impacts to groundwater. Construction has the potential to disturb groundwater and introduce contaminants. Given the potential for environmental contamination outlined in section 7.1.8, it is recommended that a competent environmental professional be present during the demolition of the identified contaminated media to inspect the surrounding soil and groundwater for evidence of a release. Should evidence of a release be encountered, soil and groundwater at the site should be characterized in support of worker health and safety protection, and proper materials handling, and in accordance with all applicable Federal, state, and local regulations.

SPRINGFIELD SURFACE WATER ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: No measurable impacts.

SPRINGFIELD HYDROLOGY ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Direct, short-term, adverse impacts; direct, long-term, beneficial impacts.

SPRINGFIELD GROUNDWATER ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No new measurable impacts.

Springfield Alternative: Direct, long-term, beneficial impacts.

SPRINGFIELD WETLANDS AND FLOODPLAINS ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: No measurable impacts.

The presence of shallow groundwater within the site may require dewatering operations to facilitate excavation and grading activities during construction. Potential impacts to local groundwater resources include modification of groundwater levels through drawdown or diversion of flow. Additional adverse impacts to groundwater could result from the leaching of pollutants from the surface into the shallow aquifers of the area. During construction, the demolition and removal of infrastructure associated with hazardous materials and other soil disturbance would increase the potential for contamination of groundwater resources; however, implementation of construction BMPs would reduce these adverse impacts from pollutant discharge. If the construction actions at the Springfield site necessitate discharge of groundwater from dewatering activities, an authorization under a Virginia NPDES permit and applicable requirements related to water quality concerns would be required. Compliance with the Virginia Pollutant Discharge Elimination System General Construction Permit, stormwater pollution prevention plan, and stormwater and sediment and erosion control BMPs would prevent or minimize possible pollutant loading to groundwater and protect groundwater quality during construction.

The implementation of BMPs, and low-impact development measures could allow for stormwater infiltration and groundwater recharge. Over the long term, the remediation of existing environmental contamination coupled with the increase in pervious surface and implementation of low impact development techniques and BMPs would improve groundwater recharge, remove pollution sources, and protect water quality into the future. Therefore, there would be direct, long-term, beneficial impacts to groundwater.

Transportation Mitigations

Widening along approximately 860 linear feet of Loisdale Road, as shown in figure 7-48, could have the potential to adversely impact shallow groundwater resources. The potential impacts in these areas would be minimized because construction would generally occur within previously disturbed areas adjacent to existing roadways and would be subject to permitting and regulatory requirements that would minimize adverse impacts to water quality. Over the long term, the implementation of recommended traffic mitigations are not expected to alter groundwater within the study area.

7.2.2.4 Wetlands

No-action Alternative

Under the No-action Alternative at the Springfield site, continued operation of the site as a GSA warehouse complex would have no measurable impacts to wetlands because there are no wetlands on the site.

Springfield Alternative

Under the Springfield Alternative, there would be no measurable impacts to wetlands at the Springfield site, because no wetlands are present on the site or in the vicinity of any recommended transportation mitigations.

7.2.2.5 Floodplains

No-action Alternative

Under the No-action Alternative at the Springfield site, the continued operation of the site as a GSA warehouse complex would have no measurable impacts to floodplains because there are no floodplains on the site.

Springfield Alternative

Under the Springfield Alternative, there would be no measurable direct impacts to floodplains at the Springfield site, because no floodplains are present on the site or in the vicinity of any recommended transportation mitigations.

7.2.3 Biological Resources

The following sections describe the environmental consequences for biological resources under both the No-action Alternative at Springfield and the Springfield Alternative.

BIOLOGICAL RESOURCES ASSESSMENT OF SIGNIFICANCE

Impacts to biological resources would not be significant, as defined in section 3.4.3.

7.2.3.1 Vegetation

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to vegetation because the continued operation of the site as a GSA warehouse complex would not alter the current condition of vegetation on the site.

Springfield Alternative

Under the Springfield Alternative, there would be no measurable short-term impacts to vegetation. Under the Springfield Alternative, a small amount of existing vegetation on the site would be removed prior to the construction of a consolidated FBI HQ. Over the long term, there would be direct, beneficial impacts to vegetation at the Springfield site as a result of the improvement in the quality and quantity of vegetation in the site. Vegetation, including trees, shrubs, and grasses, would be reintroduced to portions of the previously disturbed and currently impervious portion of the site.

Transportation Mitigations

Widening along approximately 860 linear feet of Loisdale Road, as shown in figure 7-48, would require the stripping and paving of existing vegetated areas along the side(s) of the roadway. The majority of the affected vegetation would consist of grasses; and fewer than 2 acres of forested area would be converted to roadway. Therefore, impacts to vegetation associated with traffic mitigation measures would be direct, long term, and adverse.

7.2.3.2 Aquatic Species

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to aquatic species because the continued operation of the site as a GSA warehouse complex would not impact water quality and therefore, the health of aquatic habitat.

Springfield Alternative

Under the Springfield Alternative, there would be no measurable impacts to aquatic species because there are no surface water bodies or aquatic species present within or in proximity to the site. While habitat for several fish and turtle species bridle shiner (*Notropis bifrenatus*) and wood turtle (*Glyptemys insculpta*) occurs in reaches of Accotink Creek located more than 1 mile from the Springfield site (VADGIF 2015), consultation with VADCR has indicated that these waters are currently impaired due to various forms of contamination. Furthermore, the absence of these habitats in proximity to the site and the recommended transportation mitigations would indicate that any contaminated stormwater would infiltrate nearby soils or be captured in stormwater infrastructure before the impact to aquatic species would occur.

7.2.3.3 Terrestrial Species

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to terrestrial species because the continued operation of the site as a GSA warehouse complex would not impact terrestrial habitat.

Springfield Alternative

Under the Springfield Alternative, there would be a range of direct impacts to terrestrial wildlife at the Springfield site as a result of the increase of usable habitat, but also increased noise, human activity, and light sources.

The site currently has little existing vegetation or usable habitat; the urban nature of the site makes impacts to terrestrial species less likely. During construction, noise created by construction vehicles and equipment may cause wildlife to temporarily vacate the small amount of existing habitat on-site, and move to adjacent areas to forage. Once construction is complete, wildlife would likely return to the area. Landscaping and the increased quantity and quality of vegetation associated with the FBI HQ campus would increase the amount of usable habitat, including food sources and cover, resulting in a direct, long-term, beneficial impact to terrestrial species. However, several factors would limit the extent to which terrestrial species would repopulate the site, including continued human activity and noise, site lighting, and the perimeter fence, which would present a barrier to the other pockets of habitat surrounding the site.

Transportation Mitigations

Widening along approximately 860 linear feet of Loisdale Road, as shown in figure 7-48, would require minimal removal of habitat, and habitat that would be disturbed is generally of low quality due its proximity to existing roadways and suburban development. Construction activities would temporarily disturb terrestrial species due to noise and increased human activity, resulting in direct, short-term, adverse impacts. There would also be direct, long-term, adverse impacts to terrestrial species from the conversion of less than 2 acres of forest habitat to roadway.

SPRINGFIELD VEGETATION ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Direct, long-term, beneficial impacts; direct, long-term, adverse impacts.

SPRINGFIELD AQUATIC SPECIES ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: No measurable impacts.

SPRINGFIELD TERRESTRIAL SPECIES ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Direct, short-term, adverse impacts; direct, long-term, beneficial and adverse impacts.

SPRINGFIELD SPECIAL STATUS SPECIES ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: No measurable impacts.

SPRINGFIELD ZONING ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: No measurable impacts.

SPRINGFIELD LAND USE ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Direct, long-term, beneficial and adverse impacts.

7.2.3.4 Special Status Species

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to special status species because the continued operation of the site as a GSA warehouse complex would not impact habitat used by these species.

Springfield Alternative

Under the Springfield Alternative, there would be no measurable impacts to special status species at the Springfield site, including federally and state-listed wildlife or state rare plant species, because federally and state-listed wildlife and state rare plant species are not present at the site (USFWS 2014b).

Due to the presence of some natural habitat around the borders of the site, there is a degree of likelihood that a federally listed migratory bird of conservation concern may be present at the Springfield site year-round or for breeding or wintering purposes. The urban nature of the site makes impacts to avian species less likely. Displacement to year-round or wintering avian species would temporarily increase as a result of increased human activity and noise associated with construction on-site, which could result in direct, short-term, adverse impacts. These impacts to birds of conservation concern would be minimal because of the relatively small area being affected and because there are other areas adjacent to the site where displaced individuals could move. Over the long term, the increased lighting of the campus may interfere with migratory birds' instinctive behavior that assists them in migrating (Florida Atlantic University n.d.); however, the use of full cut-offs would minimize this impact.

Transportation Mitigations

Widening along approximately 860 linear feet of Loisdale Road, as shown in figure 7-48, would require minimal removal of habitat, and habitat that would be disturbed is generally of low quality due its proximity to existing roadways and suburban development. Notwithstanding, there could be direct, long-term, adverse impacts to special status species because small strips of grasslands and forested habitat along existing thoroughfares would be replaced with roadway. It is anticipated that the migratory birds that potentially use this habitat would either not be present at the areas designated for construction or would avoid the area because of noise and human interaction.

7.2.4 Land Use

The following sections describe the environmental consequences for land use and zoning under both the No-action Alternative at Springfield and the Springfield Alternative.

LAND USE, PLANNING STUDIES, AND ZONING ASSESSMENT OF SIGNIFICANCE

Impacts to land use and zoning would not be significant, as defined in section 3.5.3.

7.2.4.1 No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to land use and zoning because the continued operation of the site as a GSA warehouse complex would not alter the current zoning, the existing or planned land uses, nor the vision for the site under the various relevant land use studies.

7.2.4.2 Springfield Alternative

Zoning

The site is zoned as I-4 (Medium Intensity Industrial District). Development on a federally controlled site is not subject to zoning, and therefore zoning requirements are not currently enforced on this site. GSA and the exchange partner would cooperate with state and local officials through the development process to ensure compatibility with surrounding development. Therefore, under the Springfield Alternative, there would be no measurable impacts to zoning.

Transportation Mitigations

The recommended transportation mitigations, as shown in figure 7-48, would result in property takings that would alter land use along roadways recommended for improvement to mitigate traffic impacts in the study area. The recommended mitigation measures may require property strip takings at two intersections, Loisdale Road at Fairfax County Parkway and Loisdale Road and Frontier Drive Extension (Intersection #11 and #8, respectively). The improvements at Loisdale Road and Fairfax County Parkway would extend the westbound approach right-turn lane by 60 feet beyond what Fairfax County is currently planning, impacting one commercial parcel.

The Loisdale Road and the Frontier Drive Extension mitigation measures would have two different approaches, northbound and southbound, that would require property takings. While Fairfax County is also planning to upgrades this intersection, the actual strip taking requirement for the mitigation is unknown. To be conservative, the southbound approach would include a 400-foot strip taking to add a second left-turn lane to the intersection and the northbound approach would include a 400-foot strip taking to add a right-turn lane. Four parcels would be impacted by this improvement, three residential parcels and one commercial parcel. During the design phase, the property impacts would be refined to minimize property takings and use design measures that could be lessen the impact, such as narrowing travel lanes or shifting the roadway alignment.

Regional Land Use Plans/Studies

Under the Springfield Alternative, there would be a range of impacts to land use plans as compared to the No-action Alternative.

Fairfax County Comprehensive Plan: Franconia – Springfield Area

Springfield Alternative would closely align with the Fairfax County Comprehensive Plan: Franconia-Springfield Area's goal of encouraging revitalization through enhancing the economic competitiveness of local businesses, because a major employment center such as the consolidated FBI HQ would attract businesses in the area. The recommended traffic mitigation measures would foster connectivity through street design, including the upgrading and addition of signalized intersections. These improvements would contribute to the Fairfax County Comprehensive Plan's goals for land use and roadways in Franconia-Springfield. As a result there would be direct long-term, beneficial impacts to land use.

However, the Springfield Alternative would not align with some aspects of the Fairfax County Comprehensive Plan. The plan recommends future land use in Franconia-Springfield to consist of high-density and mixed-use developments; with usable way-finding systems and viable connections throughout the area; and be composed of a mixture of uses beyond the normal working hours. The Springfield Alternative would not align with these principles because the project would provide a single purpose use, restrict public access and limit connectivity, and discourage connections throughout the area. In addition, the stated goals of the Fairfax County Comprehensive Plan for land use at the Springfield site indicate that any development on the site should result in public benefits such as improvements to circulation, parking, landscaping, and site or building design. Although the Springfield Alternative would result in upgraded parking and landscaping, these benefits would be exclusive to the employees of FBI HQ and would not be beneficial to the surrounding community. This failure to align with the Fairfax County Comprehensive Plan would result in direct, long-term, adverse impacts to land use.

Springfield Connectivity Study

The Springfield Connectivity Study includes a statement that the land use of the Springfield site should be composed of 90 percent office space. While the consolidated FBI HQ would be primarily office space, it would contain a mix of other uses, including information technology, retail, and community uses. Although the projected use of the consolidated FBI HQ differs slightly from this study, they would be similar enough that their alignment would result in direct, long-term, beneficial impacts to land use.

Franconia Springfield Station Vision Plan

The Springfield Alternative would align with the Franconia-Springfield Station Vision Plan, because the increased influx of personnel at FBI HQ would provide increased use of the Franconia-Springfield Metro Station, and spur development on surrounding land. As a result there would be direct, long-term, beneficial impacts.

Comprehensive Plan for the National Capital Region

The Springfield Alternative would fulfill many of the objectives of Federal Elements of the Comprehensive Plan for the NCR. The Springfield Alternative would enhance operational efficiencies and contribute to developing the economy in Springfield area. It would also utilize available federally owned land, and be located in proximity to multi-modal transportation options. As a result of the alignment with most elements of the Federal Elements, there would be direct, long-term, beneficial impacts to land use under the Springfield Alternative.

7.2.5 Visual Resources

The following sections describe the environmental consequences for visual resources under both the No-action Alternative at Springfield and the Springfield Alternative.

VISUAL RESOURCES ASSESSMENT OF SIGNIFICANCE

Impacts to visual resources would not be significant, as defined in section 3.6.3.

7.2.5.1 No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to visual resources because the continued operation of the site as a GSA warehouse complex would not alter the aesthetics or the existing views of the site.

7.2.5.2 Springfield Alternative

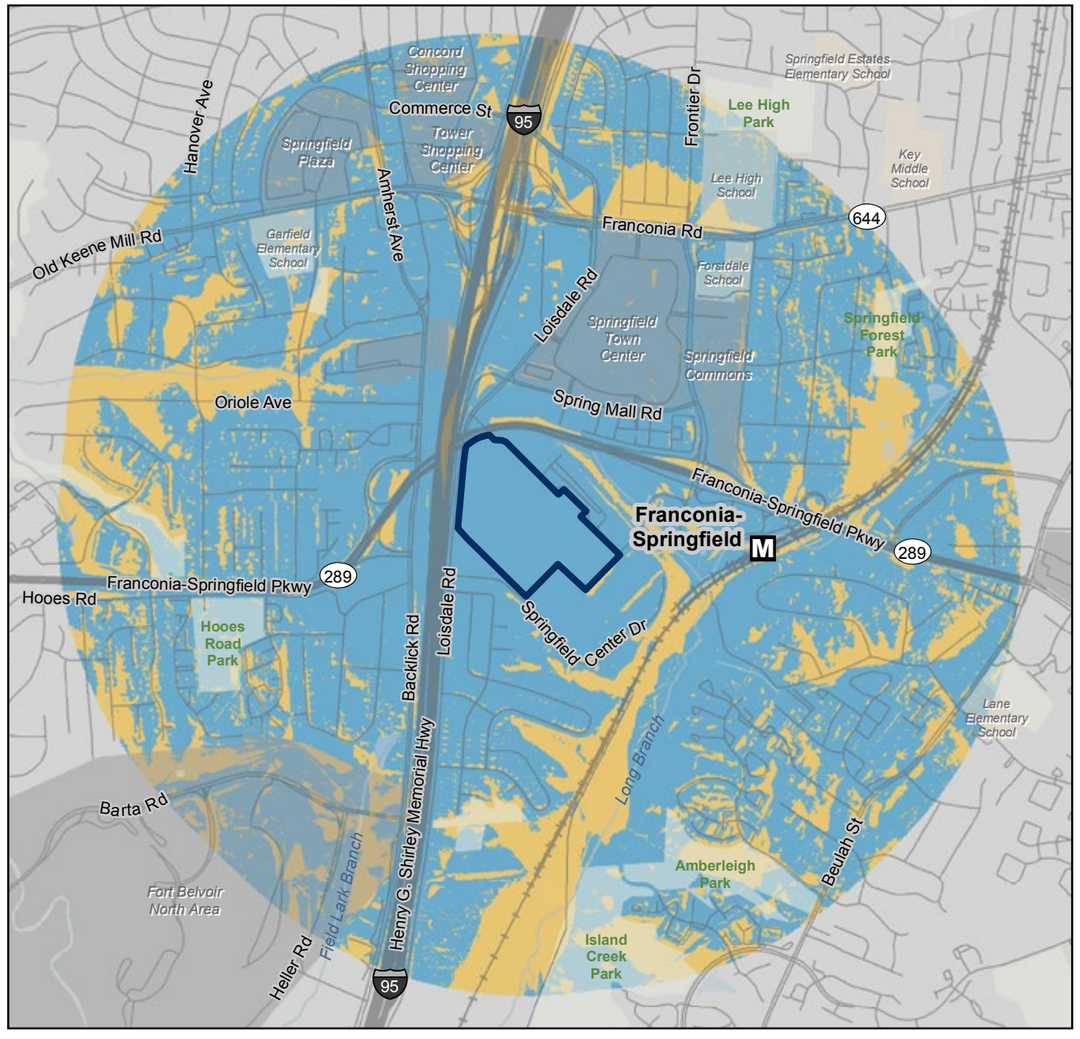
Under the Springfield Alternative, there would be direct, long-term, adverse impacts to visual resources. Based on the conceptual site plan and preliminary estimates, the Main Building, which would be constructed within the 9.3 acre Main Building Developable Area, is assumed to have a maximum building height of approximately 12 stories in the Draft EIS. Parking structures at the Springfield site are assumed to not exceed 7 stories, while the Central Utility Plant (CUP), remote delivery facility (RDF), gatehouses, and Visitor Center (VC) would not exceed 2 stories. In order to envisage the visibility of the Main Building to the surrounding area, a viewshed analysis for the Springfield site was completed for the Main Building Developable Area in ArcMap. The analysis applied the maximum Main Building height (180 feet) to the entirety of the Main Building Developable Area, and calculated views based on the existing ground topography and the obstruction caused by trees in the viewshed. Considering the elevation of the building footprint and surrounding area, the Springfield Alternative would be visible from most locations within 0.25 mile. It would be highly visible areas adjacent to

SPRINGFIELD VISUAL RESOURCES ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Direct, long-term, adverse impacts.

Figure 7-33: Springfield Viewshed Analysis



the site, including the Franconia Springfield Parkway, Loisdale Estates, the Springfield Crossing Apartment Complex, and the Franconia-Springfield Metro Station. Views in other areas of the viewshed would be buffered by intervening buildings and tree cover. The results of the viewshed analysis for the Springfield site are shown in figure 7-33.

The development pattern in the study area consists of low to mid-rise buildings. With a maximum height of 12 stories, the Main Building would be noticeably more visible than the surrounding area but would still blend in with the skyline. Adjacent to the Springfield site, across Metropolitan Drive, is a 5-story Extended Stay America Springfield hotel and the Springfield Crossing Apartment Complex. Most of these facilities are 4 stories tall; however, the building on the southeast corner of the apartment complex reaches 7 stories. Further to the east is the Franconia Springfield Metro Station with a 6-story high parking garage. South of the site is the 3-story high Northern Virginia Community College – Medical Campus and its associated 5-story parking garage. Single-story family homes make up a housing development southeast of the site. Across the Franconia-Springfield Parkway is Springfield Town Center with buildings ranging from 1 to 6 stories. Franconia Springfield Parkway is elevated adjacent to the site where it crosses I-95. There are other notable elevated roadways in the study area, including the ramps associated with the I-95/I-395/I-495/Old Keene Mill Road ramps, and those roads that cross over I-95, such as Commerce Street and Old Keene Mill Road.

The area surrounding the Springfield site includes various suburban land uses such as commercial, residential, office, industrial, transportation-related and institutional/educational. It is an highly developed area, so the Springfield Alternative would not be incongruous with the surrounding area, and these changes in the visual character of the Springfield site are envisioned for the site by Fairfax County as outlined in the Fairfax County Comprehensive Plan, and other local and regional planning initiatives. The aesthetic quality of the site itself would be improved under the Springfield Alternative by the addition of trees and landscaped elements within a master planned site.

Shadow Analysis

In order to complement the visual analysis, a shadow analysis was performed to estimate how shadows cast by the Main Building may impact the surrounding area, as described in section 3.6. Using ArcScene, a sun-shadow analysis model was created to determine shadows that would be cast by the Main Building at the Springfield site. Shadows are more pronounced in the winter than in the summer. During winter mornings, shadows would extend to the west/northwest of the Main Building and would potentially cover a small portion of Loisdale Road; however, they would not be expected to impact any surrounding development. During winter evenings, long shadows would extend to the northeast of the building and cover a portion of the Springfield Crossing Apartment Complex. The results of the shadow analysis for the Springfield site are shown in figure 7-34.

The sun-shadow analysis was completed for the Main Building Developable Area in ArcScene at 8:00 AM and 4:00 PM during the summer solstice (June 20) and winter solstice (December 21) to capture shadow extremes within a year. At 8:00 AM during the summer solstice, minimal shadows would be present to the west/southwest of the building(s). At 4:00 PM during the summer solstice, slight shadows would be present to the north/northeast of the building(s). Summer solstice represents the impacts of the least case scenario. At 8:00 AM during the winter solstice, long shadows may extend northwest of the building(s). If a maximum building height of 12 stories is used, the winter shadow may potentially interfere with I-95. At 4:00 PM during the winter solstice, long shadows may extend to the northeast of the building(s) and potentially cover the hotel and housing units. Winter solstice represents the impacts associated with the greatest case scenario. As a result, direct, long-term, adverse impacts related to shadow are expected at the Springfield site.

Lighting Impacts

Due to security requirements, the consolidated FBI HQ would be a well-lit facility, with a minimum of 1 foot candle across the entire site during non-daylight hours. Full cut-offs would be used to minimize light pollution to the surrounding area. Illumination from the consolidated FBI HQ would have an additive effect with the lighting along Franconia Springfield Parkway and Loisdale Road. It is unlikely that this lighting would be noticeable within adjacent neighborhoods. Therefore lighting would cause no additional adverse impacts to visual resources under the Springfield Alternative.

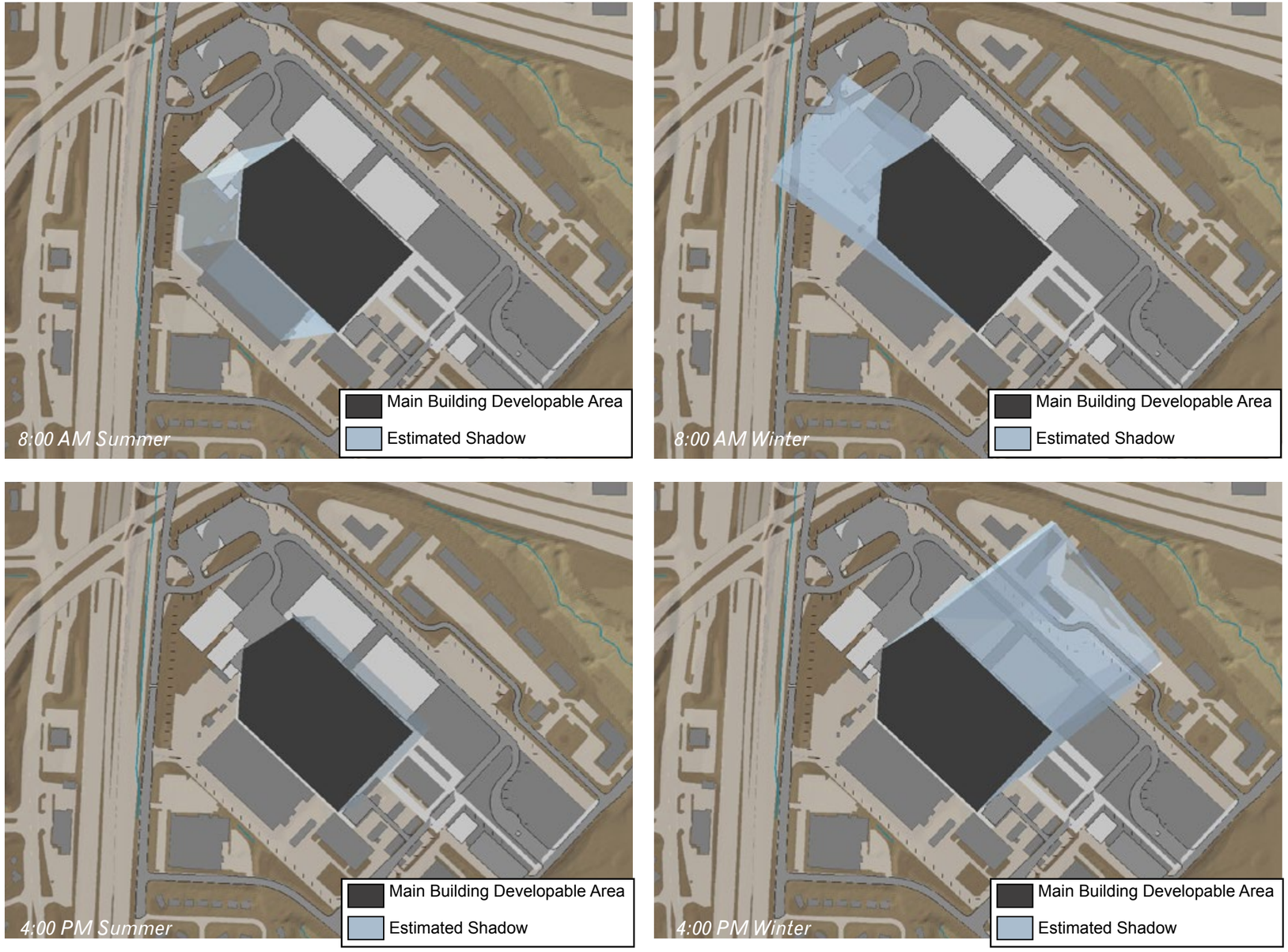
Transportation Mitigations

There would be no measurable impacts to visual resources associated with the recommended traffic mitigation measures within the transportation study area, as shown in figure 7-48. All mitigation measures requiring construction would be along the existing roadways, with minimal tree clearing and lighting continuing to be confined to the existing transportation corridor.

FULL CUT-OFF

A light system that prevents light from being cast upward or outward and therefore contributing to light pollution. No light is emitted directly from the luminaire into the sky.

Figure 7-34: Springfield Shadow Analysis



SPRINGFIELD ARCHAEOLOGICAL RESOURCES ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: No measurable impacts.

SPRINGFIELD HISTORIC RESOURCES ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: No measurable impacts.

7.2.6 Cultural Resources

The following sections describe the environmental consequences for cultural resources under both the No-action Alternative at Springfield and the Springfield Alternative.

CULTURAL RESOURCES ASSESSMENT OF SIGNIFICANCE

Impacts to cultural resources would not be significant, as defined in section 3.7.3.

7.2.6.1 Archaeological Resources

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to archaeological resources because the continued operation of the site as a GSA warehouse complex would not disturb the ground surface of the site.

Springfield Alternative

At the Springfield site, there would no measurable impacts to archaeological resources, because there is a low potential for intact resources to exist on the site due to previous disturbance.

Should there be an unanticipated discovery of archaeological resources during construction, GSA would continue Section 106 consultation with the MD SHPO and other parties through the standard review process under 36 Code of Federal Regulations (CFR) § 800. Through this ongoing process, any impacts to archaeological resources would be avoided or mitigated to the extent that they would not be measurable. This stipulation would be included in the Section 106 Programmatic Agreement for the project.

7.2.6.2 Historic Resources

No-action Alternative

Under the No-action Alternative at the Springfield site, the continued operation of the site as a GSA warehouse complex would have no measurable impacts to historic resources because no historic resources are located within the boundaries of the APE.

Springfield Alternative

As noted in section 3.7, GSA initiated consultation under Section 106 of the NHPA with the VA SHPO on May 14, 2015. On June 12, 2015, the VA SHPO commented on the potential for historic resources in the APE, noting that several post-1950 subdivisions fall within the APE, and requesting additional architectural survey should the Springfield site be chosen as the Preferred Alternative. In 2007, the VA SHPO concurred with GSA's finding that the existing warehouse facilities on the site were not eligible for listing in the NRHP (Landwermeyer 2007).

Architectural resources 50 years of age or older within the APE are unlikely to be eligible for listing on the NRHP as historic districts or as individual resources, pending further architectural surveys. A consolidated FBI HQ would be visible from Loisdale Estates, Beverly Forest, and Springvale. Vegetative buffers and noise walls associated with roadways throughout the study area would also limit views toward the Springfield site.

Although the Main Building would be taller than surrounding buildings, the overall development of the Springfield site would be in keeping with the character of the area. It is anticipated that the Springfield Alternative would not visually impact any potential historic resource to the extent that it would diminish its integrity. The eligibility of these resources for listing in the NRHP is dependent on further agency consultation. In addition, any adverse impacts to historic resources in the APE would be mitigated by Section 106 consultation under the Programmatic Agreement. Therefore, there would be no measurable impacts to historic resources.

7.2.7 Socioeconomic and Environmental Justice

Impacts related to changes in population and demographics as a result of consolidating FBI HQ at the Springfield site are considered in the context of the local economy of Fairfax County, the Washington, D.C., MSA, and the Commonwealth of Virginia. Impacts to tax revenues, population, housing, schools, and community facilities and services of Fairfax County, the Washington, D.C., MSA and the Commonwealth of Virginia, are all described qualitatively. Benchmarks for some impacts, such as impacts to construction employment, have been created by identifying the greatest annual change over a recent historical period to create a quantitative threshold for the magnitude of impacts on each resource.

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE ASSESSMENT OF SIGNIFICANCE

Impacts to socioeconomics and environmental justice would not be significant, as defined in section 3.8.3.

7.2.7.1 Population and Housing

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to population and housing because the continued operation of the site as a GSA warehouse complex would not alter the current population and housing patterns in Fairfax County or the Washington, D.C., MSA.

Springfield Alternative

Population

Similar to the Greenbelt and Landover alternatives, the Springfield Alternative would result in the potential relocation of a portion of FBI HQ's employed workforce. It is possible that some, but not all, of these employees and their families would relocate their primary residences to be closer to the Springfield site while others would alter their commuting patterns to the consolidated FBI HQ at Springfield. It is assumed that most of the current FBI HQ employees reside within the Washington, D.C., MSA. As any movement of their primary residences or commutes would likely occur within the Washington, D.C., MSA there would be no measurable impact to population as a result of FBI HQ employees relocating their primary residence or changing commute patterns under this alternative. Some FBI HQ employees may choose to relocate to Fairfax County from outside of Fairfax County in order to be closer to the consolidated FBI HQ under this alternative. However, the amount of employees that would relocate to the county from outside the county is unknown; therefore, the population impacts of these relocations on Fairfax County cannot be assessed. Additionally, some current FBI HQ employees may choose to quit the FBI as a result of this alternative and new employees may be hired that live closer to the consolidated FBI HQ.

Housing

It is assumed that most of the current FBI HQ employees reside within the Washington, D.C., MSA. If these employees relocated their primary residences as a result of this alternative it is likely that they would relocate to another area of the Washington, D.C., MSA. Therefore, there would be no net impact to housing with the Washington, D.C., MSA which would result in no measurable impact to housing under this alternative. Some current FBI HQ employees may relocate to Fairfax County from outside of Fairfax County. However, the total amount of employees that would relocate to the County from outside the County is unknown; therefore, the housing impacts of these relocations on Fairfax County cannot be assessed due to insufficient information at this time.

7.2.7.2 Employment and Income

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to employment and income because the continued operation of the site as a GSA warehouse complex would not alter the current employment or income levels in Fairfax County or the Washington, D.C., MSA.

Springfield Alternative

Construction and Operations-related Spending

Impacts resulting from construction and operations-related spending in Fairfax County and the Washington, D.C., MSA would be similar to those described for the Greenbelt Alternative in section 5.2.7.2. However instead of Prince George's County, Maryland, the impacts would occur in Fairfax County, Virginia. Therefore, there would be direct, short-term, beneficial impacts to Fairfax County and the Washington, D.C., MSA as a result of construction-related spending and long-term, beneficial impacts to Fairfax County and the Washington, D.C., MSA as a result of operations-related spending.

Construction Employment

Similar to the Landover Alternative, it is expected that there would be approximately 2.4 million gross square feet (gsf) of construction under this alternative. This level of construction would require 6,720 full-time equivalent construction workers for a one-year period, resulting in approximately $315 million in construction wages that would result directly from project spending. However, it is not likely that all 6,720 construction workers would be employed for only one year and, instead, the project would occur over multiple years which would reduce the impact to the local construction industry.

Similar to the findings under RFDS 1 and the alternatives at the Greenbelt and Landover sites, most of the construction workforce is expected to come from within the Washington, D.C., MSA. However, due to the specialization requirements of some construction jobs and the high number of future construction projects, it is possible that some construction workers could relocate to the Washington, D.C., MSA in order to construct the facilities under this alternative during the construction period. Any temporary relocation of construction workers to the Washington, D.C., MSA would have short-term, beneficial impacts to the local lodging, food and beverage, and retail sectors when these construction workers spend their income in the Washington, D.C., MSA.

Operations Employment

Because current FBI HQ employees work within the Washington, D.C., MSA, there would be no new impacts to the Washington, D.C., MSA as a result of the employment of operations-related employees. However, there may be some long-term, beneficial impacts to sales, income, and employment in Fairfax County as a result of commuting employees who spend their income locally during the workday and those employees that choose to relocate their primary residence to Fairfax County as a result of the project.

SPRINGFIELD POPULATION & HOUSING ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts to population and housing in Fairfax County or the Washington, D.C., MSA.

Springfield Alternative: No measurable impacts to population or housing in the Washington, D.C., MSA. Impacts to population and housing in Fairfax County cannot be assessed due to insufficient information at this time.

SPRINGFIELD EMPLOYMENT & INCOME ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Indirect, short- and long-term, beneficial impacts.

SPRINGFIELD TAXES ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Indirect, short- and long-term, beneficial impacts to sales and income tax revenues. No measurable impacts to property tax revenues.

SPRINGFIELD SCHOOLS AND COMMUNITY SERVICES ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Insufficient information available to determine impacts to community services. No measurable short-term impacts to schools. Insufficient information available to determine long-term impacts to schools.

7.2.7.3 Taxes

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no new measurable impacts to sales, income, or property taxes because the continued operation of the site as a GSA warehouse complex would not alter the current condition of the property or result in a change in sales or income in Fairfax County or the Washington, D.C., MSA.

Springfield Alternative

The Springfield Alternative would not result in a change of ownership at this site. There would continue to be no property taxes paid on the site. This would result in no measurable impact to property taxes as property tax revenues would not change under this alternative, resulting in continued indirect, long-term, adverse impacts to property tax revenues in Fairfax County as a result of the continued exemption of the property from county property taxes.

There may be some impacts to sales and income taxes in Fairfax County and the Washington, D.C., MSA during the construction period as a result of income taxes that would be applied to the income of construction workers and sales taxes applied to goods and services procured to support the construction of the consolidated FBI HQ. This would result in indirect, short-term, beneficial impacts to Fairfax County's sales and income tax revenues.

There could also be an increase in sales and income tax revenues to Fairfax County, as a result of FBI HQ employees spending their income within the county. Additionally, any incomes earned by individuals who relocate to Fairfax County as a result of this project would generate income taxes for Fairfax County. These increases in sales and income taxes would result in indirect, long-term, beneficial impacts to tax revenues in Fairfax County.

7.2.7.4 Schools and Community Services

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to either schools or community services because the continued operation of the site as a GSA warehouse complex would not alter the current condition of schools and community services in Fairfax County or the Washington, D.C., MSA.

Springfield Alternative

Similar to the Greenbelt and Landover Alternatives, the Springfield Alternative could result in the potential relocation of some of the current FBI HQ's total employed workforce. Some of these employees would relocate with their families. However, as described in the Population and Housing analysis, it is assumed that many of these employees currently reside in the Washington, D.C., MSA and if they relocate their primary residences as result of this alternative, the new residence would likely be located within the Washington, D.C., MSA. Therefore, there is no net change in impacts, and, subsequently, no measurable impacts to schools in the Washington, D.C., MSA as a result of employees changing permanent residences within the Washington, D.C., MSA.

Some FBI HQ employees may choose to relocate to Fairfax County in order to be closer to the consolidated FBI HQ under this alternative. Any movement of families into Fairfax County would have a short-term, adverse impact to schools as a result of increasing the student load on the local school system until the system adjusts to the increase in the number of students. Additionally, there would be indirect, long-term, beneficial impacts as a result of increased school funding through increased property taxes. However, there is insufficient information available at this time to determine the impact to schools because the number of persons who would relocate to Fairfax County as a result of this alternative is unknown.

The development of the Springfield site could result in short-term, adverse impacts on police services, fire and emergency services, and medical facilities by increasing the demand for these services during the construction period. However, there is insufficient information available at this time to determine these impacts as the amount of additional demand that would be placed on community services during the construction period is unknown. There would be no measureable impacts to schools in the short-term. Additional commuters to the Springfield site might result in the need for additional police and law enforcement support for a variety of reasons (e.g., occasional traffic control, accident response) in the local county area. However, commuters would be moving within the Washington, D.C., MSA so there would be no change in the impacts to the public services in the Washington, D.C., MSA. Locally, there may be some impacts to police services, fire and emergency services, and medical facilities from the operation of the consolidated FBI HQ under this alternative. Police response times throughout Fairfax County increased between 2013 and 2014, so it is possible that there may be some service issues associated with the local police department as a result of the construction and operation of this facility. However, because the FBI has its own police force that acts as security for FBI facilities, information, and personnel there is likely to be no measurable long-term impact to local police. There would be no measurable long-term impacts to medical or fire services given the suburban nature of the area and the concentration of businesses already in the area.

7.2.7.5 *Recreation and Other Community Facilities*

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to recreation or other community facilities because the continued operation of the site as a GSA warehouse complex would not alter the current condition of recreation resources or other community facilities in Fairfax County or the Washington, D.C., MSA.

Springfield Alternative

Under the Springfield Alternative, commuters to this site could visit local parks, recreation centers, gyms, or other community facilities during weekdays. These impacts would likely occur during the early mornings, mid-day lunch hour, or in the evenings. The consolidated FBI HQ is expected to have a recreation center on-site, which would mitigate impacts to local recreation facilities because employees would likely use the on-site recreation facilities as opposed to community recreation facilities. Both adverse and beneficial impacts to recreation resources and other community facilities could occur due to increased visitation at these sites and as a result of FBI HQ employees spending their income at these resources, respectively. As shown under the No-action Alternative for Greenbelt, increased visitation could lead to overuse and eventual damage to recreation resources and community facilities. Employee spending could also support local employment, income, and sales. However, there is insufficient information available at this time to determine the impacts that would occur to recreation and other community facilities under this alternative.

7.2.7.6 *Environmental Justice*

No-action Alternative

Under the No-action Alternative at the Springfield site, the continued operation of the site as a GSA warehouse complex would not change employment, housing, income, population, schools, or community services in Fairfax County or the Washington, D.C., MSA. Therefore, there would be no measurable impacts to low-income or minority populations resulting in no environmental justice impacts.

Springfield Alternative

Of the 11 census tracts within 1 mile of the Springfield site, there are 6 tracts with relatively high minority populations. Therefore, a majority of the census tracts around the Springfield site contain sensitive communities (see figure 7-4).

The Springfield Alternative could result in the creation of jobs in Fairfax County as new businesses open to support construction workers and FBI HQ employees. These new businesses could beneficially impact the local community and the Washington, D.C., MSA through the creation of new income, employment, and sales in both the short and long term. Some new construction-related jobs would also be created in the short term, which could result in the creation of additional income and employment for local residents. Some of the local residents that fill these jobs could come from the low-income or minority communities identified in section 7.2.7.6. However, actual hiring practices would be determined by the construction contractor for this project or by proprietors who own these businesses; therefore, it is not certain that any jobs created under this alternative would be filled by persons from low-income or minority communities.

As indicated in section 7.2.11, there would be no adverse impacts to transportation or transit services; however, there would be some noise and air-quality related impacts.

Similar to impacts under the Greenbelt and Landover Action Alternatives, air quality impacts, while adverse, would disperse across an area wider than the 1-mile radius of the site used for the environmental justice analysis and would therefore impact more census tracts than those identified under this analysis. Furthermore, national air quality standards would not be exceeded at the closest sensitive receptors (see figures 7-50 and 7-51 in the Air Quality Environmental Consequences), and an adverse impact would only occur if they are exceeded. Because any air quality impacts would occur to census tracts both within and outside the 1-mile boundary of the Springfield site, there would be no disproportionate impacts to sensitive populations. Because national air quality standards would not be exceeded, there would be no adverse impacts to minority or low income populations. Therefore, there are not anticipated to be any environmental justice impacts resulting from air quality impacts.

Impacts from noise would be adverse during the short term. However, it is expected that construction crews would follow local noise ordinances, including timing of construction noise, to mitigate adverse impacts to sensitive populations.

Because there would be no long-term, adverse impacts to minority or low-income communities, and because short-term, adverse impacts would be mitigated to the extent practicable and permitted by law, there are not anticipated to be any environmental justice impacts under this Alternative.

SPRINGFIELD RECREATION & OTHER COMMUNITY FACILITIES ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Insufficient information available at this time to determine the impacts that would occur to recreation and other community facilities.

SPRINGFIELD ENVIRONMENTAL JUSTICE ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: No short- or long-term adverse impacts to minority or low-income communities.

SPRINGFIELD PROTECTION OF CHILDREN ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: No mitigation of disproportionate and adverse impacts to children is required under EO 13045.

7.2.7.7 Protection of Children

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to children because the continued operation of the site as a GSA warehouse complex would not impact children living near the site or children attending childcare centers or schools in close proximity to the site.

Springfield Alternative

As described in section 7.1.7, three childcare centers are near the Springfield site. Laalee Day Care is located on the western side of I-95 and is located approximately 0.5 mile southwest of the site. Lily Pad at Petro Park is located approximately 1 mile from the site, away from main roads. No impacts to these childcare centers are expected. Kingstowne Kindercare and Lane Elementary School are located approximately 1 mile east of the site along Beulah Street Road. This road could be used for construction traffic and may see an increase in commuter traffic as a result of this project. Forestdale Elementary School is located approximately 0.5 mile north of the site along Franconia Road East. This road also could be used for construction traffic and may see an increase in commuter traffic. A neighborhood located southwest of the site and an apartment community located northwest of the site could be impacted by construction noise and air quality issues.

Some impacts to children, such as releases of odor and dust during the construction of the Springfield site, may occur if children live in the neighborhoods in close proximity to the site. Additionally, an increase in construction and operations-related traffic to and from the site could impact children who are commuting or walking to school. However, because the neighborhoods most likely to be impacted by this alternative are not made up predominantly of children, these impacts would not have a disproportionately high and adverse impact to children. Therefore, no mitigation of disproportionate and adverse impacts to children is required under EO 13045 as a result of this scenario.

7.2.8 Public Health and Safety/ Hazardous Materials

The following sections describe the environmental consequences for public health and safety and hazardous materials under both the No-action Alternative at the Springfield site and the Springfield

PUBLIC HEALTH AND SAFETY/ HAZARDOUS MATERIALS ASSESSMENT OF SIGNIFICANCE

Impacts to public health and safety and those related to hazardous materials would not be significant, as defined in section 3.9.3.

Alternative

7.2.8.1 Public Health and Safety

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to emergency services and life safety because the continued operation of the site as a GSA warehouse complex would not impact the demand or capacity for emergency services or the risk of harm to the public.

Springfield Alternative

Under the Springfield Alternative, there would be direct, short-term, adverse impacts to emergency services and life safety at the Springfield site associated with on-site construction activities. The Springfield Alternative would involve the implementation of similar construction-phase life safety procedures as those described in section 5.2.10 for the Greenbelt site. As a result, there would be direct, short-term, adverse impacts to emergency services and life safety at the Springfield site associated with on-site construction activities.

Over the long term, there would be no measurable impacts to public health and safety. As a high profile Federal building, the presence of the FBI HQ at the Springfield site could increase the potential for intentional destructive acts; however, the FBI would maintain a site-specific emergency response plan to minimize any potential risks to FBI employees or the public. Likewise, the response time and capacity of existing law enforcement, fire, and emergency response agencies is expected to be adequate at the Springfield site.

Lastly, the operation of a firing range for employee use within the campus could pose safety concerns to employees using the facility. Public access would be restricted and employee use would be consistent with Occupational Safety and Health Administration regulations (29 CFR Parts 1900–1999); however, a slight risk of injury would remain.

Transportation Mitigations

The recommended traffic mitigation measures within the transportation study area, as shown in figure 7-48, would be beneficial to emergency services and life safety. The implementation of these improvements would improve the flow of traffic and reduce response times for emergency vehicles. Therefore, there would be direct, long-term, beneficial impacts to public health and safety associated with traffic mitigation measures.

7.2.8.2 Hazardous Materials

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no new measurable impacts related to hazardous materials. The continued operation of the site as a GSA warehouse complex would not disturb existing hazardous materials on the site; however, there would continue to be a risk of environmental contamination at the site.

Springfield Alternative

Similar to the Greenbelt Alternative, spill prevention and response procedures would be implemented at the Springfield site during construction to prevent hazardous materials spills such as vehicle and equipment fuels and maintenance fluids. As a result, no measurable impacts related to hazardous materials spills and cleanup are anticipated at the Springfield site.

GSA commissioned a Phase I ESA for the Springfield site in November 2014 (Louis Berger 2014c). The assessment documented potential soil and groundwater contamination at the site associated with underground storage tanks, along with the presence of lead-based paint and asbestos containing materials (Louis Berger 2014b). The assessment also documented several off-site sources of potential contamination within the surrounding vicinity, but concluded that these did not have potential to affect the Springfield site. Additional subsurface investigations, lead and asbestos abatement, and other remediation activities would be required at the Springfield site. Once site remediation is completed, construction of the campus at the Springfield site is expected to occur without the potential to mobilize contamination into the environment. As a result, there would be direct, long-term, beneficial impacts at the Springfield site resulting from the removal of sources of environmental contamination and remediation of potentially contaminated soils and water.

During operation of the facility, materials handling and storage protocols for the delivery and on-site use of hazardous materials (e.g., ammunition for the shooting range) would be implemented, minimizing the potential for adverse impacts to the extent that they are not measurable.

Transportation Mitigations

Impacts to hazardous materials could occur if environmental contamination is discovered along the roadways recommended for widening, as shown in figure 7-48, or other ground-disturbing improvements. Additional subsurface investigations and potential remediation activities would be required before construction would occur, reducing the potential to introduce contamination into the environment.

SPRINGFIELD PUBLIC HEALTH AND SAFETY ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Direct, short-term, adverse impacts.

SPRINGFIELD HAZARDOUS MATERIALS CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Direct, long-term, beneficial impacts.

Table 7-23: Springfield Planned Developments

Name	Type of Construction/Size	Location/Primary Access
Safford Automobile Dealership	80,000 SF of retail space	Loisdale Road approximately 1 mile north of Fairfax County Parkway and 0.5 mile south of Lois Drive. The primary access would be from Loisdale Road.
Springfield Metro Center II	544,120 SF of office space (phase I) 517,600 SF of office space (phase II)	Frontier Drive Extension, adjacent to the Springfield site According to the site plan, there would be four access points to the development from the Frontier Drive Extension leading to one large shared parking garage.

7.2.9 Transportation

The Transportation impact analysis considers two conditions:

- No-build Condition assumes FBI remains at the FBI HQ building in Washington, D.C., and the Springfield site remains GSA-owned property.
- Build Condition is the consolidation of the FBI HQ at the Springfield site.

The analysis of the No-build Condition serves as the baseline against which the impacts of the Proposed Action would be compared.

TRANSPORTATION ASSESSMENT OF SIGNIFICANCE

Impacts to traffic under the Springfield Alternative would be significant, as defined in section 3.10. Other resources considered under transportation would not result in significant impacts.

7.2.9.1 No-build Condition

This section introduces the No-build Condition for the Springfield site and provides a summary of each mode of travel and the potential impact caused if the Springfield Alternative does not occur. This includes descriptions of the pedestrian network, bicycle network, public transit system, parking conditions, truck access, and traffic operations.

Planned Developments

According to the Springfield Site Transportation Agreement (Appendix A), three planned developments were included as part of the No-build Condition. These developments ranged from a small 80,000 SF automobile dealership to up to two approximately 500,000 SF office buildings with associated parking. The developments would be located south of Franconia Springfield Parkway along Loisdale Road or along a planned southern extension of Frontier Drive. The planned developments include the projects as shown in figure 7-35 and listed in table 7-23 (FCDOT 2013; FCDOT 2008; VDOT 2008).

Planned Roadway Improvements

There are a number of planned roadway improvements scheduled to be constructed by the project horizon year (2022) including a new roadway, redesign of the roadways serving the Franconia-Springfield Metro Station, widening of several road segments, and substantial upgrades to existing intersection geometry. Many of these improvements are part of the Springfield Town Center Proffers (FCDOT 2015a). FCDOT selected the specific proffers to include in this study through the Springfield Site Transportation Agreement. The planned improvements are as follows:

A. **The Frontier Drive Extension** would add a four-lane roadway with a parkway through the median and would directly connect Loisdale Road to the Franconia-Springfield Metro Station and Franconia-Springfield Parkway. This new connection is planned in conjunction with the redesign of the Metrorail station access roadways and would change the station's access points and circulation pattern. It would improve access along the corridor, especially to the Franconia-Springfield Metro Station.

B. **The Franconia-Springfield Metro Station** redesign would alter the access to and from the station by changing the circulation from a one-direction looping network of roadways (similar to an airport design) to two sets of access roadways. One set would serve the Kiss & Ride, bus bays, and south/west garage access points. The other set would serve the north/east garage access points. Both sets would join at a proposed roundabout in the station's southwest corner. The parking garage would have designated exits for Frontier Drive and Franconia Springfield Parkway. All Kiss & Ride and bus bay access would only be accessible from Frontier Drive and would only exit to Franconia Springfield Parkway. A new intersection would include the construction of three southbound left-turn lanes from the Frontier Drive Extension to the Metrorail station, one right-turn lane from the Frontier Drive Extension to the Metrorail station, and one combined right- and left-turn lane from the Metrorail station to the Frontier Drive Extension.

C. **Loisdale Road and VA 286 (Fairfax County Parkway)** would add a second southbound left-turn lane from VA 286 southbound to Loisdale Road, a second westbound left from Loisdale Road to VA 286 southbound, and an exclusive northbound right-turn lane from VA 286 to Loisdale Road.

D. **Loisdale Road and Frontier Drive Extension** would install a new traffic signal, a southbound left-turn lane from Loisdale Road to Frontier Drive Extension, a northbound right-turn lane from Loisdale Road to Frontier Driver Extension, and the westbound approach would include one left-turn-lane and one right-turn lane.

E. **Loisdale Road and Metropolitan Center Drive** would install of a new traffic signal.

F. **Loisdale Road and Spring Mall Drive** would widen southbound Loisdale Road between South Street and Spring Mall Drive to two through lanes, one full-length left-turn lane and one left-turn bay onto eastbound Spring Mall Drive. It would also include constructing a new right-turn bay from the eastbound I-95 off-ramp to southbound Loisdale Road and modifying the remaining approach lanes to accommodate two through lanes onto Spring Mall Drive and two dedicated left-turn lanes onto northbound Loisdale Road.

G. **Loisdale Road and Lois Lane/South Street** would widen northbound Loisdale Road to accommodate a third through lane from Spring Mall Drive to Lois Lane, widen southbound Loisdale Road between Franconia Road and South Street to three through lanes, and construct a second left-turn bay onto eastbound South Street.

H. **Loisdale Road and Franconia Road Eastbound** would widen Franconia Road to accommodate a third eastbound through lane from approximately 750 feet west of Loisdale Road, or the maximum extent possible as determined by FCDOT, to Village Drive. It would also widen northbound Loisdale Road to accommodate a second northbound through lane from Lois Lane through the intersection with Franconia Road. The northbound approach would include three left-turn lanes, two through lanes, and one right-turn lane. The three left-turn lanes and two through lanes would continue through the next intersection.

I. **Frontier Drive and Spring Mall Drive** would include constructing an additional left-turn lane from northbound Frontier Drive onto westbound Spring Mall Drive, including an at-least 4-feet-wide pedestrian refuge in the Frontier Drive median.

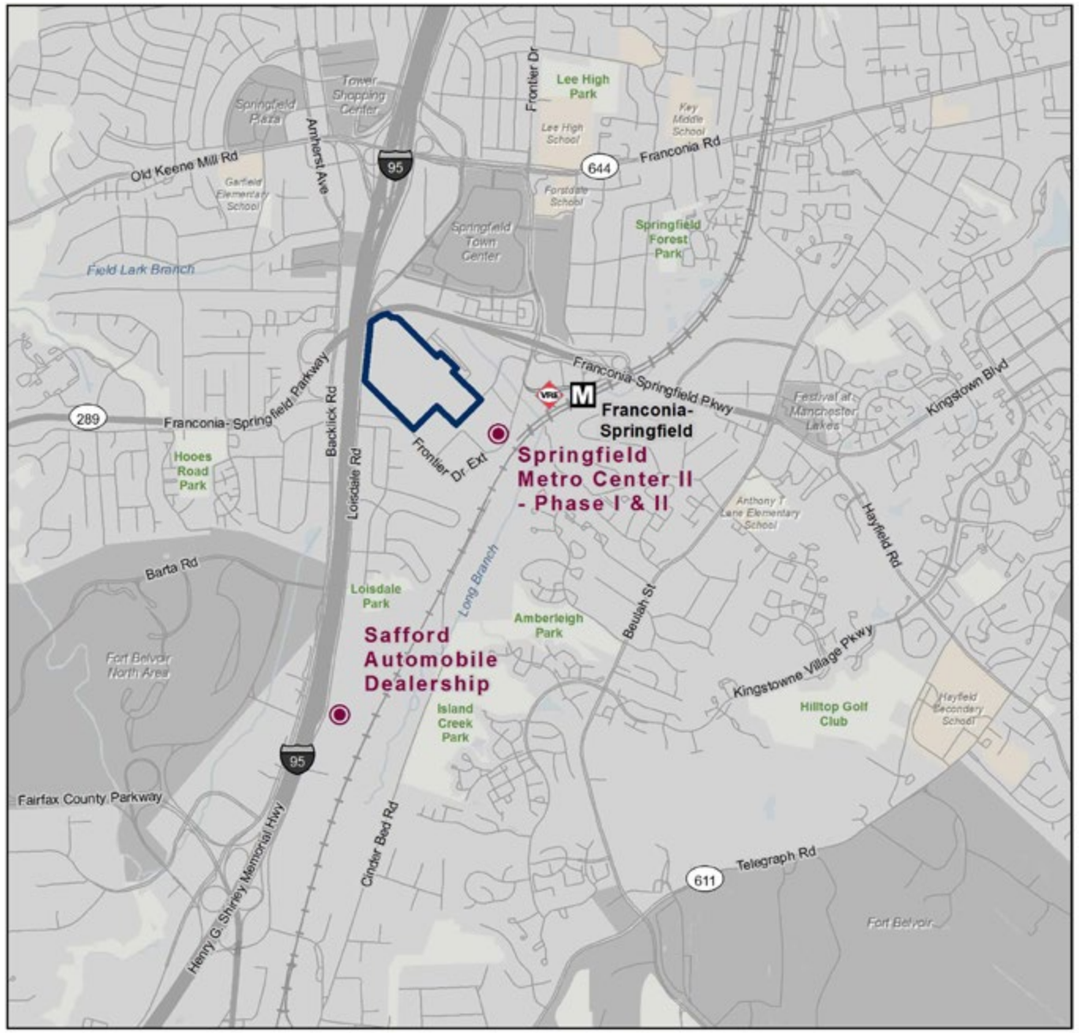
J. **Frontier Drive and Franconia-Springfield Parkway Westbound** on/off ramps would remove the island channelizing the southbound right-turn movement from Frontier Drive onto westbound Franconia-Springfield Parkway to create dual right-turn lanes.

K. **Frontier Drive and Franconia-Springfield Parkway Eastbound** on/off ramps would add a northbound right-turn movement from Frontier Drive onto eastbound Franconia-Springfield Parkway.

L. **Frontier Drive Extension and Metropolitan Center Drive Extension** would include a new unsignalized intersection with the Metropolitan Center Drive Extension eastbound approach STOP-sign controlled.

M. **Franconia-Springfield Parkway and I-95 HOT Lanes** would include adding a second left-turn lane from Franconia-Springfield Parkway to I-95 HOT Lanes northbound.

Figure 7-35: Springfield No-build Condition Planned Development Locations



SPRINGFIELD PEDESTRIAN NETWORK ENVIRONMENTAL CONSEQUENCES SUMMARY

No-build Condition: Direct, long-term, beneficial impacts.

Figure 7-36 shows the No-build Condition planned roadway improvement locations. Figure 7-37 shows the No-build Condition planned roadway improvements lane geometry and the new intersections added to the study area for analysis.

No-build Condition Pedestrian Network

Although there were no clear pedestrian funding categories in the Northern Virginia Transportation Improvement Plan for FY 2015-2020, the Greater Springfield Chamber of Commerce and county staff have been working to direct attention and funds to the Franconia-Springfield District for pedestrian and bicycle improvements (FC OCR 2014a). The Fairfax County FY 2015–FY 2019 Adopted Capital Improvement Program does include a fund for Springfield Streetscape Revitalization, but detailed improvement plans were not released (Fairfax County 2014fe).

With implementation of the Frontier Drive Extension to intersect with Loisdale Road via Springfield Center Drive, upgrades to sidewalks along the extension are expected to adhere to the new Franconia-Springfield District's streetscape guidelines that were adopted by the county's comprehensive plan. These improvements would improve the pedestrian access within the study area by providing additional connectivity. The Springfield Metro Center II Phase I project would also provide additional pedestrian sidewalks and amenities in the study area, improving the pedestrian environment near the Springfield site. The additional traffic from the Frontier Drive Extension and the Springfield Metro Center II project would create the opportunity for more conflicts between pedestrians and vehicles, but these should be mitigated with pedestrian crosswalks, traffic calming, and if needed, traffic controls designed with the project.

Therefore, under the No-build Condition, there would be direct, long-term, beneficial impacts to pedestrians because the increased connections would improve their access to the surrounding street network and nearby land uses. Adverse impacts to pedestrians from increased traffic levels in the study area would be avoided by the implementation of pedestrian crossings at the new intersections.

Figure 7-36: Springfield No-build Condition Planned Roadway Improvement Locations

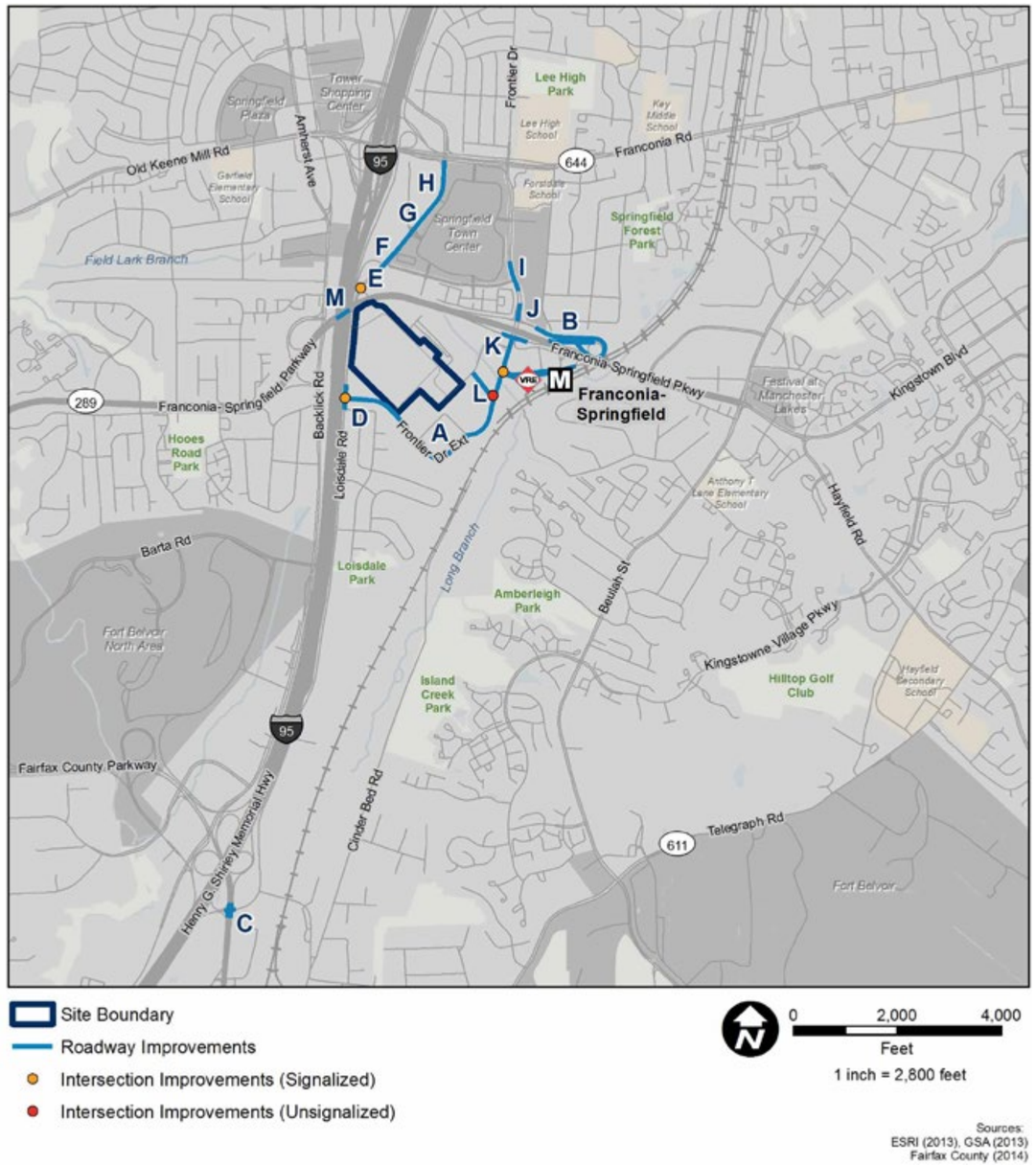
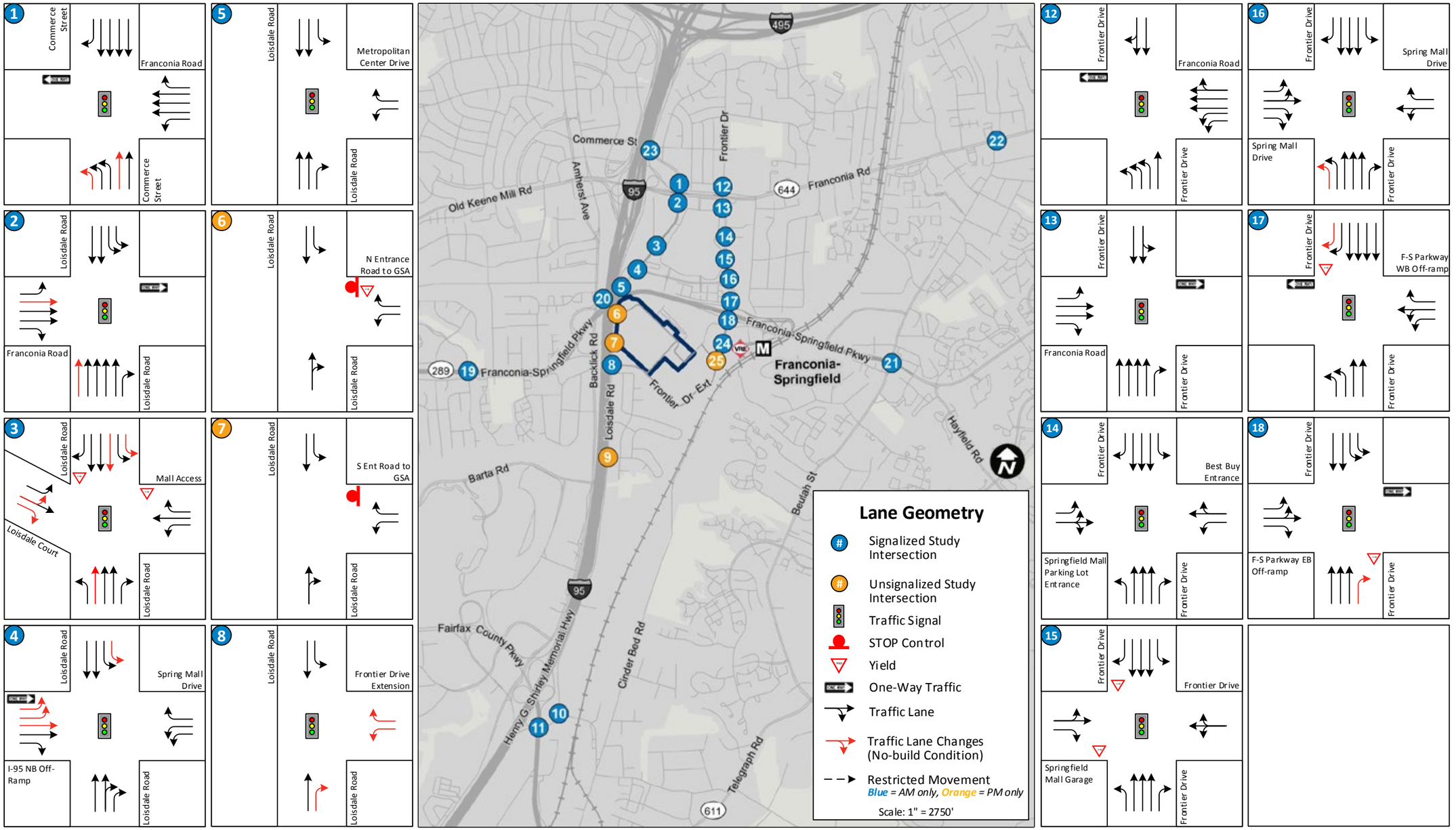
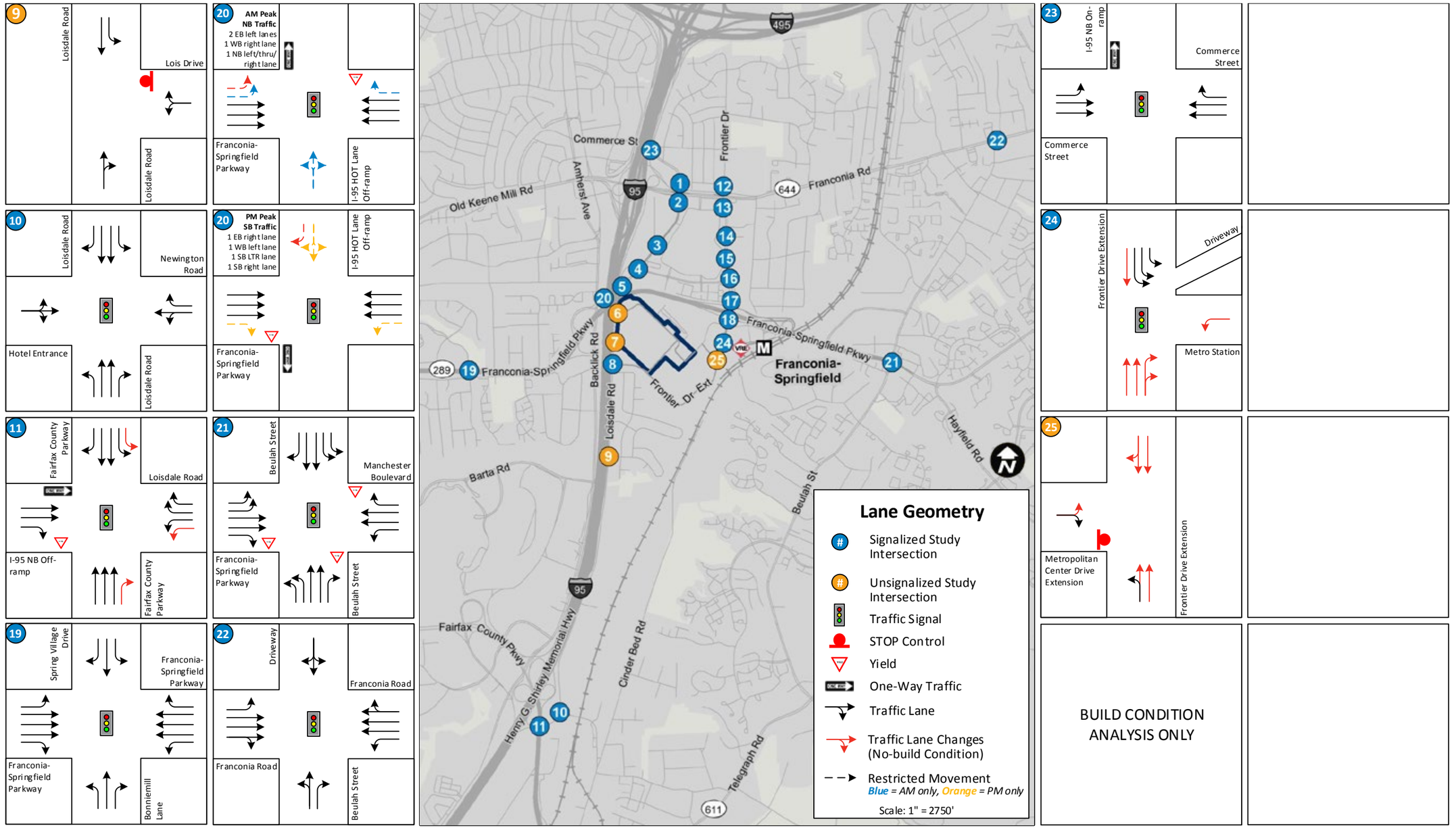


Figure 7-37: Springfield No-build Condition Lane Geometry Map



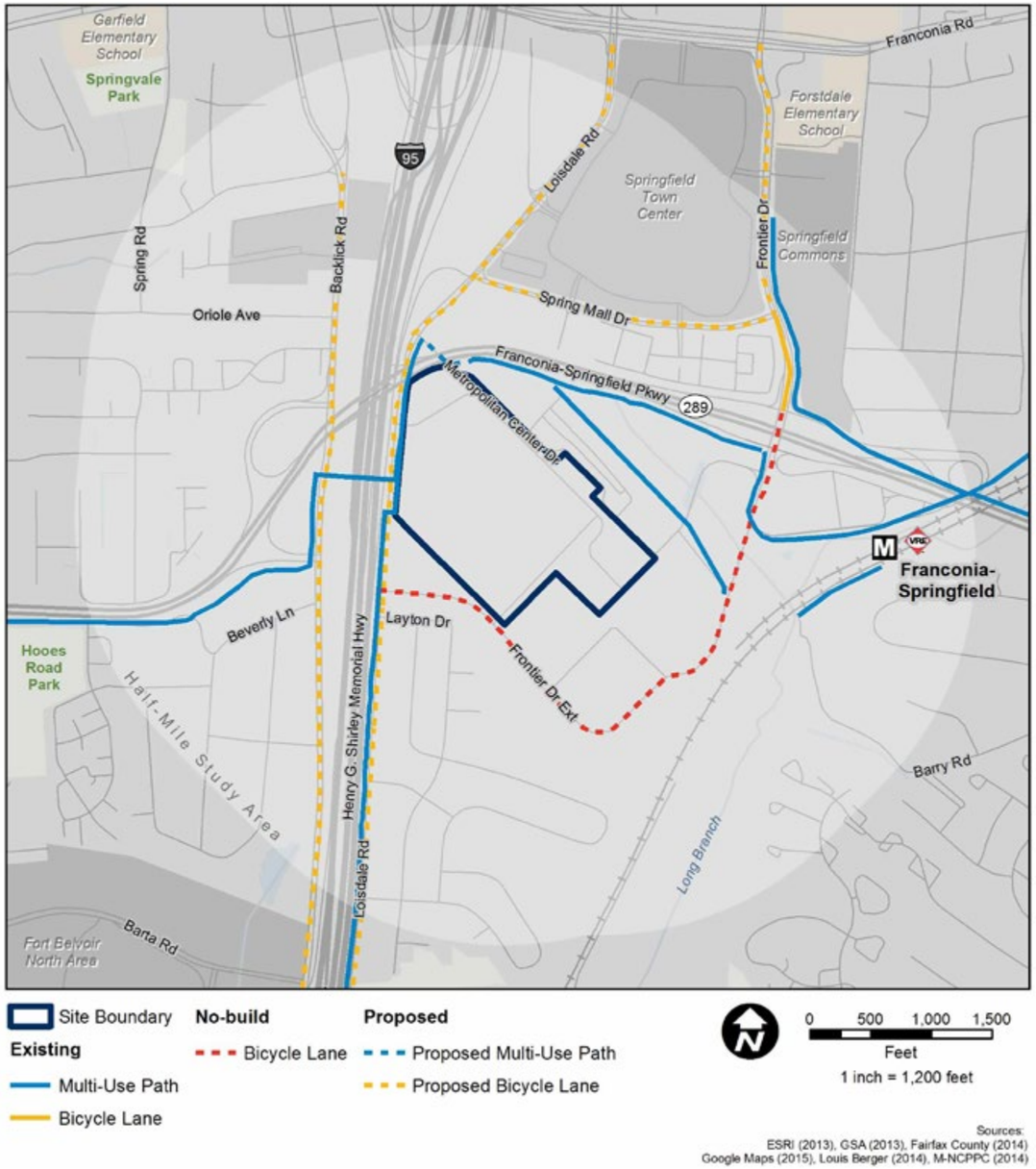
Note: EB=Eastbound, WB=Westbound, NB=Northbound, SB=Southbound. Intersection #20 operates with a different lane configuration during the AM and PM peak hours.

Figure 7-37: Springfield No-build Condition Lane Geometry Map (continued)



Note: EB=Eastbound, WB=Westbound, NB=Northbound, SB=Southbound. Intersection #20 operates with a different lane configuration during the AM and PM peak hours.

Figure 7-38: Proposed Springfield Area Bicycle Facilities



No-build Condition Bicycle Network

The Fairfax County Bicycle Master Plan recommends new bicycle lanes on several roadways within the study area, including Backlick Road, Loisdale Road, the planned Frontier Drive Extension (currently Springfield Center Drive adjacent to the Springfield site), Spring Mall Drive, and Frontier Drive (Fairfax County 2014d). The Fairfax County Office of Community Revitalization also notes that a safety improvement is currently in design for bicycle access improvements on Metropolitan Center Drive at the entrance to the Franconia-Springfield Parkway trail just north of the Springfield site (FC OCR 2014b). It is believed this improvement on Metropolitan Center Drive would provide the missing bicycle link between the end of the Franconia-Springfield Parkway trail on the eastern side of I-95 and the sidewalks on Loisdale Road that link to the pedestrian bridge over I-95, and subsequently to the western portion of the Franconia-Springfield Parkway trail. These recommended bicycle facilities are illustrated in table 7-24 and figure 7-38, along with the existing bicycle facilities in the study area. Currently, there is no date for implementation of these recommendations, with the exception of the Frontier Drive Extension bicycle lane facilities which VDOT plans to construct by 2022 (Springfield Site Transportation Agreement 2015 - Appendix A; FCDOT 2014b). In table 7-24 and figure 7-38, those bicycle facilities that are planned with no implementation date are shown as proposed, and the Frontier Drive Extension with a completion date of 2022 is shown as part of the No-build Condition.

In addition to the planned bicycle improvements, the Fairfax County Board of Supervisors has committed funds in FY2015-2020 for installing covered bicycle parking to accommodate at least 30 bicycles at the Franconia-Springfield Metro Station and VRE station (FCDOT 2014b). With this project, access driveway pavement, lighting, and security improvements may also be provided. The Board of Supervisors has also committed funds to enhance both bicycle and pedestrian access from the Northern Virginia Community College – Medical Campus, adjacent to the Springfield site, to the Franconia-Springfield Metro Station and nearby activity centers. These improvements would undoubtedly benefit future pedestrians and bicyclists.

As noted earlier, the Frontier Drive Extension project does include bicycle lanes in the planned project. Because this improvement is included in the No-build Condition roadway improvements, it is assumed the project with associated bicycle improvements would be complete by 2022, as well as the local area bicycle improvements funded by the Fairfax County Board of Supervisors for FY2015-2020 (FCDOT 2014b). Therefore, there would be direct, long-term, beneficial impacts on bicycle conditions in the study area for the No-build Condition, with additional beneficial impacts if other planned improvements are implemented.

No-build Condition Public Transit

The following sections describe the No-build Condition for the Metrorail and bus modes within the Springfield study area.

Projected Transit Growth

Growth in the transit mode was calculated for 2022 using regional transit growth rates and projected ridership associated with large planned projects in proximity to the site. Refer to section 3.10.4.3 for more detailed information about the Metrorail and bus growth calculations.

There is one planned project, Springfield Metro Center II, in proximity to the site. Fairfax County determined that 43 percent of the trips associated with this development were already accounted for in the MWCOG model background growth rate, so only 57 percent of the development's trips needed to be added following the Springfield Site Transportation Agreement (Appendix A). Trips associated with this project were calculated based on Institute of Transportation Engineers trip generation rates and the non-single occupancy vehicle (non-SOV) mode split determined in the traffic analysis section of this document (section 4.7, Traffic Analysis in the Springfield TIA) and the Springfield Site Transportation Agreement (Appendix A).

Fairfax County typically assigns 40 percent of trips to non-SOV modes for development projects located between 0.25-mile and 0.5-mile from a Metrorail station (T. Burke 2015). The non-SOV mode trips were further disaggregated (separated) into Metrorail trips and bus trips using bus and subway proportions from the 2009-2013 American Community Survey means of transportation data for the census tract containing the study area (U.S. Census Bureau 2009-2013). The American Community Survey is an on-going annual sampling of demographic data (including mode of travel) across the United States conducted by the U.S. Census Bureau. Metrorail trips associated with the Springfield Metro Center II project were added to projected growth at Franconia-Springfield Metro Station, and bus trips associated with the project were added to projected growth in bus ridership within the study area.

Table 7-24: Recommended Bicycle Facilities in the Springfield Study Area

Roadway	From/To	Type	Future Status	Notes
Backlick Road	Amherst Ave to Fairfax County Parkway	Bicycle Lane	Proposed	-
Loisdale Road	Franconia Road to Fairfax County Parkway	Bicycle Lane	Proposed	Includes climbing lane from Springfield Center Drive to Barta Road
Frontier Drive Extension (Springfield Center Drive)	Loisdale Road to Franconia-Springfield Parkway	Bicycle Lane	No-build Condition	Adjacent to Springfield site; this improvement is planned with the Frontier Drive Extension project
Spring Mall Drive	Loisdale Road to Frontier Drive	Bicycle Lane	Proposed	-
Frontier Drive	Franconia-Springfield Parkway to Franconia Road	Bicycle Lane	Proposed	Portions of this bicycle lane were built in 2015
Franconia-Springfield Parkway Trail	On Metropolitan Center Drive at the entrance to the Franconia-Springfield Parkway Trail	Trail Access Improvements	Proposed	Project would improve safety

Source: Fairfax County (2014c); FC OCR (2014b); Site Visit (May 8, 2015)

SPRINGFIELD BICYCLE ENVIRONMENTAL CONSEQUENCES SUMMARY

No-build Condition: Direct, long-term, beneficial impacts.

Table 7-25: Projected Trips Associated with the Springfield Metro Center II project

Period	Springfield Metro Center Total Non-SOV Trips Per Hour			Subway Proportion of Non-SOV	Metrorail Passenger Trips Per Hour			Peak Hour Factor	Metrorail Passenger Trips Per 15-Minutes		
	IN	OUT	TOTAL		Exits	Entries	Total		Exits	Entries	Total
AM Peak	292	40	332	55.5%	162	22	184	25.3%	41	6	47
PM Peak	52	254	307	55.5%	29	141	170	29.1%	8	41	49

Source: WMATA (2014m); Springfield Site Transportation Agreement (Appendix A); U.S. Census Bureau (2009-2013)

Table 7-26: Weekday 2022 Projected Metrorail Ridership at Franconia-Springfield Metro Station

Metro Station	Average Weekly Entries			
	2014	2022 with Background Growth	2022 Development Projects	2022 Total No-build
Franconia-Springfield	7,566	8,915	163	9,078

Source: WMATA (2014m); MWCOG (2015); Springfield Site Transportation Agreement (Appendix A)

SPRINGFIELD PUBLIC TRANSIT ENVIRONMENTAL CONSEQUENCES SUMMARY

No-build Condition: No measurable impacts.

Table 7-27: Projected Maximum 15-Minute Metrorail Passenger Loads at Franconia-Springfield Metro Station

Franconia - Springfield	Unit
2014 Maximum 15-minute Passengers (outbound exiting passengers during PM peak period)	486
2022 Passengers with Background Growth	572
2022 Passengers with Development Projects	8
2022 Total No-build Passengers	**580**
2022 Minimum Trains[a]	2
2022 Train Cars[b]	14
2022 Maximum Passengers Per Car	**41**

[a] *A 6-minute headway equates to 2.5 trains every 15 minutes. This figure was rounded down to 2 minutes to provide the most conservative load estimate.*
[b] *Assuming one 8-car train (Blue line) and one 6-car train at Franconia-Springfield.*
Source: WMATA (2014m); MWCOG (2015); Springfield Site Transportation Agreement (Appendix A)

Metrorail Analysis

The Metrorail analysis was conducted using projected ridership growth in the system at the Franconia-Springfield Metro Station and ridership projected for planned development projects in the study area.

Ridership Growth from Planned Projects

As previously mentioned, additional transit trips associated with Springfield Metro Center II were added to future projected ridership at the Franconia-Springfield Metro Station. As noted in *Projected Transit Growth*, 57 percent of the peak hour non-SOV project trips were used as the starting point to determine Metrorail trips associated with the Springfield Metro Center II project. These trips associated with the development were disaggregated into peak hour Metrorail trips using subway proportions from the 2009-2013 American Community Survey (U.S. Census Bureau 2009-2013) means of transportation data for the census tract containing the development. The peak hour Metrorail passenger trips were then disaggregated into peak AM and PM 15-minute totals using the current AM and PM peak hour factors (PHF) at the station (WMATA 2014x). A PHF is the proportion of peak hour ridership that occurs during the peak 15-minute period in that hour. The additional Metrorail trips associated with the Springfield Metro Center II project are summarized in table 7-25. AM peak 15-minute ridership is used in the station platform and fare vending capacity analysis. PM peak 15-minute ridership is used in the station vertical and faregate aisle capacity analysis, the passenger load analysis, and the emergency evacuation (National Fire Protection Association [NFPA] 130) analysis. Each represents the peak use.

Regional Transit Growth Rate

Background ridership growth at the Franconia-Springfield Metro Station in the study area for 2022 was calculated based on the 2.1 percent Metrorail growth rate from the MWCOG travel demand model (MWCOG 2015). Table 7-26 summarizes projected 2022 weekday entries at Franconia-Springfield Metro Station, including background growth and growth from planned projects. Average weekday exits are assumed to be the same or very similar to average weekday entries.

Metrorail Passenger Loads

Refer to section 3.10.4.3 for a detailed explanation of how Metrorail passenger loads were calculated. At the Franconia-Springfield Metro Station under the No-build Condition, PM peak exits were the highest of AM peak entries, AM peak exits, PM peak entries, and PM peak exits, and therefore were used to calculate maximum passenger loads. The maximum passenger per car load is projected to be 41 passengers by 2022. This value is well below the 100 passenger per car threshold and therefore would be considered acceptable. Table 7-27 summarizes passenger loads per car in 2022 under the No-build Condition using PM peak 15-minute exits.

Station Capacity Analysis

Refer to section 3.10.4.3 for a detailed description of how station capacity was analyzed. Table 7-28 summarizes ridership growth during the PM peak exiting periods at the station, and table 7-29 summarizes ridership growth during the AM peak entering periods.

Overall, vertical elements, faregate aisles, and fare vending machines at the station are projected to operate within capacity, or below a v/c of 0.7, which is considered capacity. Additionally, platform peak pedestrian levels of service (based on the available spacing between passengers) on the busiest platform sections are projected to be at the acceptable LOS B. Further details on the station capacity analysis and emergency evacuation analysis are found in Springfield TIA (Appendix E).

Bus Analysis

For this analysis, it was assumed that there would be no major changes in bus service in the study area by 2022 (the May 2015 service changes did not add capacity to any routes in the study area). The analysis includes Metrobus and FXC routes that serve the study area because data were available for both systems.

To calculate peak hour bus volumes within the study area, the 2014 maximum weekday passenger loads for each route and direction at stops within the study area were averaged by stop, and then this figure was multiplied by the number of peak bus trips per hour to calculate ridership per peak hour by route and direction. These totals were then grown to the year 2022 using the 1.9 percent annual regional growth rate for the bus mode. The 2022 totals were then summed to calculate a total ridership per peak hour for the study area.

As noted in Projected Transit Growth section of the Springfield TIA (section 4.4.1), 57 percent of the peak hour non-SOV project trips were used as the starting point to determine bus trips associated with the Springfield Metro Center II project. The peak hour non-SOV trips associated with the Springfield Metro Center II development were disaggregated into peak hour bus trips using the bus mode proportion from the 2009-2013 American Community Survey means of transportation data (U.S. Census Bureau 2009-2013) for the census tract containing the development. This additional ridership, approximately 27 AM peak and 25 PM peak passenger trips (see table 7-30), was added to each route and direction proportionally based on existing ridership.

To calculate the peak hour capacity of bus services within the study area, the capacity per trip of each bus route during the peak hour was multiplied by the number of trips scheduled in the peak hour. Capacities per trip for each Metrobus route were based on the typical number of seats available on each trip and the WMATA load standard (WMATA 2013). Capacities per trip for each FXC route were also based on the typical number of seats available on each trip and the FXC load standard (Fairfax County 2014g).

Total 2014 peak hour bus ridership (Existing Condition) and projected 2022 peak hour bus ridership (No-build Condition) are summarized in table 7-31. Both 2014 and No-build Condition 2022 bus ridership are below the calculated overall capacity of bus services in the study area, meaning the additional passenger trips projected can be adequately handled by current service levels. Additionally, no individual routes are projected to have capacity issues by 2022.

The Springfield TIA (Appendix E) contains the Franconia-Springfield Metro Station bus bay analysis and further details on the bus capacity analysis.

Table 7-28: Weekday Peak 15-Minute Exiting Period Ridership Growth

Metro Station	Time	2014		2022 No-build	
		Entries	Exits	Entries	Exits
Franconia-Springfield	5:00 PM – 5:15 PM	82	486	138	581

Source: WMATA (2014m); MWCOG (2015); Springfield Site Transportation Agreement (Appendix A)

Table 7-29: Weekday Peak 15-Minute Entering Period Ridership Growth

Metro Station	Time	2014		2022 No-build	
		Entries	Exits	Entries	Exits
Franconia-Springfield	7:30 AM – 7:45 AM	445	41	530	89

Source: WMATA (2014m); MWCOG (2015); Springfield Site Transportation Agreement (Appendix A)

Table 7-30: Projected Bus Trips Associated with Springfield Metro Center II project

Period	Springfield Metro Center Total Non-SOV Trips			Bus Proportion of Non-SOV	Bus Trips		
	IN	OUT	TOTAL		IN	OUT	TOTAL
AM Peak Hour	292	40	332	8.0%	23	3	27
PM Peak Hour	52	254	307	8.0%	4	20	25

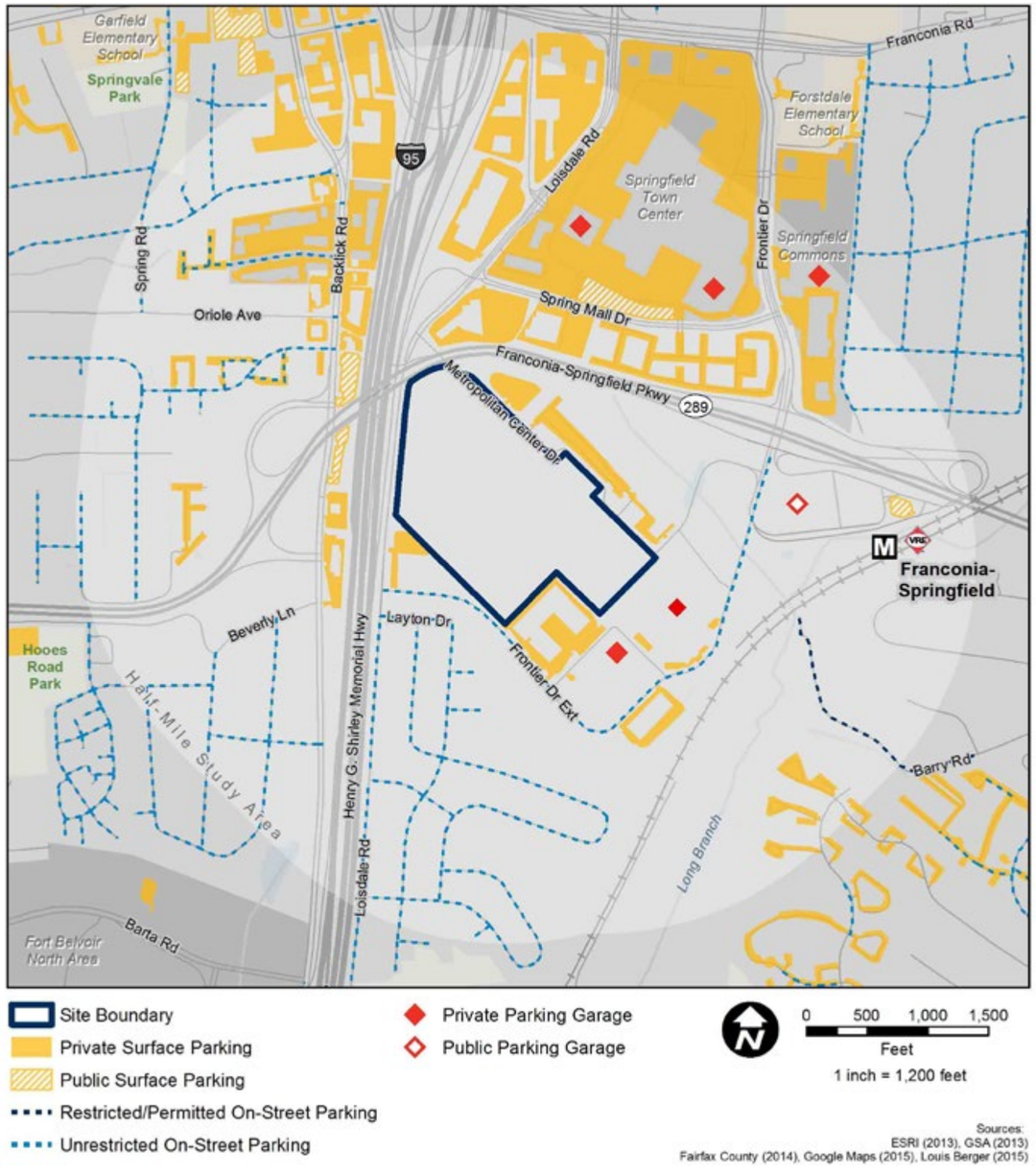
Note: Values may not appear to calculate correctly due to rounding.
Source: WMATA (2014o); Springfield Site Transportation Agreement (Appendix A); U.S. Census Bureau (2009–2013)

Table 7-31: Current and Projected Bus Ridership in the Springfield Study Area

Measure	2014		2022 Background Growth		2022 Development Projects		2022 Total No-build	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Total Volume	848	846	983	981	27	25	1,010	1,006
Total Capacity	2,843	2,824	2,843	2,824	-	-	2,843	2,824
Volume to Capacity Ratio (V/C)	0.30	0.30	0.35	0.35	-	-	0.36	0.36

Source: WMATA (2014o); Fairfax County (2015a); MWCOG (2015); Springfield Site Transportation Agreement (Appendix A).

Figure 7-39: Springfield No-build Condition Planned Parking



Summary of Transit Analysis

The increase in public transit trips in the No-build Condition would have the following impacts on transit:

- No Metrobus routes or FXC routes would have capacity issues. Additionally, the overall capacity of bus services in the study area would accommodate the projected ridership.
- Metrorail passenger loads through the study area are projected to remain at acceptable levels.
- Metrorail vertical elements are projected to continue to operate below capacity.
- Metrorail faregate aisles and fare vending machines would continue to operate below capacity.
- Metrorail platform peak pedestrian LOS (based on the available spacing between passengers) on the busiest platform sections are projected to continue to be at the acceptable LOS B.
- Platform and station evacuation times would increase slightly over existing conditions. Platform evacuation times would continue to meet NFPA 130 standards, while station evacuation times would continue to slightly exceed NFPA 130 standards. However, WMATA Metrorail stations are not required to meet NFPA 130 standards.

The increase in public transit trips from nearby development projects and normal annual growth in transit ridership under the No-build Condition would not strain or bring the volume of the transit ridership above existing service level capacities. Therefore, the No-build Condition would have no measurable direct, long-term impacts to public transit capacity. However, bus operations (three bus routes) would have direct, long-term, major adverse impacts due to potential traffic delays along Franconia-Springfield Parkway (see Appendix E, section 4.7, Traffic Analysis).

No-build Condition Parking

Parking in the study area would likely experience changes (see figure 7-39. Minimal changes are envisioned to public parking in the 0.5-mile area around the Springfield site through 2022. However, with the extension of Frontier Drive from Franconia-Springfield Parkway to Loisdale Road, on-street parking would be added (FCDOT 2012). Additionally, just outside of the 0.5-mile study area for parking, a Springfield Community Business District Commuter Parking Garage would be built at Old Keene Mill Road and Springfield Boulevard (just west of Amherst Avenue) (FC OCR 2014b). The parking garage is planned to have more than 1,000 spaces to replace existing parking lots and spaces located in nearby shopping centers; it would act as a multi-modal center with multiple bus bays and be designed for sluggers (FC OCR 2014a).

Private parking areas in the study area would also likely increase. The Springfield Metro Center II project is planned to include the addition of a private parking garage for the project tenants southwest of the Springfield site. There may also be future parking changes at the Springfield Town Center with future development phases of the mall.

The No-build Condition and improvement projects would slightly increase public surface parking along the Frontier Drive Extension. The addition of the area improvement projects would slightly increase the parking demand in the study area, but the on-site parking improvements and proximity of the projects to Metrorail should provide sufficient capacity for the extra trips generated from the development projects. Overall, with a slight increase in surface public parking, the No-build Condition would have direct, long-term, beneficial impacts to parking in the study area.

Truck Access

Truck access routes would not change under the No-build Condition, with the exception that some trucks may take the extended Frontier Drive route to access the Springfield site and surrounding developments once that road extension is completed.

Assessment of Significance

There would be direct, long-term, beneficial impacts to truck access due to the improved roadway connections under the No-build Condition.

No-build Condition Traffic Analysis

According to the Springfield Site Transportation Agreement, two primary sources were relied on to develop the future traffic volumes: an approved list of planned developments provided by FCDOT and background growth rates agreed among by all parties (VDOT, FCDOT, and the EIS project team). The Springfield Site Transportation Agreement is found in Appendix A.

The following section describes the process for analyzing traffic for the No-build Condition and the results of the analysis.

Background Growth

Refer to section 3.10.4.3 for a detailed description of background growth and how it was calculated. Based on the Springfield Site Transportation Agreement (Appendix A), the 0.58 percent annual growth rate was agreed to for use in the Springfield study area. To avoid double-counting, the planned developments already covered in the MWCOG model were not included in the No-build Condition.

The Springfield TIA (Appendix E) contains the details for determining the background growth rates for the interstate and non-interstate roadways in the study area. Table 7-32 shows the background growth rates by roadway facility. See Appendix E7 for further details on the No-build Condition background growth.

Trip Generation and Modal Split

Vehicle trips produced by three planned developments were calculated and included the Safford Automobile Dealership and the Springfield Metro Center II Phase development. In addition to the planned development trip generation, the future vehicle trip growth for the Franconia-Springfield Metro Station was forecasted to 2022.

Table 7-33 presents the planned development trip generation summary. Appendix E contains the Metrorail growth forecasted steps and a more detailed trip generation summary contained in the Springfield TIA.

SPRINGFIELD PARKING ENVIRONMENTAL CONSEQUENCES SUMMARY

- **No-build Condition:** Direct, long-term, beneficial impacts.

SPRINGFIELD TRUCK ACCESS ENVIRONMENTAL CONSEQUENCES SUMMARY

- **No-build Condition:** Direct, long-term, beneficial impacts.

Table 7-32: No-build Condition Background Roadway Growth Rates

Roadway	Annual Growth Rate	Eight-Year Growth
I-95/I-495/I-395	0.75%	6.16%
Non-Interstate Roadways	0.58%	4.74 %

Table 7-33: Planned Development Trip Generation

Project	AM Peak Hour			PM Peak Hour		
	IN	OUT	TOTAL	IN	OUT	TOTAL
Safford Automobile Dealership						
TOTAL VEHICLE TRIPS	116	38	154	71	106	177
Springfield Metro Center II Phase I						
TOTAL VEHICLE TRIPS	223	30	254	40	196	235
Springfield Metro Center II Phase II						
TOTAL VEHICLE TRIPS	214	30	244	38	187	225
Franconia - Springfield Metro Station Background Growth						
TOTAL VEHICLE TRIPS	314	89	403	97	292	389

Table 7-34: Springfield Planned Development Trip Distribution

Origin/Destination	Safford Automobile Dealership	Springfield Metro Center II Phase I & II
I-95 North	1%	56%[a]
I-395 North	1%	
I-495 North	2%	
Commerce Street	4%	
Frontier Drive	1%	
Franconia Road eastbound	7%	
Old Keene Mill Road	9%	
Franconia-Springfield Parkway eastbound	7.5%	7.5%
Franconia-Springfield Parkway westbound	7.5%	7.5%
I-95 South	20%	29%[b]
Fairfax County Parkway eastbound	25%	
Fairfax County Parkway westbound	15%	
Total	**100%**	**100%**

[a]*Represents all vehicle trips destined to the north of the property excluding Franconia-Springfield Parkway*
[b]*Represents all vehicle trips destined to the south of the property*

Trip Distribution

Once the total number new vehicle trips were calculated through the trip generation process, the trips were systematically and logically distributed across the road network. This is typically a straightforward process, emulating the existing travel patterns on roadways. However, in this case, with new developments and new roadways introduced as part of the No-build Condition, the process required several additional steps to complete. These steps included:

1. Expand the existing volumes to cover the proposed future Franconia-Springfield Metro Station roadway network.
2. Shift the vehicle trips based on the opening of a new roadway connection (Frontier Drive Extension).
3. Add the planned development trips.
4. Add the Franconia-Springfield Metro Station trips.
5. Add the background growth rate trips.

The distribution of the Franconia-Springfield Metro Station-generated vehicle trips and shifted vehicle trips caused by Frontier Drive Extension on the proposed roadway network are contained in the Springfield TIA (Appendix E).

Planned Development Trip Distribution

The planned developments include the Safford Automobile Dealership and Springfield Metro Center II Phase I and II. The study followed the Safford Automobile Dealership Traffic Impact Study distribution pattern (Gorove Slade 2014). Because 25 percent of vehicle distribution was assigned to Loisdale Road north of Spring Mall Drive, the Springfield Town Center Traffic Impact Study retail distribution pattern was referenced to distribute 25 percent of vehicle trips across the remaining study area roads north of Spring Mall Drive in a consistent manner (Gorove Slade 2008).

The study distributed the Springfield Metro Center II project by using the Springfield Town Center Traffic Impact Study office distribution pattern (Gorove Slade 2008). Vehicle trips from these developments were only added to the study area along Frontier Drive Extension between Loisdale Road and Franconia-Springfield Parkway westbound on/off ramps. These vehicle trips fill a gap in the future vehicle trip network (Frontier Drive Extension) while the 0.58 percent background growth covers the Springfield Metro Center II project for the remaining study area network. Table 7-34 contains the distribution percentages for each planned development. Appendix E7 contains maps showing the distribution patterns for each planned development.

The distribution of future forecasted vehicle trips to and from the Franconia-Springfield Metro Station are contained in the Springfield TIA (Appendix E).

Once all the vehicle trips were properly shifted and the planned development growth applied, the vehicle background growth trips were applied. This consisted of applying a 0.58 annual growth factor to all the non-interstate roadways (including ramps) based on the volume after shifting existing vehicle trips due to the opening of the Frontier Drive Extension and applying a 0.75 annual growth factor to all the interstate roadways.

Complete No-build Condition

The planned developments, background growth, and planned roadway improvements were summed together to create complete No-build Condition vehicle volumes covering all study area intersections and expressway facilities. Figure 7-40 shows the total No-build Condition background AM and PM weekday peak turning movement volumes. Section 3.10.4.3 contains a description of the PHF and how it was used to provide a conservative traffic operations analysis.

No-build Condition Operations Analysis

Based on the Synchro™ signalized intersection analysis, most of the signalized study area intersections would operate at acceptable overall conditions during the morning and afternoon peak hours. However, the intersection of Franconia-Springfield Parkway/Manchester Boulevard and Beulah Street (Intersection #21) would operate at unacceptable conditions during both the AM and PM peak hours.

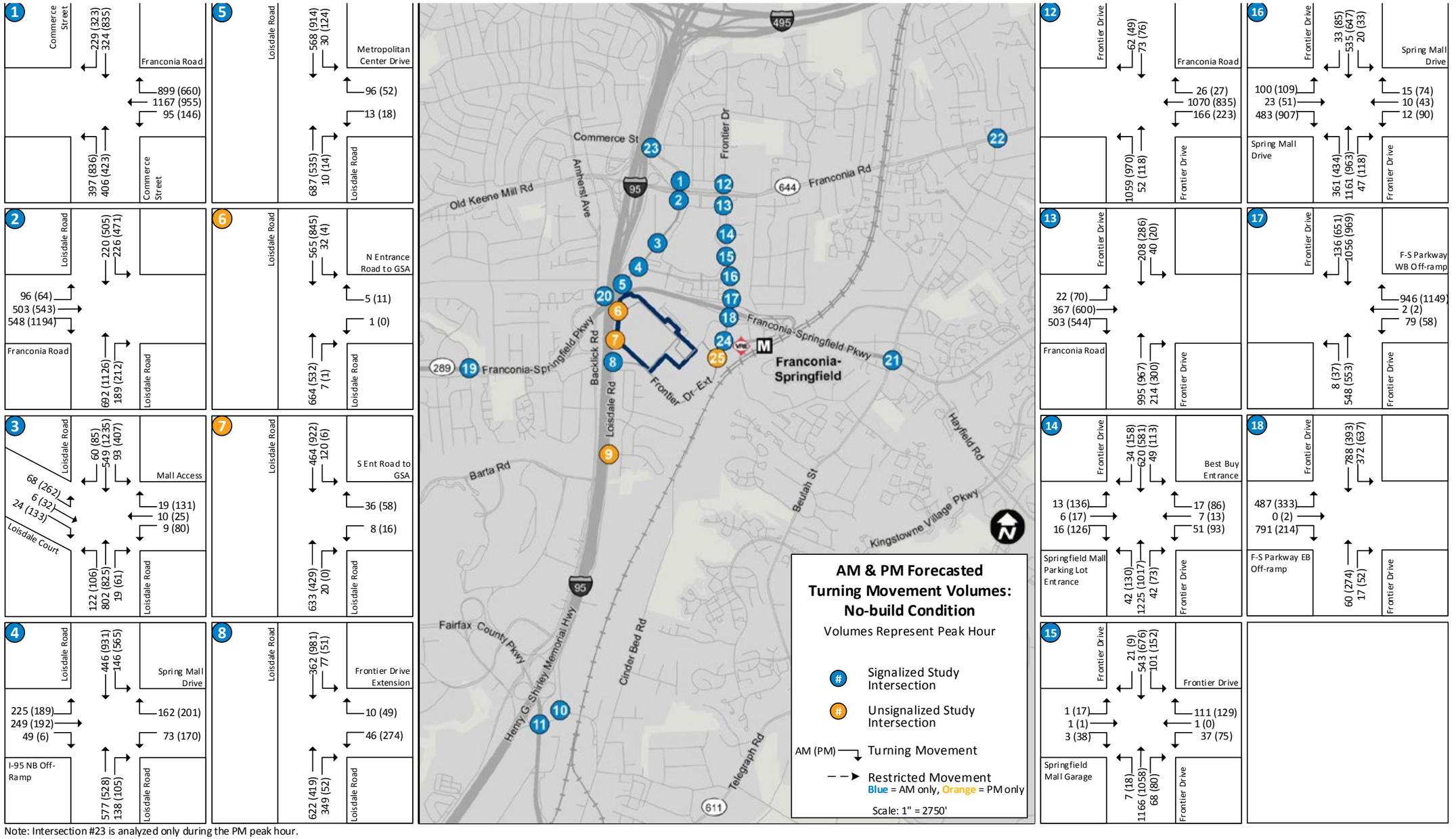
A total of 11 signalized intersections and 1 unsignalized intersection would experience an unacceptable conditions for one or more turning movements. Compared to the Existing Condition, the No-build Condition would have no change in the number of intersections failing during both the AM and PM peak hours. The Springfield TIA (Appendix E) contains a more detailed No-build Condition traffic operations analysis.

The overall intersection LOS grades for the No-build Condition are depicted in figure 7-41 for the AM and PM peak hours. Table 7-35 shows the results of the LOS capacity analysis and the intersection projected delay under the No-build Condition during the AM and PM peak hours.

SPRINGFIELD TRAFFIC ENVIRONMENTAL CONSEQUENCES SUMMARY

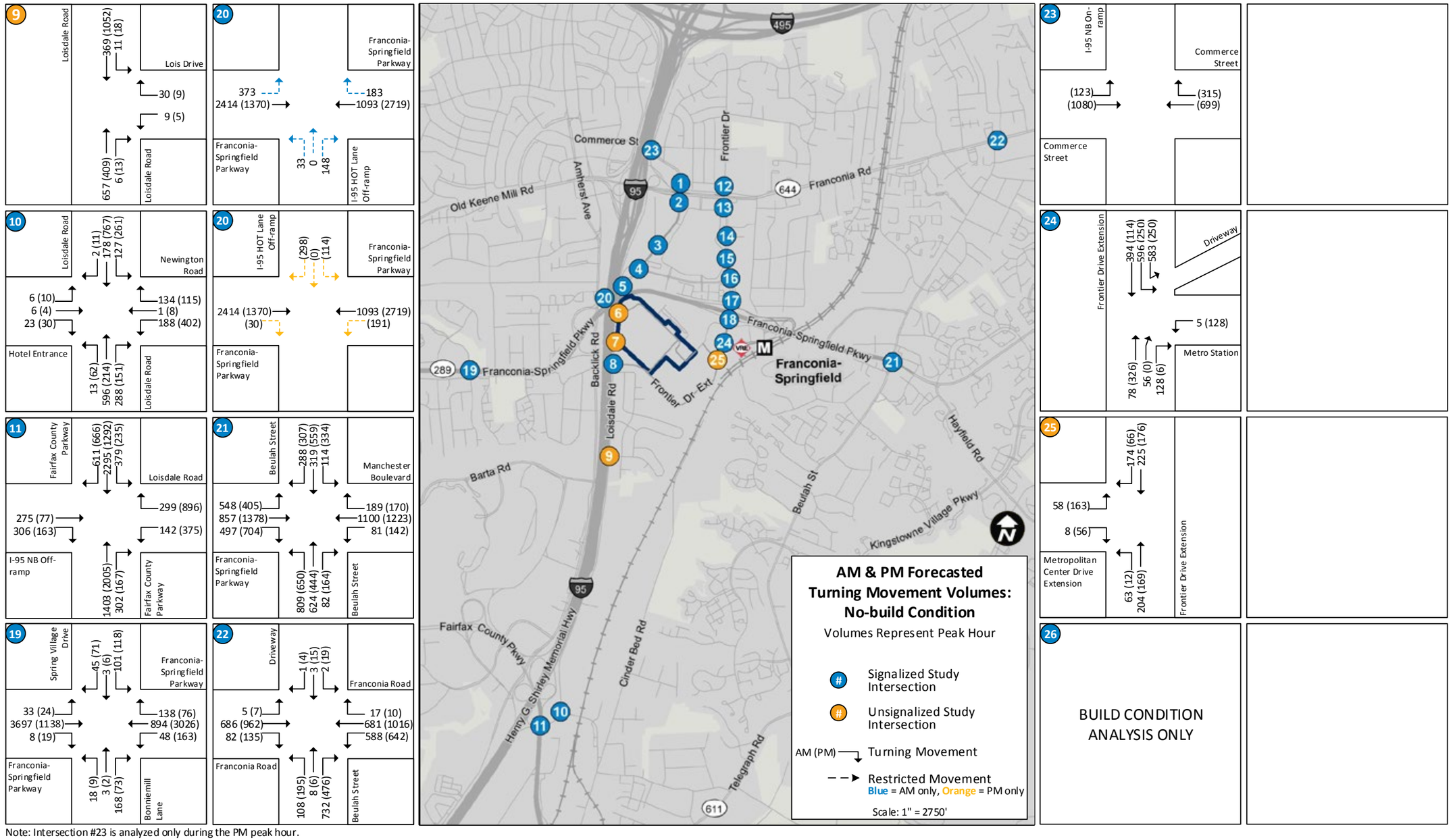
No-build Condition: Direct, long-term, adverse impacts to study area intersections.

Figure 7-40: Springfield No-build Condition AM and PM Weekday Peak Turning Movement Volumes



Note: Intersection #23 is analyzed only during the PM peak hour.

Figure 7-40: Springfield No-build Condition AM and PM Weekday Peak Turning Movement Volumes (continued)



Note: Intersection #23 is analyzed only during the PM peak hour.

Table 7-35: Springfield No-build Condition Intersection AM and PM Peak Hour Operations Analysis

#	Intersection	AM Peak Hour Overall			PM Peak Hour Overall		
		Delay (sec/veh)	LOS	Check	Delay (sec/veh)	LOS	Check
1	Loisdale Road/Commerce Street & Franconia Road (Westbound) (Signalized)	24.0	C	Pass	31.1	C	Pass
2	Loisdale Road/Commerce Street & Franconia Road (Eastbound) (Signalized)	35.7	D	Pass	32.1	C	Pass
3	Loisdale Road & Loisdale Court/Mall Access (Signalized)	9.1	A	Pass	21.9	C	Pass
4	Loisdale Road & Ramp from NB I-95/Spring Mall Drive (Signalized)	32.9	C	Pass	23.7	C	Pass
5	Loisdale Road & Metropolitan Center Drive (Signalized)	6.7	A	Pass	4.1	A	Pass
6	Loisdale Road & Northern Entrance Road to GSA Facility (Access to Building A, 66808 & 6610 Loisdale Road) (TWSC)	0.3	-	Pass	0.1	-	Pass
7	Loisdale Road & Southern Entrance Road to GSA Facility (Access to Building B, 7000 Loisdale Road) (TWSC)	1.6	-	Pass	0.9	-	Pass
8	Loisdale Road & Frontier Drive Extension (Signalized)	9.2	A	Pass	23.8	C	Pass
9	Loisdale Road & Lois Drive (TWSC)	0.7	-	Pass	0.3	-	Pass
10	Loisdale Road & Hotel Entrance/Newington Road (Signalized)	16.7	B	Pass	31.6	C	Pass
11	Loisdale Road/I-95 (N) Ramp C & D & Fairfax County Parkway (Signalized)	35.7	D	Pass	37.7	D	Pass
12	Frontier Drive & Franconia Road (Westbound) (Signalized)	30.7	C	Pass	24.6	C	Pass
13	Frontier Drive & Franconia Road (Eastbound) (Signalized)	38.5	D	Pass	31.5	C	Pass
14	Frontier Drive & Best Buy/Springfield Mall Parking Lot Entrance (Signalized)	41.8	D	Pass	30.8	C	Pass
15	Frontier Drive & Home Depot/Springfield Mall Garage Entrance (SMGE) (Signalized)	37.3	D	Pass	19.8	B	Pass
16	Frontier Drive & Spring Mall Drive (Signalized)	22.8	C	Pass	38.4	D	Pass
17	Frontier Drive & Franconia-Springfield Parkway (Westbound) (Signalized)	31.3	C	Pass	15.5	B	Pass
18	Frontier Drive & Franconia-Springfield Parkway (Eastbound) (Signalized)	47.6	D	Pass	32.1	C	Pass
19	Franconia-Springfield Parkway & Spring Village Drive/Bonniemill Lane (Signalized)	46.8	D	Pass	27.6	C	Pass
20	Franconia-Springfield Parkway & I-95 HOT Lane Ramps (Signalized) [a]	17.5	B	Pass	15.8	B	Pass
21	Franconia-Springfield Parkway/Manchester Boulevard & Beulah Street (Signalized)	84.1	F	Fail	96.9	F	Fail
22	Franconia Road & Beulah Street (Signalized)	39.9	D	Pass	51.1	D	Pass
23	I-95 NB On-ramp & Commerce Street (Signalized) [b]	-	-	-	2.8	A	Pass
24	Frontier Drive Extension & Metro Station (Signalized)	16.4	B	Pass	18.7	B	Pass
25	Frontier Drive Extension & Metropolitan Center Drive Extension (TWSC)	2.1	-	Pass	4.7	-	Pass

Notes:

LOS = Level of Service

TWSC = Two-way STOP-Controlled unsignalized intersection (TWSC intersections do not have an overall LOS)

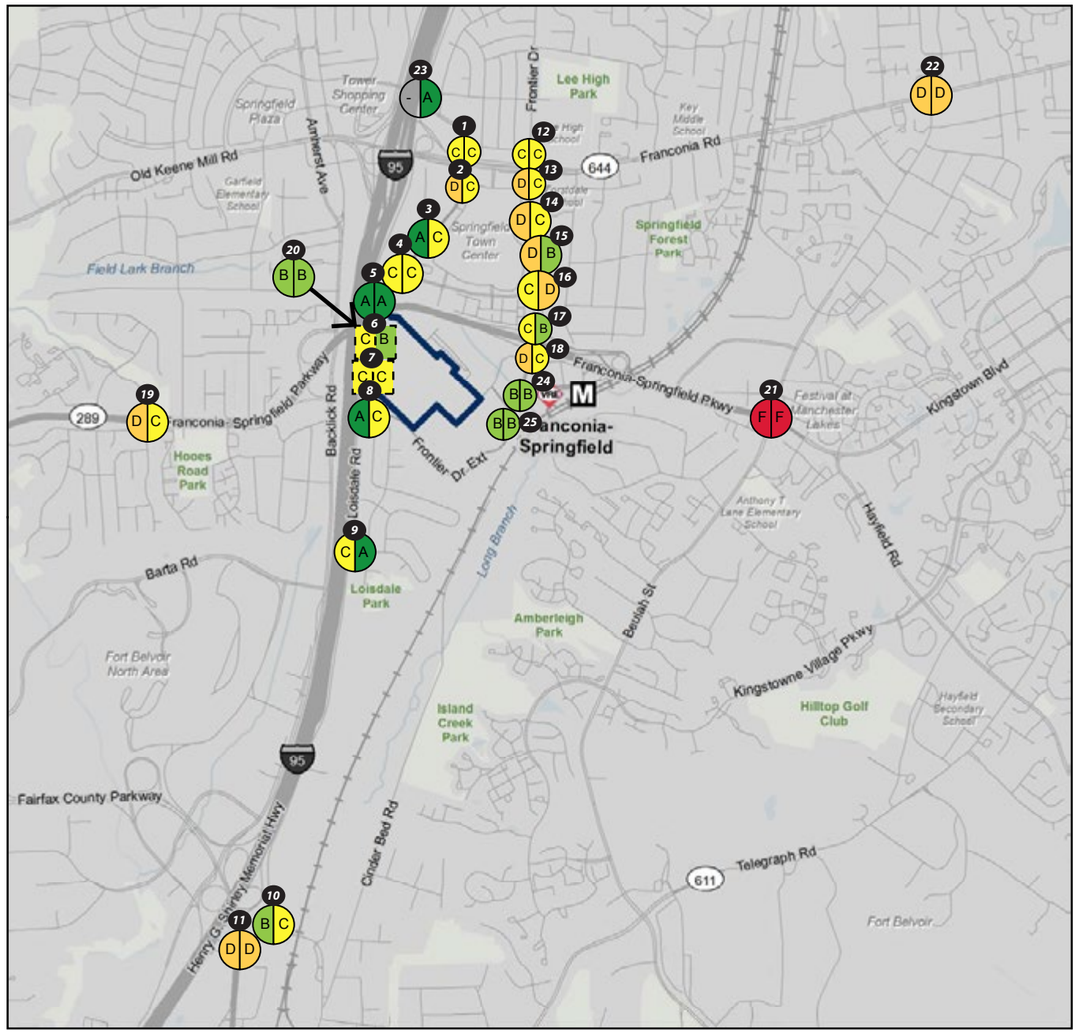
Delay is Measured in Seconds Per Vehicle.

Red cells denote intersections operating at unacceptable conditions.

[a] Intersection would continue to operate with a different lane configuration during the AM and PM peak hours.

[b] Intersection is not analyzed during the AM peak hour.

Figure 7-41: Springfield No-build Condition Intersection LOS for AM and PM Peak Hours



SPRINGFIELD PEDESTRIAN NETWORK ENVIRONMENTAL CONSEQUENCES SUMMARY

Build Condition: Direct, long-term, beneficial impacts.

SPRINGFIELD BICYCLE NETWORK ENVIRONMENTAL CONSEQUENCES SUMMARY

Build Condition: No measurable impacts.

No-build Condition Queuing Analysis

Based on the Synchro™ and SimTraffic™ analysis, 12 signalized intersections and one unsignalized intersection would experience queuing lengths that would exceed the available storage capacity. The remaining intersections in the study area would provide sufficient storage for the anticipated demand. Compared to the Existing Condition, the No-build Condition would have failing queues for three more intersections during the AM peak hour and four less intersections during the PM peak hour. The Springfield TIA (Appendix E) contains a more detailed No-build Condition traffic queuing analysis.

Summary of Traffic Analysis: No-build Condition

Overall, there would be impacts during the AM and PM peak hour at the Franconia-Springfield Parkway/ Manchester Boulevard and Beulah Street intersection (Intersection #21) resulting in direct, long-term, adverse impacts.

7.2.9.2 Build Condition (FBI HQ Consolidation)

This section introduces the Build Condition for the Springfield site and summarizes the potential impact to the pedestrian network, bicycle network, public transit system, parking conditions, truck access, and traffic operations from the consolidation of the FBI HQ on the Springfield site.

Build Condition Pedestrian Network

Under the Build Condition, sidewalk improvements along the eastern corner of the Springfield site would be built to connect the on-site sidewalks and pedestrian access gate area to the off-site pedestrian network. Because the roadways adjacent to the Springfield site already have sidewalks on at least one side of the road, or would have sidewalks as roadways are constructed for the No-build Condition (e.g., Frontier Drive Extension and Metropolitan Center Drive Extension), only localized pedestrian improvements are anticipated at the locations of the remaining Entry Control Facilities (ECFs) to provide ADA compliance and pedestrian access, as needed. Within the site, multiple pedestrian pathways would provide access to the Main Building and between elements on the site; the location of these pedestrian accommodations would be determined in the final site design process.

Based on the anticipated mode split percentages including 3 percent walk, 37 percent transit, and 16 percent bus, a large number of pedestrians would access the Springfield site via the surrounding pedestrian network from nearby transit stops and residential areas. The large increase in pedestrians would be due to the increased employment density anticipated at the Springfield site and because the Springfield site is within a 0.5-mile walking distance of several transit options. Also, reduced parking was designed per NCPC guidance to encourage employees to access the site via transit. It is expected that most transit riders would follow sidewalks from the Franconia-Springfield Metro Station to the pedestrian gate at the eastern edge of the Springfield site. These sidewalks either currently exist, would be built with future roadways planned in the No-build Condition, or would be built locally around the Springfield East ECF as part of the Build Condition to connect to the pedestrian network.

Therefore, due to the large increase in pedestrians expected to access the site on foot via the pedestrian network, the Build Condition as planned would have direct, long-term, beneficial impacts to the pedestrian network. The pedestrian impacts would overall be beneficial, rather than adverse, because the sidewalks would be used more often, with overall increased use of the otherwise underused complete streets infrastructure. The sidewalk improvements at the East ECF would reduce barriers to accessing the site, and the increase in pedestrians using transit would improve overall sustainability. Under the Build Condition there could be direct, short-term, adverse impacts to the pedestrian network caused by construction vehicles crossing the sidewalk and pedestrian crosswalks and intermittent sidewalk closures.

Build Condition Bicycle Network

As noted for the No-build Condition (section 7.2.11.1), the Fairfax County Bicycle Master Plan (Fairfax County 2014d) recommends new bicycle lanes on several roadways within the study area. The only bicycle improvements that are known to be funded and therefore would be complete by 2022 as part of the No-build Condition would be the bicycle lanes on Fairfax Drive Extension, covered bicycle storage at the Franconia-Springfield Metro Station and VRE Station, and pedestrian and bicycle improvements between Northern Virginia Community College and the Metrorail (FCDOT 2014b). No off-site bicycle improvements are planned as part of the Springfield Build Condition.

With the planned Frontier Drive Extension (currently Springfield Center Drive), bicycle lanes would be directly adjacent to the proposed facility. The overall bicycle mode split to the site is projected to be 2 percent, resulting in approximately 226 bicycle roundtrips daily. It is assumed that there would be bicycle and shower facilities on-site to encourage the use of the bicycle mode of travel.

The increase in bicycle trips from the Springfield Build Condition would increase overall bicycle volumes in the study area. Given the existing amount of bicycle facilities within the study area and those facilities that are proposed, these additional trips would likely be able to be accommodated without any impacts to pedestrian or vehicle traffic. Therefore, the Springfield Build Condition would have no measurable direct, long-term impacts to the bicycle network. Also under the Springfield Build Condition, there could be direct, short-term, adverse impacts to the bicycle network on Frontier Drive Extension and Loisdale Road caused by construction vehicles blocking the sidewalks or bike lanes and intermittent closures.

Build Condition Public Transit

The following sections describe the Springfield Build Condition for the Metrorail and bus modes within the Springfield study area. It is anticipated that there would be an increase in people commuting to the site via commuter rail, commuter bus, shuttle, or slugging given the overall increase in total trips in the Build Condition. Also, the projected use of shuttles for future FBI employees is discussed in a later section.

Projected Trips

Section 3.10.4.2 details the basis of the Springfield Build Condition trip generation calculation

Metrorail Analysis

The Springfield Build Condition passenger trips were assigned to Metrorail peak hours using the Metrorail/Commuter Rail mode split of 37 percent, and a further reduction of AM peak trips out of the site and PM peak trips into the site, to account for passengers that could use VRE instead of Metrorail. VRE service only operates to Franconia-Springfield Station in the northbound direction during the AM peak and in the southbound direction during the PM peak. The VRE passenger trip reduction was calculated using the current proportion of daily passengers that use VRE instead of Metrorail to and from Franconia-Springfield Station, as shown in table 7-36.

With a Metrorail mode split of 37 percent and the VRE reduction (minus nine percent in the AM peak hour and minus 11 percent in the PM peak hour), a total of 1,226 additional AM peak hour passenger trips and 1,134 additional PM peak hour passenger trips are projected. Table 7-37 summarizes the additional Metrorail trips associated with the Springfield Build Condition.

The additional peak hour Metrorail passenger trips were further disaggregated into AM and PM peak 15-minute periods using existing PHFs at Franconia-Springfield Metro Station. Overall, this would result in an additional 310 passenger trips during the AM peak 15-minute period and an additional 329 passenger trips during the PM peak 15-minute period, as summarized in table 7-37.

Overall, the Springfield Build Condition would result in an additional 4,223 weekday entries at the Franconia-Springfield Metro Station, bringing the weekday station entry total to 13,301 passengers (see table 7-38). Average weekday exits would theoretically be the same or similar to the average weekday entries.

Metrorail Passenger Loads

Refer to section 3.10.4.3 for a detailed explanation of how Metrorail passenger loads were calculated. Because Franconia-Springfield is a terminal station, passenger loads are equal to the total number of exiting passengers per train in the outbound direction (trains ending at the station) or the total number of entering passengers per train in the inbound direction (trains beginning at the station). Outbound exiting passengers during the PM peak period were higher than inbound entering passengers during the AM peak period at the station; therefore, PM peak 15-minute exits were used for this analysis.

Table 7-36: Springfield VRE/Franconia-Springfield Metrorail Station Ridership Proportions

Metro Station	Northbound Entries		Southbound Exits	
	Total	Percent of Total	Total	Percent of Total
VRE Franconia-Springfield Station[a]	769	9%	1,012	11%
Franconia-Springfield Metrorail Station	7,566	91%	7,801	89%
Total	8,335	100%	8,813	100%

[a]*These figures represent the percentage of passengers who would use Metrorail instead of VRE, and constitute the "VRE Reduction" previously referenced.*
Source: Springfield Site Transportation Agreement (Appendix A)

Table 7-37: Springfield Build Condition Franconia-Springfield Additional Peak 15-Minute Metrorail Passenger Trips

Employees	Time Period	IN	OUT	TOTAL	Peak Hour Factor	Time Period	IN	OUT	TOTAL
11,055	AM Peak Hour	1,116	76	1,192	25%	AM Peak 15-Minute	282	19	301
	PM Peak Hour	49	1,057	1,106	29%	PM Peak 15-Minute	14	307	321
Briefing Center	**Time Period**	**IN**	**OUT**	**TOTAL**	**Peak Hour Factor**	**Time Period**	**IN**	**OUT**	**TOTAL**
250	AM Peak Hour	34	-	34	25%	AM Peak 15-Minute	9	-	9
	PM Peak Hour	-	27	27	29%	PM Peak 15-Minute	-	8	8
Total People	**Time Period**				**Peak Hour Factor**	**Time Period**	**Exits**	**Entries**	**TOTAL**
11,305	AM Peak Hour	1,149	76	1,226	25%	AM Peak 15-Minute	290	19	310
	PM Peak Hour	49	1,084	1,134	29%	PM Peak 15-Minute	14	315	329

Source: Springfield Site Transportation Agreement (Appendix A); WMATA (2014b); WMATA (2014m)

Table 7-38: Weekday 2022 Projected Metrorail Ridership at Franconia-Springfield Station

Metro Station	Average Weekday Entries					
	2014	2022 Background Growth	2022 Development Projects	2022 Total No-build	2022 Additional Build Trips	2022 Total Build ConditionTrips
Franconia-Springfield	7,566	8,915	163	9,078	4,223	13,301

Source: WMATA (2014b); WMATA (2014m); MWCOG (2015); Springfield Site Transportation Agreement (Appendix A)

Table 7-39: Springfield Build Condition Peak Metrorail Passenger Loads

Franconia - Springfield	Unit
2014 Maximum 15-minute Passengers (outbound exiting passengers during PM peak period)	486
2022 Passengers with Background Growth	572
2022 Passengers with Development Projects	8
2022 Total No-build Passengers	**580**
2022 Minimum Trains[a]	2
2022 Train Cars[b]	14
2022 No-build Passengers Per Car	**41**
2022 Springfield Build Additional Passengers	**14**
2022 Total Springfield Build Passengers	**595**
2022 Total Springfield Build Passengers Per Car	**43**

[a] *A 6-minute headway equates to 2.5 trains every 15 minutes. This figure was rounded down to 2 minutes to provide the most conservative load estimate.*
[b] *Assuming one 8-car train (Blue line) and one 6-car train at Franconia-Springfield.*
Source: WMATA (2014X); MWCOG (2015); Springfield Site Transportation Agreement (Appendix A)

SPRINGFIELD PUBLIC TRANSIT ENVIRONMENTAL CONSEQUENCES SUMMARY

Build Condition: No measurable impacts to public transit capacity, and direct, short- and long-term, adverse impacts to bus operations.

Table 7-40: Springfield Build Condition Weekday Peak 15-Minute Entering Period Ridership

Metro Station	Time	2014		2022 No-build		2022 Build	
		Entries	Exits	Entries	Exits	Entries	Exits
Franconia- Springfield	7:30 AM – 7:45 AM	441	41	530	89	549	380

Source: WMATA (2014b); WMATA (2014l); MWCOG (2015); Springfield Site Transportation Agreement (Appendix A)

Table 7-41: Springfield Build Condition Additional Peak Hour Local Bus Passenger Trips

Employees	Time Period	Proportion of Daily Total	Local Bus Mode Split	TOTAL LOCAL BUS TRIPS
11,055	AM Peak Hour	29%	6.0%	192
	PM Peak Hour	26.9%	6.0%	178
Briefing Center	**Time Period**	**Proportion of Daily Total**	**Local Bus Mode Split**	**TOTAL LOCAL BUS TRIPS**
250	AM Peak Hour	36%	6.0%	5
	PM Peak Hour	29%	6.0%	4
Total People	**Time Period**			**TOTAL LOCAL BUS TRIPS**
11,305	AM Peak Hour			198
	PM Peak Hour			183

Source: Springfield Site Transportation Agreement (Appendix A)

Table 7-42: Springfield Build Condition Bus Capacity Analysis

Measure	2014		2022 No-build		2022 Build	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Total Volume	848	846	1,010	1,006	1,208	1,189
Total Capacity	2,843	2,824	2,843	2,824	2,843	2,824
Volume to Capacity Ratio (V/C)	0.30	0.30	0.36	0.36	0.42	0.42

Source: Springfield Site Transportation Agreement (Appendix A); Springfield Site Trip Generation Summary (see Traffic Analysis section) (2015); WMATA (2014a); WMATA (2014f); MWCOG (2015).

Projected passenger loads of 43 passengers under the Springfield Build Condition as this station is well below the 100 passenger per car, and therefore would be considered acceptable. Table 7-39 summarizes passenger loads per car under the Springfield Build Condition using PM peak 15-minute exits.

Station Capacity Analysis

Refer to section 3.10.4.3 for a detailed description of how the station capacity was analyzed. The Build Condition passenger peak 15-minute would continue to occur during the AM at 7:30 AM. Table 7-40 summarizes ridership during this period.

Overall, vertical elements, faregate aisles, and fare vending machines at the station are projected to operate within capacity, or below a v/c of 0.7. Additionally, platform peak pedestrian LOS (based on the available spacing between passengers) on the busiest platform sections are projected to be at the acceptable LOS B. Further details on the station capacity analysis are found in Springfield TIA (Appendix E).

Bus Analysis

The additional local bus trips associated with the Springfield Build Condition are summarized in table 7-41. At a local bus mode split of 6.0 percent, approximately 198 additional AM peak hour bus passenger trips and 183 additional PM peak hour bus passenger trips are projected in the study area.

The additional peak hour bus passenger trips associated with the Springfield Build Condition were added to the peak hour bus volumes calculated for the study area in the 2022 No-build Condition. The trips were added proportionally to each route within the study area based on No-build Condition ridership. For this analysis, it was assumed that there would be no major changes in bus service in the study area by 2022.

Overall, AM peak hour Springfield Build Condition bus volumes are projected to total 1,208 passengers, and PM peak hour volumes are projected to total 1,189 passengers. These totals are both below the overall capacity of services, as summarized in table 7-42, meaning the additional passenger trips projected could be adequately handled by current service levels. No individual routes are projected to experience capacity issues either. Appendix E has further details on the bus capacity analysis.

Summary of Transit Analysis

The increase in public transit trips from the Springfield Build Condition would have the following impacts to transit:

- The overall capacity of bus services in the study area would accommodate the projected ridership, and no individual routes would experience capacity issues.
- Metrorail car passenger loads through the study area are projected to be at acceptable levels.
- Overall, Metrorail vertical elements, faregate aisles, and fare vending machines at the Franconia-Springfield Metro Station are projected to operate below capacity.
- Metrorail platform peak pedestrian LOS (based on the available spacing between passengers) on the busiest platform sections are projected to be at the acceptable LOS B at the Franconia-Springfield Metro Station.
- Platform and station evacuation times would increase slightly over the No-build Condition. Platform evacuation times would continue to meet NFPA 130 standards, and station evacuation times would continue to exceed NFPA 130 standards.

Therefore, the Springfield Build Condition would have no measurable direct, long-term impacts to public transit capacity. In addition, bus operations along one bus route would have direct, long-term, adverse impacts caused by the potential traffic delays forecasted along Loisdale Road (see the Springfield TIA, section 5.7, Traffic Analysis). The same bus line that regularly services Springfield Center Drive and Loisdale Road would encounter direct, short-term, adverse impacts caused by construction vehicles blocking some or all of the lanes and intermittent road closures.

Build Condition Parking

Under the Build Condition, employee parking garages would be located to the north and east of the Main Building Developable Area along the northeastern site boundary, adjacent to Metropolitan Center Drive. Given the distance to the nearest transit station, and in accordance with NCPC parking policy, a parking ratio of one parking space for every three employees would be maintained, equating to approximately 3,600 spots. In the conceptual site layout analyzed in the EIS (see section 2.4.3), these spaces would be accommodated in two, 8-story parking structures. The final number and layout of the parking structures to accommodate the required employee and fleet vehicle parking would be determined during the design process. Up to 145 visitor parking spaces would be provided near the VC.

While all employee and visitor parking is envisioned to be accommodated on-site, it is likely that there would be more employee demand for driving than there are parking spaces due to the less than 1:1 ratio of parking spaces to employees (not all employees would have a parking spot) as recommended by NCPC policies. As an “end-of-the-line” station, Metrorail may not seem like the best travel option from other sides of the city. Therefore, some employees may try to park on local streets (Frontier Drive Extension would have on-street, short-term, metered parking) or park on local residential streets that do not have parking restrictions. Still others may choose to pay to park in local area parking garages. Development and implementation of a Transportation Management Plan (TMP), which includes Transportation Demand Management (TDM) measures that would encourage employees to use transit and discourage employees from driving and parking off-site, would address these issues and reduce any adverse parking impacts anticipated at the Springfield site. With implementation, monitoring, and enforcement of a TMP, and revisions as needed, the Build Condition would result in no measurable direct, long-term impacts to local area competition for parking. Assuming all construction equipment and employee parking areas would be contained to the Springfield site, there would be no measurable direct, short-term impacts to parking in the study area during the construction period.

Truck Access

Truck access for the Springfield site would occur at the northwestern corner of the site off of Loisdale Road, as shown in section 2.4.3. Trucks would only be permitted to enter and exit during non-peak hours; therefore, peak traffic hours on adjacent roadways would not be impacted. Truck entrance and exit locations and restricted hours would be noted at entrance locations and communicated to those services that would provide regular truck delivery to the site. It should be noted that the location of the truck access off of Loisdale Road was designed to prevent trucks from using local neighborhood roads to access the site.

Therefore, under the Build Condition, there would be no measurable direct, long-term impacts to truck access given communication of truck access regulations. Assuming the Springfield site would have access entrances and exits assigned for construction equipment and general trucks during the construction period, there would be no measurable direct, short-term impacts to truck access.

Build Condition Traffic Analysis

Refer to section 3.10.4.2 for a detailed description of the process the study followed to project future traffic volumes through three primary assumptions: trip generation, modal split, and trip distribution, followed by a discussion of the impacts of the proposed alternative.

SPRINGFIELD PARKING ENVIRONMENTAL CONSEQUENCES SUMMARY

Build Condition: No measurable impacts.

SPRINGFIELD TRUCK ACCESS ENVIRONMENTAL CONSEQUENCES SUMMARY

Build Condition: No measurable impacts.

Table 7-43: Springfield AM Peak Hour Vehicle Trips

Calculated Steps	AM Peak Hour (7:30 AM - 8:30 AM)									
	FBI Employees				Briefing Center[a]					
	Inbound		Outbound		Inbound		Outbound		TOTAL	
	SOV	HOV	SOV	HOV	SOV	HOV	SOV	HOV	In-bound	Out-bound
Employees or Seats	11,055				250					
Trip Generation	29%				36%					
Inbound/Outbound Split	93%		7%		100%		0%			
Modal Split	30.6%	11.0%	30.6%	11.0%	30.6%	11.0%	30.6%	11.0%		
Total Trips w/o HOV adjustment	912	328	69	25	28	10	0	0		
HOV Vehicle Occupancy		4		4		4		4		
Total Trips	912	82	69	6	28	2	0	0	1,024	75

[a] *Assumes a 500-seat facility where external trips represent 50% of attendees*

Table 7-44: Springfield PM Peak Hour Vehicle Trips

Calculated Steps	PM Peak Hour (5:00 PM - 6:00 PM)									
	FBI Employees				Briefing Center[a]					
	Inbound		Outbound		Inbound		Outbound		TOTAL	
	SOV	HOV	SOV	HOV	SOV	HOV	SOV	HOV	In-bound	Out-bound
Employees or Seats	11,055				250					
Trip Generation	26.9%				29%					
Inbound/Outbound Split	5%		95%		0%		100%			
Modal Split	30.6%	11.0%	30.6%	11.0%	30.6%	11.0%	30.6%	11.0%		
Total Trips w/o HOV adjustment	45	16	864	311	0	0	22	8		
HOV Vehicle Occupancy		4		4		4		4		
Total Trips	45	4	864	78	0	0	22	2	49	966

[a] *Assumes a 500-seat facility where external trips represent 50% of attendees*

Total Vehicle Trips

Based on the trip generation rates combined with the SOV and HOV modal split and persons per carpool, the total vehicle trips are forecasted to be 1,024 inbound and 75 outbound during the AM peak hour and 49 inbound and 966 outbound during the PM peak hour.

Tables 7-43 and 7-44 summarize the vehicle trips based on the trip generation and the mode split.

Trip Distribution

The process for determining trip distribution is detailed in section 3.10.4.2. Table 7-45 shows the blended trip distribution percentages to/from each origin/destination. Figure 7-42 contains the Springfield site Build Condition trip distribution.

Development of Build Condition

Refer to section 3.10.4.3 for a description of how the Build Condition was developed for traffic analysis. It is important to note that the Build Condition includes GSA trips removed from the existing GSA site as well as the addition of the forecasted FBI vehicle trips and No-build vehicle trips. A diagram of Build Condition lane geometry and additional diagrams showing the Build Condition trip generation can be found in the Springfield TIA (Appendix E).

Build Condition Operations Analysis

Based on the Synchro™ signalized intersection analysis, the majority of study intersections would operate at acceptable conditions during the morning and afternoon peak hours. However, the following signalized intersections in the study area would operate with overall unacceptable conditions:

- Frontier Drive and Franconia-Springfield Parkway Westbound (Intersection #17) during the AM peak hour
- Frontier Drive and Franconia-Springfield Parkway Eastbound (Intersection #18) during the AM peak hour
- Franconia-Springfield Parkway/Manchester Boulevard and Beulah Street intersection #21) during the AM and PM peak hours

A total of 15 signalized intersections and 1 unsignalized intersection would experience unacceptable conditions for one or more turning movements. Compared to the No-build Condition, the Build Condition would have two more intersections failing during the AM peak hour and there would no change in the number of intersections failing during the PM peak hour. The Springfield TIA (Appendix E) contains a more detailed Build Condition traffic operations analysis.

The overall intersection LOS grades for the Build Condition are shown in figure 7-43 for the AM and PM peak hours. Table 7-46 shows the results of the LOS capacity analysis and the intersection projected delay under the Build Condition conditions during the AM and PM peak hours.

Build Condition Queuing Analysis

Based on the Synchro™ and SimTraffic™ analysis, 17 signalized intersections would experience queuing lengths that would exceed the available storage capacity. The remaining intersections in the study area would provide sufficient storage for the anticipated demand. Compared to the No-build Condition, the Build Condition would have three more intersections with failing queues during the AM peak hour and would have eight more intersections with failing queues during the PM peak hour. The Springfield TIA (Appendix E) contains a more detailed Build Condition traffic queuing analysis.

SPRINGFIELD TRAFFIC ENVIRONMENTAL CONSEQUENCES SUMMARY

Build Condition: Direct, long-term, major adverse impacts to corridors in the study area; direct, long-term, adverse impacts to isolated intersections; and direct, short-term, adverse impacts during the construction period.

Table 7-45: Springfield Build Condition Trip Distribution Summary

Roadway and Direction	Percentages		AM Trips		PM Trips	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
I-95/I-495 EB	21.0%	21.0%	215	16	10	203
I-95 SB	15.0%	15.0%	154	11	7	145
I-495 NB	19.0%	19.0%	195	14	9	184
I-395 NB	16.0%	16.0%	164	12	8	155
Backlick Road NB	3.0%	3.0%	31	2	1	29
Old Keene Mill Road WB	2.0%	2.0%	20	2	1	19
Franconia Road EB	3.0%	3.0%	31	2	1	29
Franconia Springfield Parkway WB	13.0%	13.0%	133	10	6	126
Franconia Springfield Parkway EB	4.0%	4.0%	41	3	2	39
Fairfax County Parkway WB	1.0%	1.0%	10	1	0	10
Fairfax County Parkway EB	3.0%	3.0%	31	2	1	29
Total	100.0%	100.0%	1,024	75	49	966

Figure 7-42: Springfield Build Condition Trip Distribution

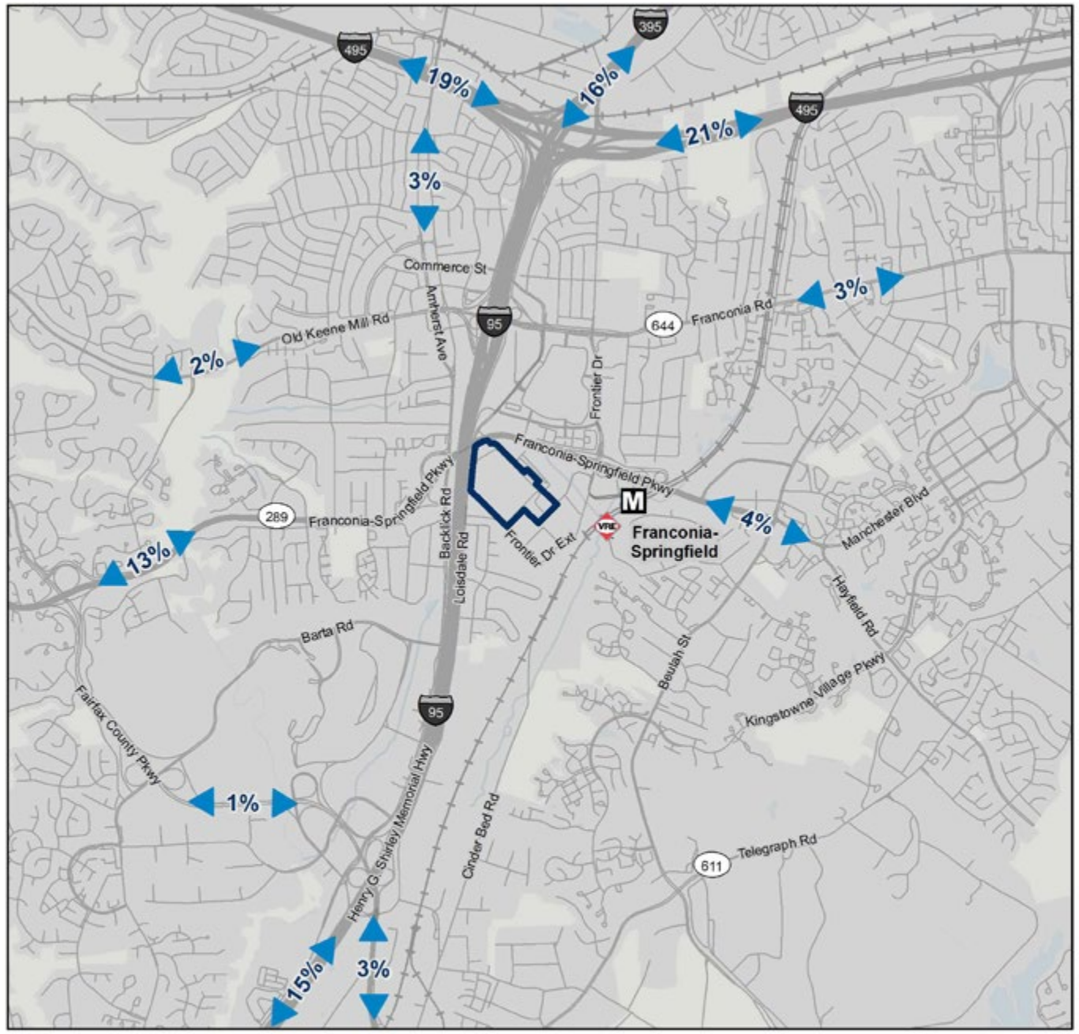


Table 7-46: Springfield Build Condition Intersection AM and PM Peak Hour Operations Analysis

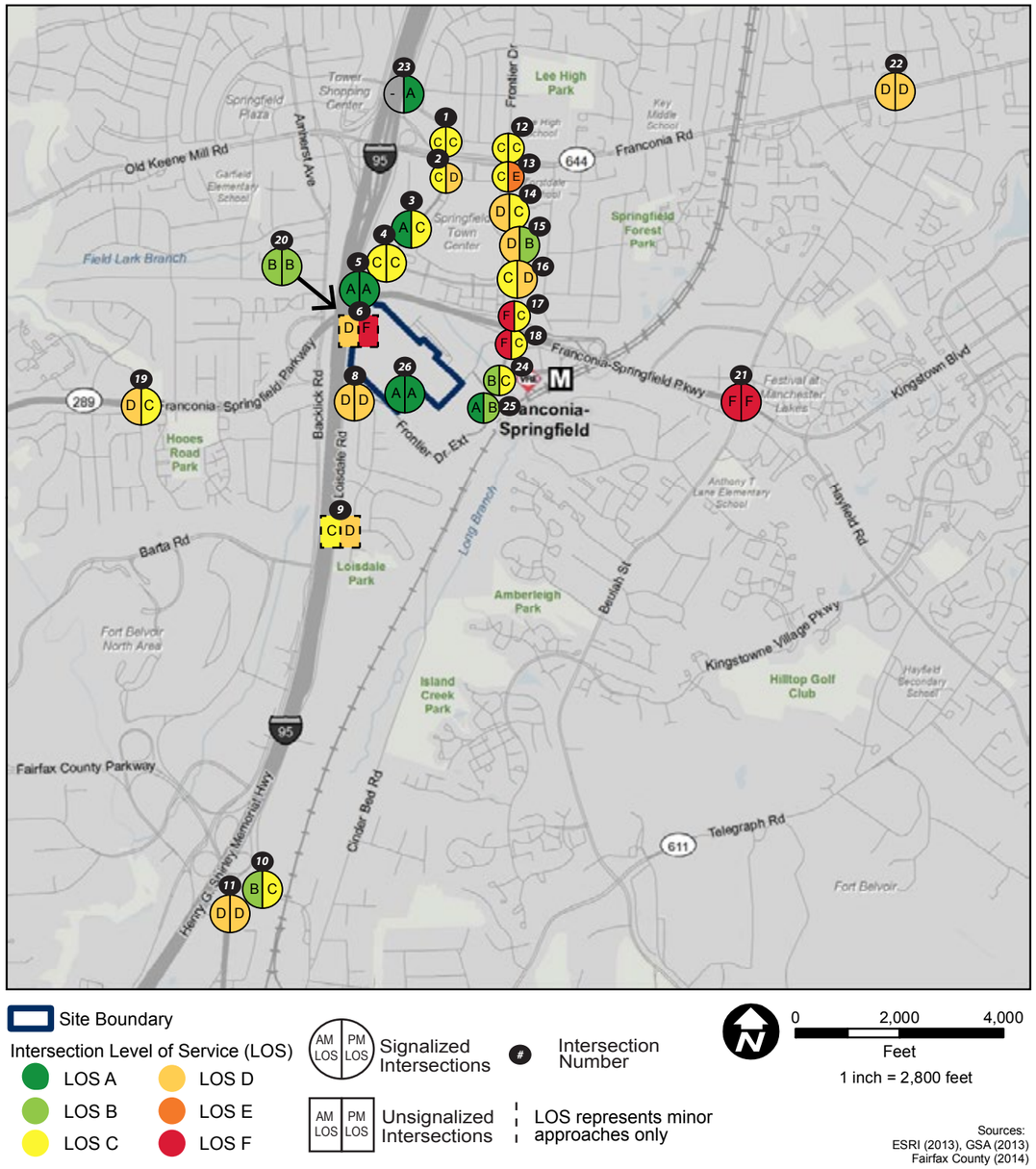
#	Intersection	No-build Condition						Build Condition					
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
		Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check
1	**Loisdale Road/Commerce Street & Franconia Road (Westbound) (Signalized)**												
		24.0	C	Pass	31.1	C	Pass	23.9	C	Pass	30.6	C	Pass
2	**Loisdale Road/Commerce Street & Franconia Road (Eastbound) (Signalized)**												
		35.7	D	Pass	32.1	C	Pass	34.9	C	Pass	42.3	D	Pass
3	**Loisdale Road & Loisdale Court/Mall Access (Signalized)**												
		9.1	A	Pass	21.9	C	Pass	8.8	A	Pass	23.5	C	Pass
4	**Loisdale Road & Ramp from NB I-95/Spring Mall Drive (Signalized)**												
		32.9	C	Pass	23.7	C	Pass	33.9	C	Pass	26.5	C	Pass
5	**Loisdale Road & Metropolitan Center Drive (Signalized)**												
		6.7	A	Pass	4.1	A	Pass	6.0	A	Pass	4.2	A	Pass
6	**Loisdale Road & Northern Entrance Road to GSA Facility (Access to Building A, 66808 & 6610 Loisdale Road) (TWSC)**												
		0.3	-	Pass	0.1	-	Pass	0.1	-	Pass	11.4	-	Pass
7	**Loisdale Road & Southern Entrance Road to GSA Facility (Access to Building B, 7000 Loisdale Road) (TWSC)** [a]												
		1.6	-	Pass	0.9	-	Pass	-	-	-	-	-	-
8	**Loisdale Road & Frontier Drive Extension (Signalized)**												
		9.2	A	Pass	23.8	C	Pass	43.2	D	Pass	53.9	D	Pass
9	**Loisdale Road & Lois Drive (TWSC)**												
		0.7	-	Pass	0.3	D	Pass	0.7	-	Pass	0.3	-	Pass
10	**Loisdale Road & Hotel Entrance/Newington Road (Signalized)**												
		16.7	B	Pass	31.6	C	Pass	16.8	B	Pass	32.6	C	Pass
11	**Loisdale Road/I-95 (N) Ramp C & D & Fairfax County Parkway (Signalized)**												
		35.7	D	Pass	37.7	D	Pass	35.7	D	Pass	39.9	D	Pass
12	**Frontier Drive & Franconia Road (Westbound) (Signalized)**												
		30.7	C	Pass	24.6	C	Pass	31.5	C	Pass	29.4	C	Pass
13	**Frontier Drive & Franconia Road (Eastbound) (Signalized)**												
		38.5	D	Pass	31.5	C	Pass	34.5	C	Pass	62.3	E	Pass
14	**Frontier Drive & Best Buy/Springfield Mall Parking Lot Entrance (Signalized)**												
		41.8	D	Pass	30.8	C	Pass	44.6	D	Pass	26.9	C	Pass
15	**Frontier Drive & Home Depot/Springfield Mall Garage Entrance (SMGE) (Signalized)**												
		37.3	D	Pass	19.8	B	Pass	38.0	D	Pass	17.4	B	Pass
16	**Frontier Drive & Spring Mall Drive (Signalized)**												
		22.8	C	Pass	38.4	D	Pass	21.0	C	Pass	37.0	D	Pass
17	**Frontier Drive & Franconia-Springfield Parkway (Westbound) (Signalized)**												
		31.3	C	Pass	15.5	B	Pass	167.4	F	Fail	20.1	C	Pass
18	**Frontier Drive & Franconia-Springfield Parkway (Eastbound) (Signalized)**												
		47.6	D	Pass	32.1	C	Pass	122.3	F	Fail	33.2	C	Pass

Table 7-46: Springfield Build Condition Intersection AM and PM Peak Hour Operations Analysis (continued)

#	Intersection	No-build Condition						Build Condition					
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
		Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check
19	**Franconia-Springfield Parkway & Spring Village Drive/Bonniemill Lane (Signalized)**												
		46.8	D	Pass	27.6	C	Pass	53.4	D	Pass	28.7	C	Pass
20	**Franconia-Springfield Parkway & I-95 HOT Lane Ramps (Signalized)** [b]												
		17.5	B	Pass	15.8	B	Pass	18.0	B	Pass	15.9	B	Pass
21	**Franconia-Springfield Parkway/Manchester Boulevard & Beulah Street (Signalized)**												
		84.1	F	Fail	96.9	F	Fail	85.6	F	Fail	98.1	F	Fail
22	**Franconia Road & Beulah Street (Signalized)**												
		39.9	D	Pass	51.1	D	Pass	39.6	D	Pass	52.0	D	Pass
23	**I-95 NB On-ramp & Commerce Street (Signalized)** [c]												
		-	-	-	2.8	A	Pass	-	-	-	3.1	A	Pass
24	**Frontier Drive Extension & Metro Station (Signalized)**												
		16.4	B	Pass	18.7	B	Pass	16.1	B	Pass	26.4	C	Pass
25	**Frontier Drive Extension & Metropolitan Center Drive Extension** [d]												
		2.1	-	Pass	4.7	-	Pass	5.8	A	Pass	10.7	B	Pass
26	**Frontier Drive Extension & Site South Access (Signalized)**												
		-	-	-	-	-	-	5.6	A	Pass	9.2	A	Pass

Notes:
LOS = Level of Service
TWSC = Two-way STOP-Controlled unsignalized intersection (TWSC intersections do not have an overall LOS)
Delay is Measured in Seconds Per Vehicle.
Red cells denote intersections operating at unacceptable conditions.
[a] Intersection #7 would be removed for the Build Condition.
[b] Intersection would continue to operate with a different lane configuration during the AM and PM peak hours.
[c] Intersection is not analyzed during the AM peak hour.
[d] Intersection would operate as a TWSC intersection under the No-build Condition and signalized under the Build Condition.

Figure 7-43: Springfield Build Condition Intersection LOS for AM and PM Peak Hours



Summary of Traffic Analysis: Build Condition

Overall, the AM peak hour would experience corridor-based delays along Frontier Drive in the southbound direction beginning at Franconia-Springfield Parkway Westbound and extending to Franconia Road. A similar condition would occur during the PM peak hour along Frontier Drive beginning at Franconia Road and extending to Franconia-Springfield Parkway Westbound. A second corridor-based delay would occur along Loisdale Road beginning at Franconia Road and extending back to Spring Mall Drive. Together these conditions would result in direct, long-term, major adverse impacts to study area corridors. In addition there would be isolated intersection impacts during the AM peak hour at the Franconia-Springfield Parkway/Manchester Boulevard and Beulah Street intersection and during the PM peak hour at the Loisdale Road and Frontier Drive Extension intersection. Together these would result in direct, long-term, adverse impacts due to the isolated nature of the impacts.

Because the intersection of Franconia-Springfield Parkway/Manchester Boulevard and Beulah Street is forecasted to be failing during the No-build Condition, adding construction-related trips along this route caused by trucks, employees, and equipment would have isolated impacts. There would also be additional short-term truck traffic impacts as a result of the demolition of the existing buildings on the GSA-owned parcel requiring dump trucks to haul the debris away on a continual basis until the parcel is clear of existing building materials. These conditions would result in direct, short-term, adverse construction impacts.

7.2.9.3 Springfield Build with Mitigation Condition

To reduce impacts on the transportation system caused as a result of the Proposed Action—consolidation of the FBI headquarters at the Springfield site, mitigation measures are recommended in this section for each mode of transportation analyzed. Overall, the Springfield site requires mitigation to reduce direct impacts of the Proposed Action.

The following transportation resources do not require any mitigation under the Greenbelt Alternative: truck access.

Build with Mitigation Condition Pedestrian Network

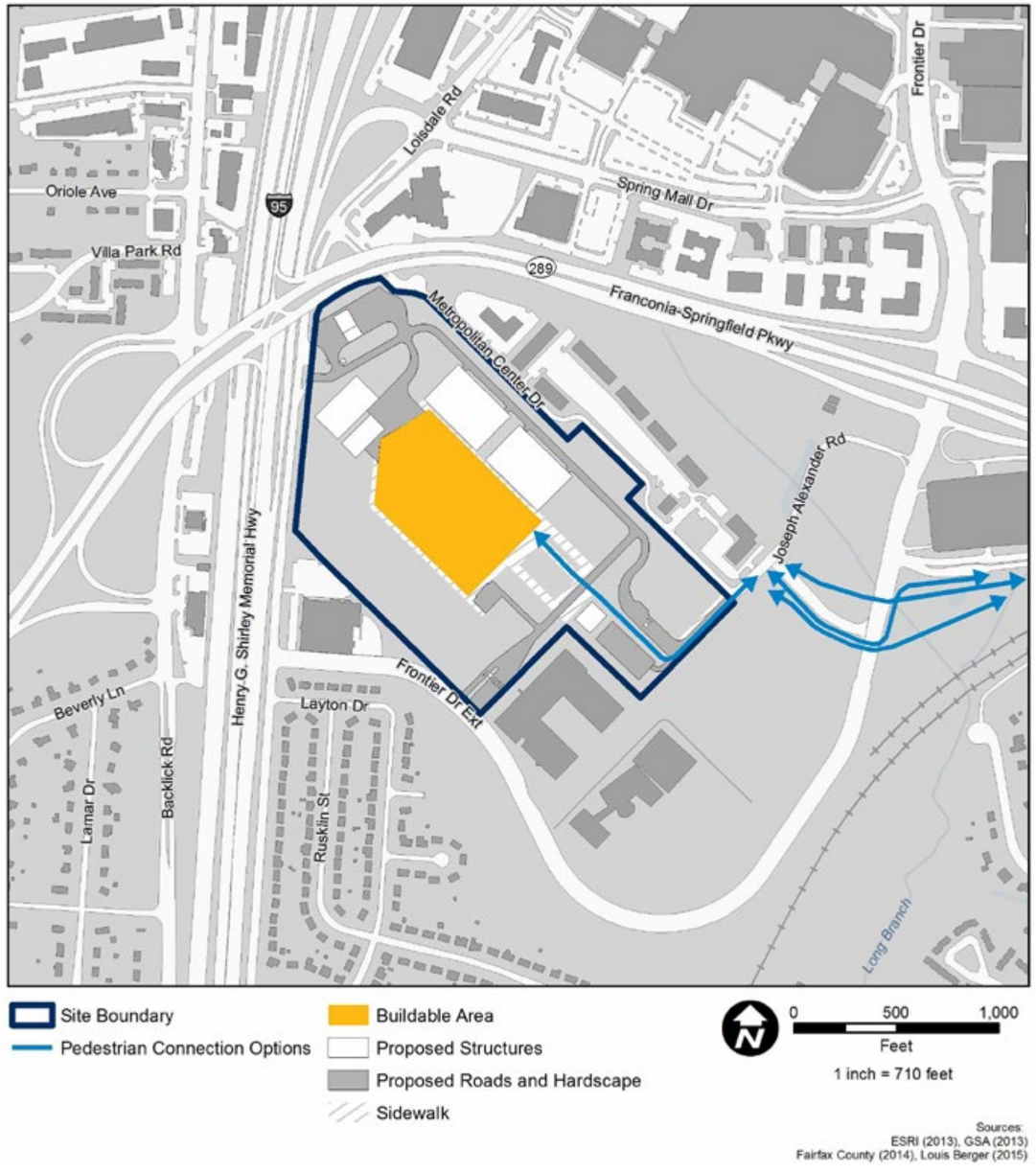
The Franconia-Springfield Metro Station is situated approximately 0.5 mile northeast from the conceptual location of the headquarters building. Providing the best pedestrian connections between the building and the station would be important to encourage transit use, reduce traffic congestion, improve air quality, and provide an alternative to using a shuttle on a daily basis, especially on days with pedestrian-friendly weather.

It is assumed that the Metropolitan Center Drive extension connecting to the Frontier Drive Extension, as well as the Frontier Drive Extension itself, would have a complete streets design with sidewalks on both sides, clearly marked crosswalks, and possibly one or two well-placed mid-block pedestrian crossings using a special traffic signal called a High Intensity Activated Crosswalk. These signals temporarily stop vehicular traffic and provide safe passage for a pedestrian through the use of a signal with blinking yellow and red lights.

As a result of the increased pedestrian volume between the Metrorail and Springfield site, it is recommended as part of the Build with Mitigation Condition to develop a direct pedestrian connection between the Site East Access and Franconia-Springfield Metro Station. This may include using the planned complete street network along Metropolitan Center Drive Extension and Frontier Drive Extension or cutting the angle to form a direct path from Metropolitan Center Drive to the station and crossing Frontier Drive Extension between the Metro Station Access Road and Metropolitan Center Drive. Figure 7-44 illustrates a few options for connecting the Springfield site to the Metrorail station. Given the future development of Frontier Drive Extension, the change in topography in this location, and the future Metropolitan Center Drive Extension, it is recommended that a study be completed to find the best route for all users of the transportation network.

When compared to the Build Condition, the Build with Mitigation Condition would have additional beneficial impacts to the long-term pedestrian network. The recommended mitigation measures would improve the proposed pedestrian network corridor by adding a new link between the Springfield site and Franconia-Springfield Metro Station. It is assumed the proposed No-build, Build, and Build with Mitigation Condition pedestrian facilities between the Springfield site and the Metrorail station would be built to accommodate planned development and therefore the increase in pedestrians from the project would not adversely impact the pedestrian network. Therefore, the Build with Mitigation Condition would result in additional direct, long-term, beneficial impacts that would accrue to not only the FBI employees, but employees and visitors of the Springfield Metro Center II project and the Northern Virginia Community College campus. The Build with Mitigation Condition would continue to include isolated intersection improvements or short-term sidewalk closures causing direct, short-term, adverse construction impacts.

Figure 7-44: Pedestrian Connection Options between the Springfield Site and Franconia-Springfield Metro Station

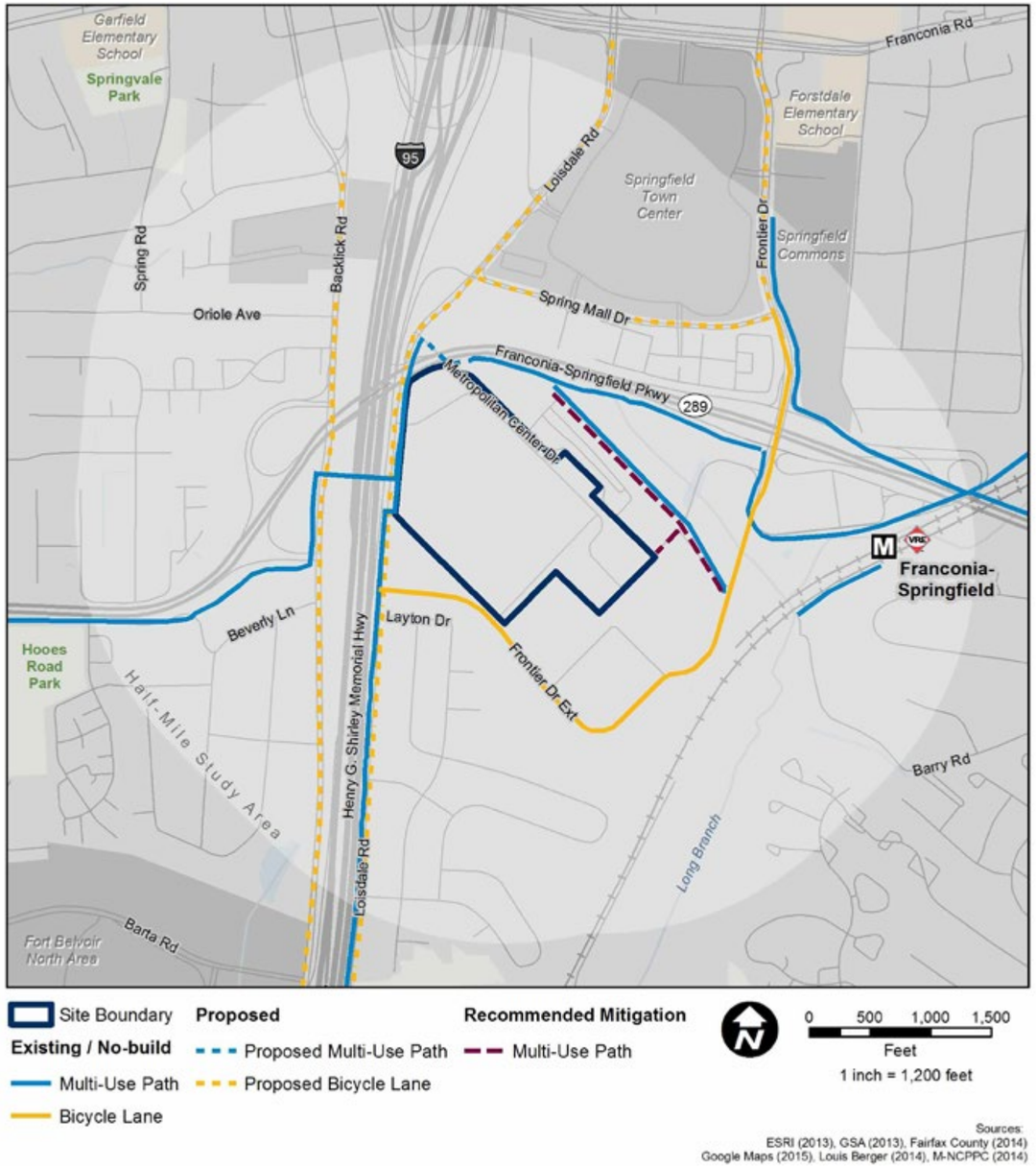


High Intensity Activated Crosswalk Signal in Alexandria, Virginia
Source: City of Alexandria (2015)

SPRINGFIELD PEDESTRIAN NETWORK ENVIRONMENTAL CONSEQUENCES SUMMARY

Build with Mitigation Condition: Direct, long-term, beneficial impacts, and direct, short-term, adverse impacts.

Figure 7-45: Springfield Alternative Recommended Bicycle Mitigation



Build with Mitigation Condition Bicycles

In order to maximize the number of patrons accessing the site via bicycle, the site should be connected to the existing and planned bicycle network. Although the "segment north of and parallel to Metropolitan Center Drive" is shown as an existing off-road trail in the Fairfax County Bicycle Master Plan, this pathway appears to be overgrown based on Google aerial imagery from 2015 (Fairfax County 2014d; Google Maps). Therefore, one recommendation is to rehabilitate this off-road trail along GSA-owned railroad right-of-way as a mixed-use path and create a short bicycle connection along Joseph Alexander Road between the Springfield site and the overgrown trail, as summarized in table 7-47 and pictured in figure 7-45. These bicycle improvements would mitigate the increase in bicyclists expected with the Proposed Action at Springfield and provide multi-modal connectivity north of the site including a direct connection to the Franconia-Springfield Parkway Trail. The path alignment is on an old railroad right of way that GSA owns; therefore, coordination between Fairfax County and GSA would be needed as well as the introduction of a public easement if one does not already exist. As noted earlier, it is anticipated that the bicycle lanes along the Frontier Drive Extension would be built as part of the No-build Condition and are therefore not included in the mitigation.

SPRINGFIELD BICYCLE NETWORK ENVIRONMENTAL CONSEQUENCES SUMMARY

Build with Mitigation Condition:
Direct, long-term, beneficial impacts.

When compared to the Build Condition, there would be improvements to the bicycle network under the Build with Mitigation Condition. The recommended mitigations would improve the level of impact from not measurable to direct, long-term, beneficial bicycle network impacts because the recommended mitigation measures would expand the area's bicycle network. Depending on the timing and sequencing of the transportation mitigation improvements with surrounding infrastructure projects, there could continue to be direct, short-term, adverse construction impacts in the Build with Mitigation Condition, particularly on Frontier Drive Extension at the intersection with Metropolitan Center Drive Extension where a roundabout would be introduced, interrupting the No-build Condition bicycle lanes.

Build with Mitigation Condition Public Transit

To encourage employees to use transit to the Springfield site, a shuttle bus service is recommended between Franconia-Springfield Metro Station and the Springfield site as part of the Build with Mitigation Condition to accommodate Springfield site patrons who use transit. The shuttle route would likely use the Franconia-Springfield Metro Station Access Road, the Frontier Drive Extension, Metropolitan Center Drive Extension, and Franconia-Springfield Parkway service roads and ramps north of the parkway as illustrated in figure 7-46. The Springfield TIA (Appendix E) contains the detailed shuttle bus discussion and analysis.

Table 7-47: Springfield Recommended Bicycle Mitigation

Roadway	From/To	Type
Segment north of and parallel to Metropolitan Center Drive	Franconia-Springfield Parkway Trail to Frontier Drive Extension, with connection to Springfield site along Joseph Alexander Road	Multi-use Path

Source: Fairfax County (2014c); Google Maps

Recommended Transit Mitigation

The following recommendations in table 7-48 are made to mitigate the proposed transit impacts of the Springfield Build Condition.

When compared to the Build Condition, there would be no difference in long-term public transit capacity impacts under the Build with Mitigation Condition because transit service would remain under capacity. The recommended traffic mitigations along Loisdale Road and the Frontier Drive Extension, as shown in figure 7-48, would reduce traffic delays for all vehicles to conditions better than the No-build Condition. Because buses along this route would also experience reduced delays, including FXC Route 334, there would be overall beneficial impacts to bus service compared to the baseline No-build Condition.

The implementation of the shuttle between the Franconia-Springfield Metro Station and the Springfield site would cause direct, beneficial impacts for the FBI employees. Based on limiting the shuttle service to the use of FBI employees, there would be no impact to the overall public transit system. The actual shuttle service could operate along a different route and/or could be integrated into an existing or new route provided by a public or private provider.

Table 7-48: Springfield Alternative Recommended Transit Mitigation

Impact	Mitigation
To maximize the number of site patrons utilizing Metrorail, a shuttle bus would be implemented between the Springfield site and Franconia-Springfield Metro Station due to the over 0.5-mile walk between the station and the site. The shuttle bus service would contribute additional peak hour trips to the local roadway network and would require the use of two bus bays at the station, which could be accommodated once WMATA constructs three new planned bus bays at the station.	Implement shuttle bus service between Franconia-Springfield Metro Station and the Springfield site

During construction, when compared to the Build Condition, the level of impacts would deteriorate from direct, short-term, adverse to direct, short-term, major adverse impacts caused by construction vehicles blocking the one or more lanes near the project site and intermittent lane closures at a number of isolated intersections affecting all buses servicing the study area.

Build with Mitigation Condition Parking

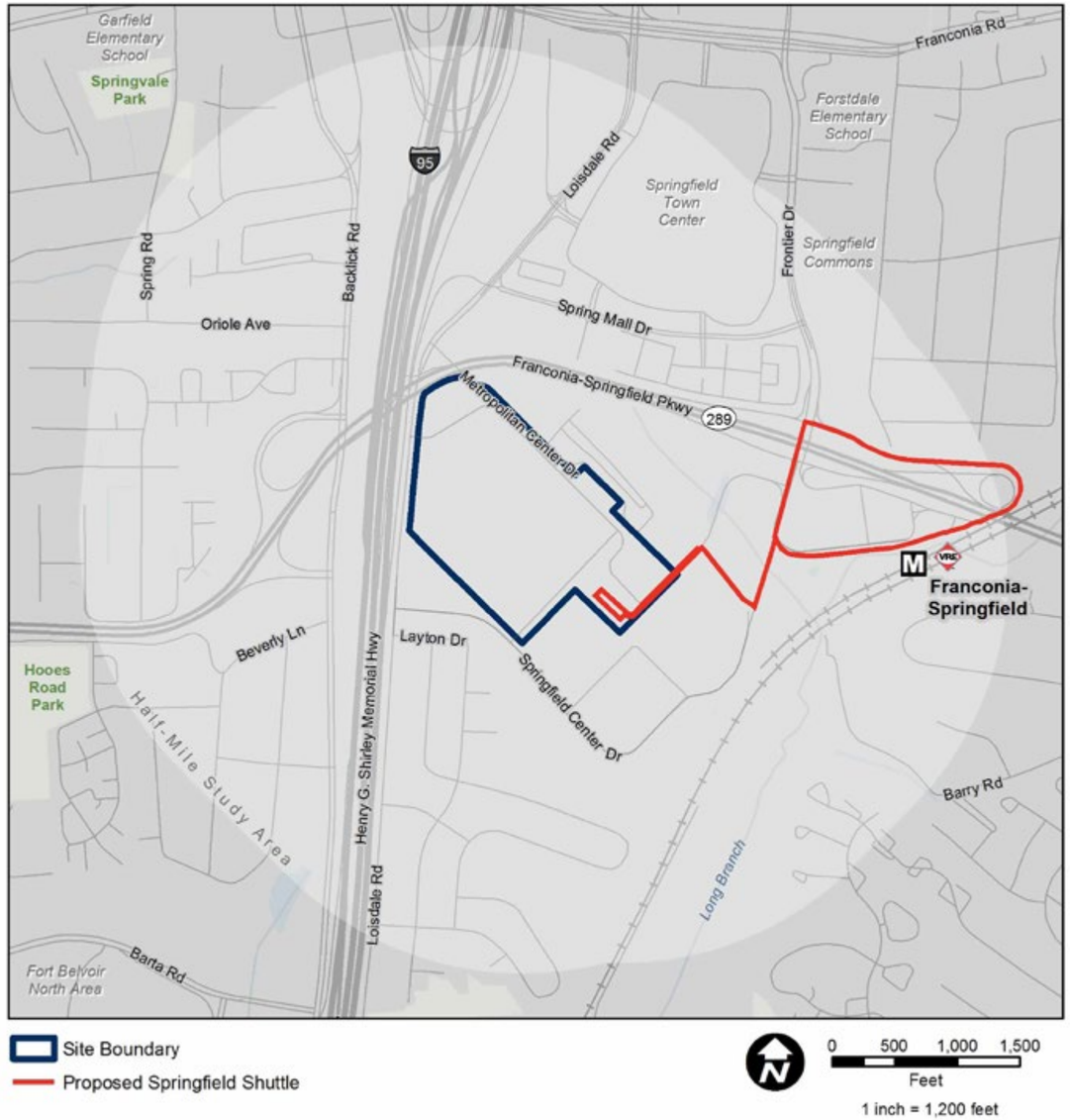
As mentioned in the Build Condition section, parking impacts would largely be addressed through development and implementation of a TMP, which would include preferred strategies for discouraging employees from parking on local streets. Because the TMP would be implemented as part of the Build Condition, there would be minimal changes in parking impacts between the Build and Build with Mitigation Conditions. The introduction of a roundabout as mitigation at the intersection of Frontier Drive Extension and Metropolitan Center Drive Extension would remove several on-street parking spaces (see proposed mitigation locations in figure 7-48),

Due to the small reduction in public on-street parking

SPRINGFIELD TRANSIT ENVIRONMENTAL CONSEQUENCES SUMMARY

Build with Mitigation Condition: Direct, long-term, beneficial impacts to bus operations; direct, long-term, beneficial impacts to transit use; and direct, short-term, major adverse impacts to bus operations during the construction period.

Figure 7-46: Springfield – Franconia-Springfield Metro Station Anticipated Shuttle Route



SPRINGFIELD PARKING ENVIRONMENTAL CONSEQUENCES SUMMARY

Build with Mitigation Condition: Direct, short- and long-term, adverse impacts.

spaces, when compared to the Build Condition, there would be a change in long-term parking impacts from no measurable direct, long-term impacts to direct, long-term, adverse impacts to parking. Compared to the Build Condition, there would be a change in short-term construction parking impacts from no measurable direct, short-term impacts to direct, short-term, adverse impacts under the Build with Mitigation Condition as a result of construction of the roundabout on Frontier Drive Extension that would impact to-street parking, as shown in figure 7-48.

Build with Mitigation Condition Traffic Analysis

Development of Mitigated Network

Based on the Build Condition traffic operations and queuing analysis (defined in section 3.10.4.3), a number of intersections would fail and require mitigation. The dynamic traffic assignment (DTA) process (see section 3.10.4.3) was followed to identify the route vehicle trips would use after implementing the following proposed major mitigation strategies:

- Adding a new 430-foot right-turn lane at the Franconia-Springfield Parkway off-ramp to Frontier Drive
- Upgrading the intersection of Loisdale Road and Frontier Drive Extension to include a second left-turn lane for the southbound approach and a second lane departing the intersection south on Loisdale Road to allow a double left from Frontier Drive Extension
- Updating the traffic signal timing along Loisdale Road between Franconia Road and Frontier Drive Extension based on all forecasted FBI vehicle trips traveling between Franconia Road and the Springfield site using Loisdale Road
- Updating the traffic signal timings along Frontier Drive between Franconia Road and Franconia-Springfield Parkway based on all forecasted FBI vehicle trips traveling between Franconia Road and the Springfield site using Frontier Drive

The Springfield TIA contains the details covering the process and results from running the DTA (Appendix E). Figure 7-47 contains the Build with Mitigation Condition turning movement volumes.

Recommend Mitigation Measures

Section 3.10.4.3 contains the process followed to develop the full list of mitigation. Table 7-49 contains the list of recommended mitigation measures. Figure 7-48 shows the locations of the mitigation measures.

Build with Mitigation Condition Intersection Operations Analysis

Based on the Synchro™ analysis, all but one signalized study area intersection would operate at acceptable overall conditions during the morning and afternoon peak hours. The following intersection in the study area would operate with overall unacceptable conditions:

- Franconia-Springfield Parkway/Manchester Boulevard and Beulah Street (Intersection #21)

Based on the Synchro™ analysis, there would be one unsignalized intersection that would have turning movements or overall operations with LOS degradation from an acceptable condition to an unacceptable condition when compared to the No-build Condition during the morning or afternoon peak hours. The one facility would only affect trucks attempting to turn left when exiting from the Springfield site. The Springfield TIA (Appendix E) contains a more detailed Build with Mitigation Condition traffic operations analysis.

The overall intersection LOS grades for the Build with Mitigation Condition are depicted in figure 7-48 for the and PM peak hours. Table 7-50 shows the results of the LOS capacity analysis and the intersection projected delay under the Build with Mitigation Condition during the AM and PM peak hours.

Build with Mitigation Condition Queuing Analysis

Based on the Synchro™ and SimTraffic analysis, there would be one signalized and two unsignalized intersection that would experience failing queue lengths in excess of 150 feet of the No-build Condition length. These intersections are as follows:

- Frontier Drive and Franconia-Springfield Parkway Intersection (Intersections #17 and #18)
    - These intersections would operate as one coordinated intersection and queues would occur between them and not affect any upstream or downstream intersections
- Loisdale Road and the Northern Entrance Road to GSA Facility (Intersection #6)
    - This facility would operate as a truck-only access to the Springfield site and would only impact exiting trucks attempting to make a left turn
- Frontier Drive Extension and Metropolitan Center Drive Extension intersection (Intersection #25)
    - The driveway serving the Springfield Metro Center II Phase II planned office development is currently designed too close to the proposed roundabout with the Frontier Drive Extension and would need to be moved further west

Because Synchro™/SimTraffic™ are tools primarily designed to measure the operations and delay at signalized and unsignalized intersections, these tools are not meant to model the effect of merges caused by a lane drop on an on-ramp to a freeway facility. They tend to show worse conditions than would actually occur. There is a major on-ramp from Franconia Road westbound providing connection to several Interstates (I-95, I-395, and I-495). This ramp begins as a two-lane ramp, but quickly splits 300-feet downstream with vehicles destined to I-95 southbound using the right lane and all other destinations using the left-lane. Based on the Build with Mitigation Condition, it is forecasted that this two-lane ramp would carry 2,088 vehicles per hour with 1,695 of them (81 percent) requiring the use of the left lane. Assuming a 50/50 split between the lanes, this would result in 30 percent of the vehicles using the right lane needing to merge into the left lane.

Because Synchro™/SimTraffic™ is not the proper tool to measure this scenario, TransModeler™ was used to estimate the potential queue lengths at the Franconia Road and Commerce Street/Loisdale Road intersection to ensure the effect of the merge would not cause a queue on Franconia Road westbound or Loisdale Road northbound. Based on the TransModeler™ simulation result the queues would not extend back to the previous intersection.

The results of the Build with Mitigation Condition queuing analysis for both signalized and unsignalized intersections are contained in the Springfield TIA (Appendix E).

Summary of Traffic Analysis: Build with Mitigation Condition

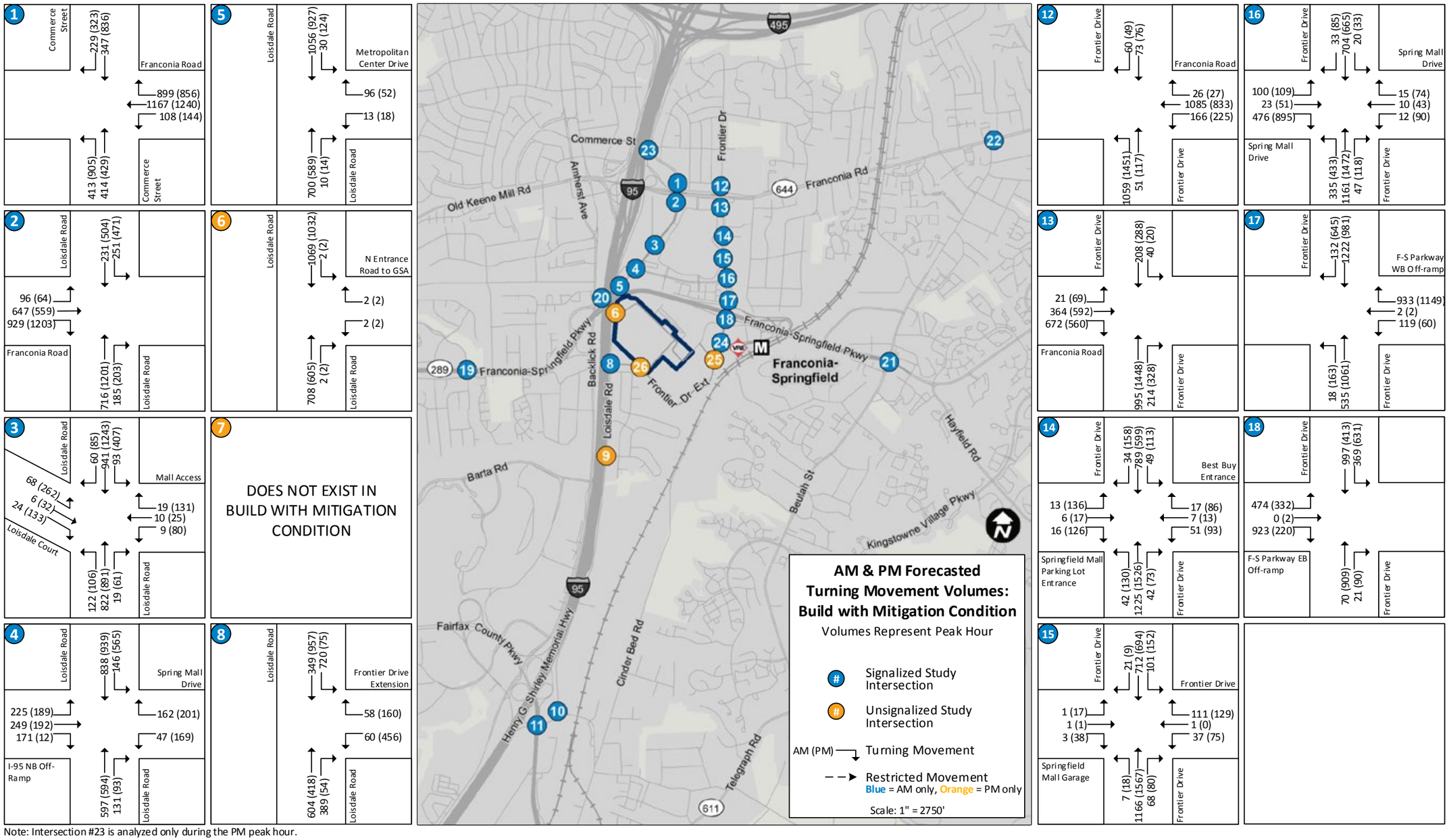
Overall, the study area would no longer experience corridor-level impacts along Frontier Drive or Loisdale Road resulting in changing the Build Condition impacts from direct, long-term, major adverse to no measurable direct, long-term impacts under the Build with Mitigation Condition. Isolated intersection improvements aimed at addressing the Build Condition impacts specifically along Loisdale Road, Frontier Drive, and the Frontier Drive Extension would be addressed under the Build with Mitigation Condition. This would result in changing the impacts from direct, long-term, adverse impacts to direct, long-term, beneficial impacts, since the operations would improve to a better operation than the No-build Condition. There would be no failing interstate facilities under the Build Condition and Build with Mitigation Condition; therefore, there would be no measurable direct, long-term impacts to the interstate system (see section 6.4.6.3).

The construction impacts would change from direct, short-term, adverse impacts under the Build Condition during construction to direct, short-term, major adverse impacts under the Build with Mitigation Condition during construction. This change reflects the short-term impacts from adding roadway construction related trips caused by trucks, employees, and equipment as well as intermittent lane or road closures at locations where the roadway improvements would occur.

SPRINGFIELD TRAFFIC ENVIRONMENTAL CONSEQUENCES SUMMARY

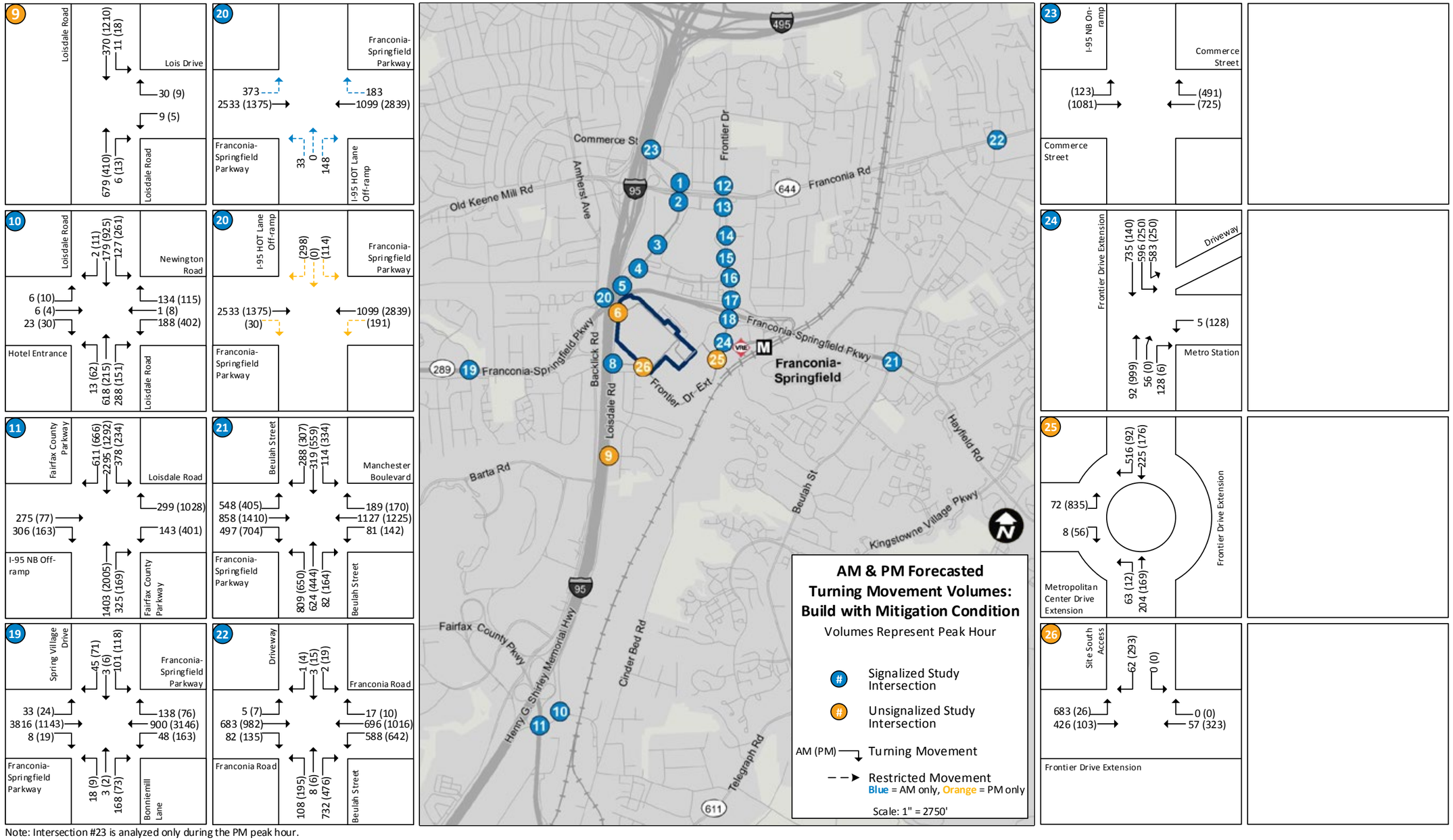
Build with Mitigation Condition: No measurable impacts to corridors and Interstate facilities; direct, long-term, beneficial impacts to isolated intersections; and direct, short-term, major adverse impacts during the construction period.

Figure 7-47: Springfield Build with Mitigation Condition Turning Movement Volumes



Note: Intersection #23 is analyzed only during the PM peak hour.

Figure 7-47: Springfield Build with Mitigation Condition Turning Movement Volumes (continued)



Note: Intersection #23 is analyzed only during the PM peak hour.

Table 7-49: Springfield Recommended Mitigation Measures

Map ID	Location	Mitigation	Strip Land Taking (Approximate Linear Feet)
A	Franconia Road (VA 644) Westbound and Commerce Street	• **Optimize the traffic signal and coordinate timings with nearby key intersections for AM and PM peak periods**	None
B	Franconia Road (VA 644) Eastbound and Loisdale Drive	• For the Loisdale Road northbound approach, revise the planned roadway improvement design to lengthen the left-turn lane by 225 feet resulting in a 775-foot turn bay and revise the lane geometry to allow the Loisdale Road northbound left lane to directly feed into the middle left-turn lane at the intersection, the Loisdale Road northbound middle lane directly feed into the right most left-turn lane at the intersection, and Loisdale Road northbound right lane directly feed into the left most through lane at the intersection. • For the Franconia Road eastbound approach, revise the planned roadway improvement design to extend the right-turn lane by 50 feet resulting in a 350-foot right-turn lane. • Optimize the traffic signal and coordinate timings with nearby key intersections for AM and PM peak periods.	None
C	Loisdale Road and Loisdale Court	• Optimize the traffic signal for the AM peak period and coordinate timings with nearby key intersections for AM and PM peak periods.	None
D	Loisdale Road and I-95 Northbound off-ramp/ Spring Mall Drive	• For the Spring Mall Drive westbound, revise the planned roadway improvement design by changing the channelized right-turn lane to provide a free merge onto Loisdale Road northbound by reducing the number of departing lanes from three to two on Loisdale Road northbound, thus allowing the channelized right-turn to feed into the planned new third lane. • Optimize the traffic signal and coordinate timings with nearby key intersections for AM and PM peak periods.	None
E	Loisdale Road and Metropolitan Center Drive	• Optimize the traffic signal for AM and PM peak periods and coordinate timings with nearby key intersections for the PM peak period.	None
F	Loisdale Road and Frontier Drive Extension	• For the Loisdale Road northbound approach, revise the planned roadway improvement design to include a 300-foot right-turn lane (strip land taking required; approximately 400 linear feet). • For the Loisdale Road southbound approach, revise the planned roadway improvement design to include two 350-foot left turn lanes (strip land taking required; approximately 400 linear feet). • Optimize the traffic signal for AM and PM peak periods.	800
G	Loisdale Road and Newington Road	• For the Newington Road westbound approach, extend the right-turn lane by 85 feet creating a 250-foot turning lane	None
H	Loisdale Road and Fairfax County Parkway (VA 286)	• For the Fairfax Count Parkway northbound approach, revise the planned roadway improvement design to lengthen the right-turn lane and new through lane by 50 feet resulting in one 350-foot through lane and one 350-foot right-turn lane. • For the Fairfax County Parkway southbound approach, revise the planned roadway improvement design to lengthen the left-turn lanes by 60 feet resulting in two 450-foot left-turn lanes. • For the Loisdale Road westbound approach, revise the planned roadway improvement design to lengthen the existing right-turn lane by 60 feet resulting in a 425-foot right-turn lane (strip land taking required; approximately 60 linear feet). • Optimize the traffic signal for AM and PM peak periods and coordinate timings with nearby key intersections for the PM peak period.	60

Table 7-49: Springfield Recommended Mitigation Measures (continued)

Map ID	Location	Mitigation	Strip Land Taking (Approximate Linear Feet)
I	Franconia Road (VA 644) Westbound and Frontier Drive	• Optimize the traffic signal for AM and PM peak periods and coordinate timings with nearby key intersections for the PM peak period. • Construct a network of pedestrian bridges to provide a safe path for pedestrians to cross Frontier Drive and Franconia Road for both the eastbound and westbound directions.	None
J	Franconia Road (VA 644) Eastbound and Frontier Drive	• For the Frontier Drive northbound approach, extend the left-turn lane by 95 feet resulting in a 600-foot left-turn lane. • Optimize the traffic signal for AM and PM peak periods and coordinate timings with nearby key intersections for the PM peak period. • Construct a network of pedestrian bridges to provide a safe path for pedestrians to cross Frontier Drive and Franconia Road for both the eastbound and westbound directions.	None
K	Frontier Drive and North Mall Entrance	• Optimize the traffic signal for the PM peak period and coordinate timings with nearby key intersections for the AM peak period.	None
L	Frontier Drive and Mall South Entrance	• Optimize the traffic signal for the PM peak period and coordinate timings with nearby key intersections for the AM peak period.	None
M	Frontier Drive and Spring Mall Drive	• Optimize the traffic signal and coordinate timings with nearby key intersections for the AM peak period.	None
N	Frontier Drive and Franconia-Springfield Parkway (VA 289) westbound on/off ramps	• Optimize the traffic signal for AM and PM peak periods and coordination timings with nearby key intersections for the PM peak period.	None
O	Frontier Drive and Franconia-Springfield Parkway (VA 289) eastbound on/off ramps	• For the Franconia-Springfield Parkway eastbound approach, create a new 430-foot left-turn lane, create a new 440-foot right-turn lane, and alter the off-ramp to feed into each turn lane. The resulting lane geometry would be two left-turn lanes and two right-turn lanes. • Optimize the traffic signal for AM and PM peak periods and coordinate timings with nearby key intersections for the PM peak period.	None

Table 7-49: Springfield Recommended Mitigation Measures (continued)

Map ID	Location	Mitigation	Strip Land Taking (Approximate Linear Feet)
P	Frontier Drive Extension and Metro Station Access Drive	• For the northbound Frontier Drive Extension, revise the planned roadway improvement design to extend the right-turn lane by 60 feet resulting in a 200-foot right-turn lane. • Optimize the traffic signal for the PM peak period.	None
Q	Frontier Drive Extension and Metropolitan Center Drive Extension	• Revise the planned roadway improvement design to create a two-lane roundabout with two lane exits for Frontier Drive Extension northbound and southbound and a one lane exit for Metropolitan Center Drive Extension. Create two-lane entries for all three approaches. • For the Frontier Drive Extension southbound approach, create a 175-foot right-turn lane that feeds into a 275-foot right-turn bypass lane and rejoins Metropolitan Center Drive Extension after the intersection serving the Springfield Metro Center Phase II development (approximately 150 feet west of the roundabout).	None
R	Frontier Drive Extension and Site South Access	• For the Frontier Drive Extension eastbound approach, revise the planned roadway improvement design to create a 275-foot left turn lane. • For the Site South Access southbound approach, create a channelized right-turn lane that yields onto westbound Frontier Drive Extension and a one-lane approach serving left-turning vehicles. • The northbound Site South Access departing lanes would need to accommodate the ECF approximately 165 feet north of the intersection requiring five lanes.	None
S	Franconia Road (VA 644) and Beulah Street	• Optimize the traffic signal for the PM peak period.	None
T	Franconia-Springfield Parkway (VA 289) and Beulah Street	• For the Franconia-Springfield Parkway eastbound approach, change the lane geometry to provide one left-turn lane, three through lanes, and one right-turn lane by assigning the existing right-turn lane as a through lane and creating a new 200-foot right-turn lane. • Extend the new through lane into the existing right-turn lane past the intersection and create a new 1,150-foot fourth lane past the intersection to receive the channelized right from the Beulah Street southbound approach. Extend the fourth lane to Walking Lane.	None

Figure 7-48: Springfield Build with Mitigation Condition Improvement Locations

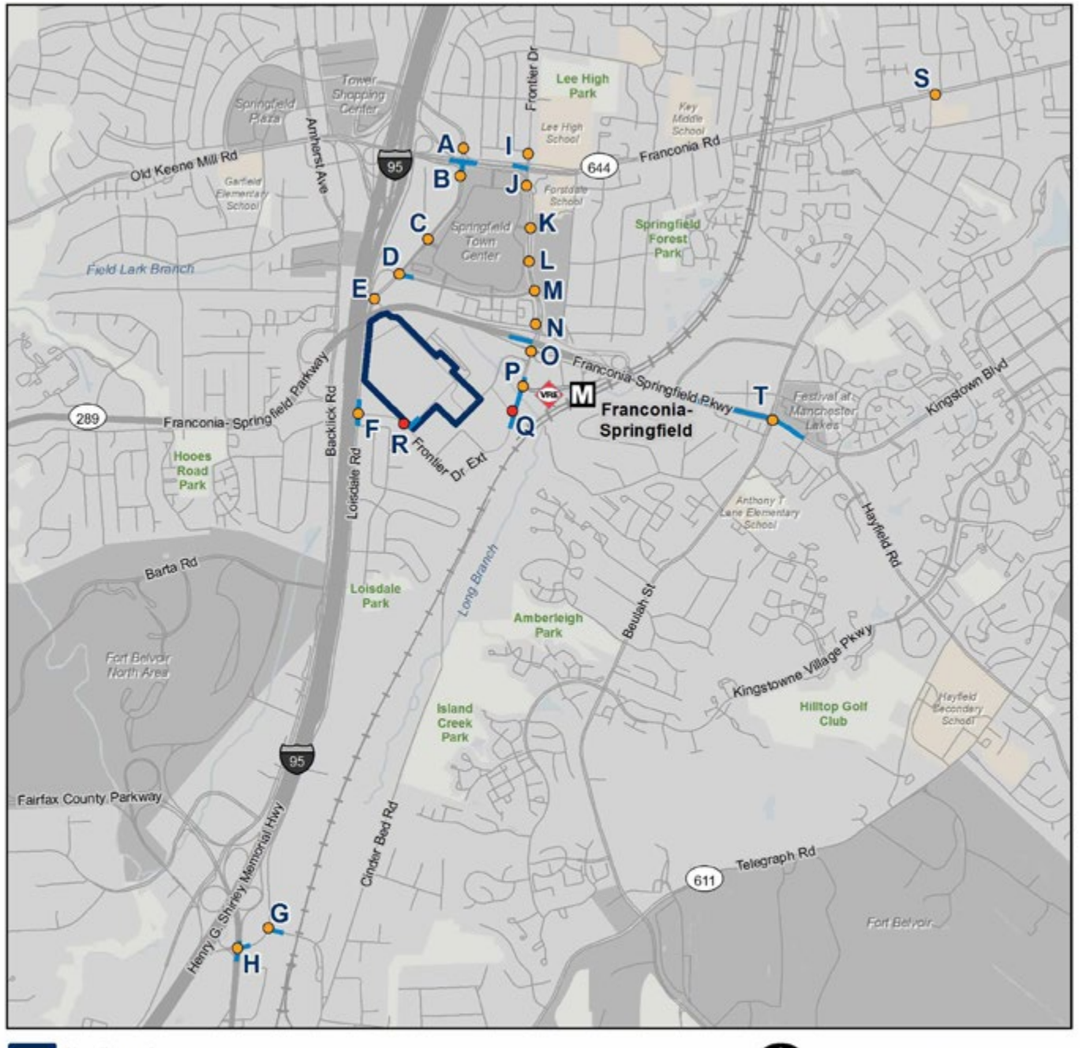


Figure 7-49: Springfield Build with Mitigation Condition Intersection LOS for AM and PM Peak Hours

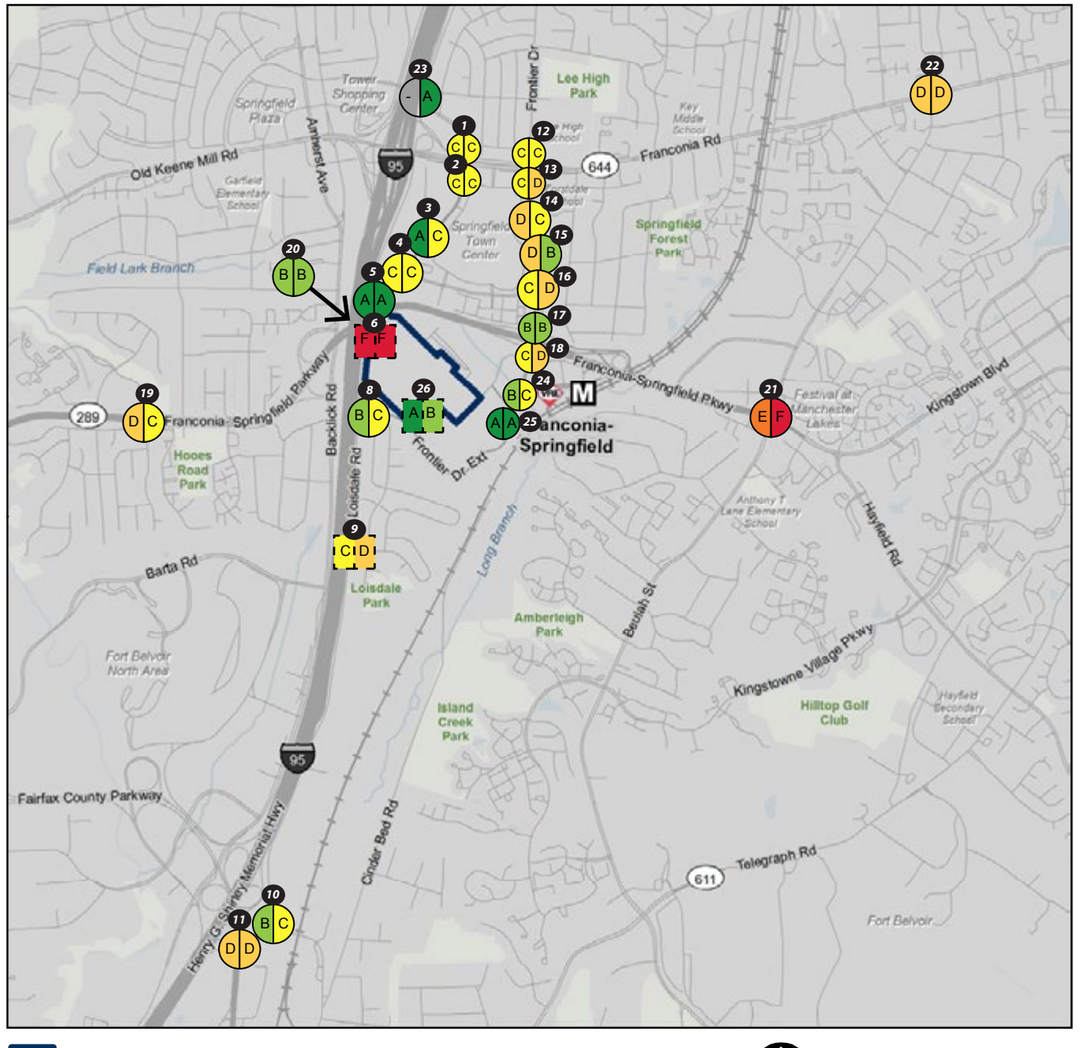


Table 7-50: Springfield Build with Mitigation Condition Intersection AM and PM Peak Hour Operations Analysis

#	Intersection	No-build Condition						Build with Mitigation Condition					
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
		Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check
1	**Loisdale Road/Commerce Street & Franconia Road (Westbound) (Signalized)**												
		24.0	C	Pass	31.1	C	Pass	23.8	C	Pass	34.5	C	Pass
2	**Loisdale Road/Commerce Street & Franconia Road (Eastbound) (Signalized)**												
		35.7	D	Pass	32.1	C	Pass	32.6	C	Pass	33.4	C	Pass
3	**Loisdale Road & Loisdale Court/Mall Access (Signalized)**												
		9.1	A	Pass	21.9	C	Pass	9.2	A	Pass	21.9	C	Pass
4	**Loisdale Road & Ramp from NB I-95/Spring Mall Drive (Signalized)**												
		32.9	C	Pass	23.7	C	Pass	22.0	C	Pass	20.6	C	Pass
5	**Loisdale Road & Metropolitan Center Drive (Signalized)**												
		6.7	A	Pass	4.1	A	Pass	5.6	A	Pass	4.2	A	Pass
6	**Loisdale Road & Northern Entrance Road to GSA Facility (Access to Building A, 66808 & 6610 Loisdale Road) (TWSC)**												
		0.3	-	Pass	0.1	-	Pass	11.2	-	Pass	6.8	-	Pass
7	**Loisdale Road & Southern Entrance Road to GSA Facility (Access to Building B, 7000 Loisdale Road) (TWSC)** [a]												
		1.6	-	Pass	0.9	-	Pass	-	-	-	-	-	-
8	**Loisdale Road & Frontier Drive Extension (Signalized)**												
		9.2	A	Pass	23.8	C	Pass	14.6	B	Pass	26.8	C	Pass
9	**Loisdale Road & Lois Drive (TWSC)**												
		0.7	-	Pass	0.3	-	Pass	0.7	-	Pass	0.3	-	Pass
10	**Loisdale Road & Hotel Entrance/Newington Road (Signalized)**												
		16.7	B	Pass	31.6	C	Pass	16.8	B	Pass	34.4	C	Pass
11	**Loisdale Road/I-95 (N) Ramp C & D & Fairfax County Parkway (Signalized)**												
		35.7	D	Pass	37.7	D	Pass	35.7	D	Pass	41.3	D	Pass
12	**Frontier Drive & Franconia Road (Westbound) (Signalized)**												
		30.7	C	Pass	24.6	C	Pass	32.2	C	Pass	26.6	C	Pass
13	**Frontier Drive & Franconia Road (Eastbound) (Signalized)**												
		38.5	D	Pass	31.5	C	Pass	33.0	C	Pass	39.8	D	Pass
14	**Frontier Drive & Best Buy/Springfield Mall Parking Lot Entrance (Signalized)**												
		41.8	D	Pass	30.8	C	Pass	43.3	D	Pass	26.7	C	Pass
15	**Frontier Drive & Home Depot/Springfield Mall Garage Entrance (SMGE) (Signalized)**												
		37.3	D	Pass	19.8	B	Pass	36.5	D	Pass	16.3	B	Pass
16	**Frontier Drive & Spring Mall Drive (Signalized)**												
		22.8	C	Pass	38.4	D	Pass	20.9	C	Pass	35.1	D	Pass
17	**Frontier Drive & Franconia-Springfield Parkway (Westbound) (Signalized)**												
		31.3	C	Pass	15.5	B	Pass	13.3	B	Pass	13.0	B	Pass
18	**Frontier Drive & Franconia-Springfield Parkway (Eastbound) (Signalized)**												
		47.6	D	Pass	32.1	C	Pass	34.7	C	Pass	41.8	D	Pass

Table 7-50: Springfield Build with Mitigation Condition Intersection AM and PM Peak Hour Operations Analysis (continued)

#	Intersection	No-build Condition						Build with Mitigation Condition					
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
		Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check	Delay (sec/vehicle)	LOS	Check
19	**Franconia-Springfield Parkway & Spring Village Drive/Bonniemill Lane (Signalized)**												
		46.8	D	Pass	27.6	C	Pass	53.4	D	Pass	28.7	C	Pass
20	**Franconia-Springfield Parkway & I-95 HOT Lane Ramps (Signalized)** [b]												
		17.5	B	Pass	15.8	B	Pass	18.0	B	Pass	15.9	B	Pass
21	**Franconia-Springfield Parkway/Manchester Boulevard & Beulah Street (Signalized)**												
		84.1	F	Fail	96.9	F	Fail	77.2	E	Fail	92.5	F	Fail
22	**Franconia Road & Beulah Street (Signalized)**												
		39.9	D	Pass	51.1	D	Pass	39.6	D	Pass	50.3	D	Pass
23	**I-95 NB On-ramp & Commerce Street (Signalized)** [c]												
		-	-	-	2.8	A	Pass	-	-	-	3.1	A	Pass
24	**Frontier Drive Extension & Metro Station (Signalized)**												
		16.4	B	Pass	18.7	B	Pass	16.5	B	Pass	28.2	C	Pass
25	**Frontier Drive Extension & Metropolitan Center Drive Extension** [d]												
		2.1	-	Pass	4.7	-	Pass	2.3	A	Pass	7.9	A	Pass
26	**Frontier Drive Extension & Site South Access (TWSC)**												
		-	-	-	-	-	-	5.7	-	Pass	5.0	-	Pass

Notes:
LOS = Level of Service
TWSC = Two-way STOP-Controlled unsignalized intersection (TWSC intersections do not have an overall LOS)
Delay is Measured in Seconds Per Vehicle.
Red cells denote intersections operating at unacceptable conditions.
[a] Intersection #7 would be removed for the Build Condition and Build with Mitigation Condition.
[b] Intersection would continue to operate with a different lane configuration during the AM and PM peak hours.
[c] Intersection is not analyzed during the AM peak hour.
[d] Intersection would operate as a TWSC intersection under the No-build Condition and as a roundabout under the Build with Mitigation Condition.

Recommended Traffic Mitigation

Table 7-51 contains the traffic results for all study area intersections covering each condition from No-build through Build with Mitigation. The results include a pass or fail rating for the traffic operations and queue length. Based on the worsening condition from the added vehicle trips from the Build Condition, the recommended mitigation is listed. Recommended traffic mitigation measures were developed to address the substantial traffic impacts caused by the addition of the Consolidated FBI HQ in Springfield. These included traffic signal optimization, road widening, lane geometry improvements at intersections, constructing new pedestrian bridges, and changing roadway designs to construct a roundabout instead of an unsignalized intersection. If implemented, the recommended traffic mitigation measures would maintain acceptable traffic flow conditions based on the Springfield Site Transportation Agreement.

Freeway Analysis Summary

Section 3.10.4.3 defines the interstate system and the software utilized to analyze interstate operations.

Based on the proposed FBI trip distribution, 70 percent of forecasted FBI vehicle trips would use the interstate system (I-95/I-495, I-395, or I-495) to access the proposed site. Reflecting the importance of the interstate system serving the Springfield site, all three interstates were evaluated to determine whether or not the added vehicle trips would cause any failing interstate facilities. Based on the agreed Springfield Site Transportation Agreement, the evaluated interstate facilities focused on the peak direction only and at the primary off-ramps serving the inbound forecasted FBI vehicle trips during the AM peak hour and the on-ramps serving the outbound forecasted FBI vehicle trips during the PM peak hour.

The analysis concluded that no interstate facilities would fail based on the forecasted volumes. The Springfield TIA provides the detailed freeway analysis (Appendix E).

Entry Control Facility Summary

The ECF analysis was performed once the complete set of external roadway mitigation was established. All mitigation measures were coded into TransModeler™ and several scenarios were tested to determine the minimum number of lanes capable of handling the AM peak hour forecasted FBI vehicle trips. It was determined that five lanes at the Site South Access and two lanes at the Site East Access were required to handle the forecasted demand, although four lanes at the Site South Access may have worked if more queue space was available between the ECF and Frontier Drive Extension.

The Springfield TIA provides the detailed ECF analysis (Appendix E).

Transportation Impacts

The overall impacts to transportation under the Springfield Alternative would be as follows:

- direct, long-term, beneficial impacts to the pedestrian network, bicycle network, traffic (isolated intersections) and employee access to the Franconia-Springfield Metro Station (shuttle) at the Springfield site; and
- direct, long-term, adverse impacts to the parking at the Springfield site; and
- no measurable direct, long-term impacts to the transit capacity or bus operations, truck access, and traffic (corridor-based or interstate facilities) at the Springfield site; and
- no measurable direct, long-term impacts to truck access at the Springfield site during the construction period; and
- direct, short-term, major adverse bus operation and traffic impacts at the Springfield site during the construction period; and
- direct, short-term, adverse impacts to the pedestrian network, bicycle network, and parking at the Springfield site during the construction period.

Table 7-51: Springfield Overall Traffic Impacts

#	Intersection	No-build Condition				Build Condition				Build with Mitigation Condition				Recommended Mitigation
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		
		HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	
1	**Loisdale Road/Commerce Street & Franconia Road (Westbound) (Signalized)**													
		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Fail	Pass	Pass	Pass	Fail	**None Required**
2	**Loisdale Road/Commerce Street & Franconia Road (Eastbound) (Signalized)**													
		Pass	Pass	Pass	Pass	Pass	Fail	Pass	Fail	Pass	Pass	Pass	Pass	Lengthen the left-turning lanes along the Loisdale Road northbound approach
3	**Loisdale Road & Loisdale Court/Mall Access (Signalized)**													
		Pass	Exceed	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Optimize the traffic signal
4	**Loisdale Road & Ramp from NB I-95/Spring Mall Drive (Signalized)**													
		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Exclude the planned roadway improvement to remove the channelized right-turn lane along the Spring Mall Drive westbound approach
5	**Loisdale Road & Metropolitan Center Drive (Signalized)**													
		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Optimize the traffic signal
6	**Loisdale Road & Northern Entrance Road to GSA Facility (Access to Building A, 66808 & 6610 Loisdale Road) (TWSC)**													
		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	**None Required**
7	**Loisdale Road & Southern Entrance Road to GSA Facility (Access to Building B, 7000 Loisdale Road) (TWSC)** [a]													
		Pass	Pass	Pass	Pass	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**None Required**
8	**Loisdale Road & Frontier Drive Extension (Signalized)**													
		Pass	Fail	Pass	Pass	Pass	Fail	Pass	Fail	Pass	Pass	Pass	Pass	Add a second left-turn lane along the Loisdale Road southbound approach
9	**Loisdale Road & Lois Drive (TWSC)**													
		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	**None Required**
10	**Loisdale Road & Hotel Entrance/Newington Road (Signalized)**													
		Pass	Pass	Pass	Fail	Pass	Pass	Pass	Fail	Pass	Pass	Pass	Pass	Lengthen the right-turn lane along the Newington Road westbound approach
11	**Loisdale Road/I-95 (N) Ramp C & D & Fairfax County Parkway (Signalized)**													
		Pass	Fail	Pass	Pass	Pass	Fail	Pass	Pass	Pass	Fail	Pass	Fail	Revise the planned roadway improvement to extend the proposed turn lanes to their maximum without impacting the right-of-way or alignment of the roadway

Table 7-51: Springfield Overall Traffic Impacts (continued)

#	Intersection	No-build Condition				Build Condition				Build with Mitigation Condition				Recommended Mitigation
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		
		HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	
12	Frontier Drive & Franconia Road (Westbound) (Signalized)													
		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Construct a pedestrian bridge and optimize the traffic signal
13	Frontier Drive & Franconia Road (Eastbound) (Signalized)													
		Pass	Pass	Pass	Pass	Pass	Fail	Pass	Fail	Pass	Pass	Pass	Pass	Construct a pedestrian bridge, lengthen the left-turning lane along the Frontier Drive northbound approach, and optimize the traffic signal
14	Frontier Drive & Best Buy/Springfield Mall Lot Entrance (Signalized)													
		Pass	Pass	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Pass	Pass	Fail	Optimize the traffic signal
15	Frontier Drive & Home Depot/Springfield Mall Garage Entrance (Signalized)													
		Pass	Pass	Pass	Pass	Pass	Fail	Pass	Fail	Pass	Pass	Pass	Fail	Optimize the traffic signal
16	Frontier Drive & Spring Mall Drive (Signalized)													
		Pass	Pass	Pass	Pass	Pass	Fail	Pass	Fail	Pass	Pass	Pass	Pass	Optimize the traffic signal
17	Frontier Drive & Franconia-Springfield Parkway (Westbound) (Signalized)													
		Pass	Fail	Pass	Pass	Fail	Fail	Pass	Fail	Pass	Pass	Pass	Pass	Optimize the traffic signal
18	Frontier Drive & Franconia-Springfield Parkway (Eastbound) (Signalized)													
		Pass	Fail	Pass	Fail	Fail	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Optimize the traffic signal and add a new right-turning lane along the Franconia-Springfield eastbound off-ramp approach
19	Franconia-Springfield Parkway & Spring Village Drive/Bonniemill Lane (Signalized)													
		Pass	Fail	Pass	Pass	Pass	Fail	Pass	Pass	Pass	Fail	Pass	Pass	**None Required**
20	Franconia-Springfield Parkway & I-95 HOT Lane Ramps (Signalized) [b]													
		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	**None Required**
21	Franconia-Springfield Parkway/Manchester Boulevard & Beulah Street (Signalized)													
		Fail	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Fail	Add a fourth through lane along the Manchester Boulevard westbound approach and extend onto Franconia-Springfield Parkway
22	Franconia Road & Beulah Street (Signalized)													
		Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Optimize the traffic signal
23	I-95 NB On-ramp & Commerce Street (Signalized) [c]													
		N/A	N/A	Pass	Pass	N/A	N/A	Pass	Pass	N/A	N/A	Pass	Pass	Optimize the traffic signal

Table 7-51: Springfield Overall Traffic Impacts (continued)

#	Intersection	No-build Condition				Build Condition				Build with Mitigation Condition				Recommended Mitigation
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		
		HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	HCM 2000	Queue	
24	**Frontier Drive Extension & Metro Station (Signalized)**													
		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Fail	Pass	Pass	Pass	Pass	Optimize the traffic signal and lengthen the right-turn lane along the Frontier Drive Extension northbound approach
25	**Frontier Drive Extension & Metropolitan Center Drive Extension** [d]													
		Pass	Pass	Pass	Fail	Pass	Pass	Pass	Fail	Pass	Pass	Pass	Fail	Revise the planned roadway improvement to construct a two-lane roundabout
26	**Frontier Drive Extension & Site South Access (TWSC)**													
		N/A	N/A	N/A	N/A	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Add a left-turn lane along the Frontier Drive Extension eastbound approach

Notes:

EB = Eastbound, WB = Westbound, NB= Northbound, SB = Southbound

TWSC = Two-way STOP-Controlled unsignalized intersection (TWSC intersections do not have an overall LOS)

Delay is Measured in Seconds Per Vehicle.

Orange cells denote where the queue length is 150 feet longer than the No-build Condition. Intersections #17 and #18 operate as one intersection and the queue is contained within the two intersections.

Red cells denote intersections operating at unacceptable HCM 2000 or queueing exceeds lane storage.

Yellow cells denote intersections operating at unacceptable HCM 2000; however, the operations is equal or better than the No-build Condition (or less than 150 feet greater in queue length than the No-build Condition).

[a] Intersection #7 would be removed for the Build with Mitigation Condition.

[b] Intersection continues to operate with a different lane configuration during the AM and PM peak hours.

[c] Intersection not analyzed during the AM peak hour.

[d] Intersection would operate as a TWSC intersection under the No-build Condition and a roundabout under the Build with Mitigation Condition.

TRANSPORTATION EVALUATION SUMMARY AND CONCLUSIONS

A total of 3,296 AM peak hour and 3,047 PM peak hour person trips are projected to be added to all modes of transportation. Total Metrorail and FXC transit trips are projected as 1,424 AM peak hour and 1,317 PM peak hour trips. Total vehicle trips are projected as 1,099 AM peak hour and 1,015 PM peak hour trips. The remaining trips would be commuter rail, commuter bus, bicycle, or walking trips.

The pedestrian network would expand under the No-build Condition with the inclusion of the Frontier Drive Extension and Metropolitan Center Drive Extension providing a new connection between the Franconia-Springfield Metro Station and Loisdale Road serving Metropolitan Center Drive and the Northern Virginia Community College. The inclusion of the Springfield site would allow for the same connections as the No-build Condition, as well as a new connection as part of the recommended mitigation to be provided between Frontier Drive Extension and Franconia-Springfield Parkway directly serving an access point to the Springfield site. This new connection would provide for direct pedestrian connections between the Metrorail station and the Springfield site as well as the Northern Virginia Community College and proposed development near the site, thereby encouraging non-vehicular travel. It is assumed that all sidewalk curb ramps located adjacent to the parcel would also be constructed to ADA compliance.

The bicycle network would expand with the inclusion of the Frontier Drive Extension and Metropolitan Center Drive Extension providing new access between Frontier Drive and Loisdale Road. As part of the recommended mitigation, a new connection would be provided between Frontier Drive Extension and Franconia-Springfield Parkway directly serving an access point to the Springfield site. These new connections would provide for an interconnected bicycle network linking all proposed bicycle facilities in the study area and would encourage bicycle use to access the Springfield site.

The transit network (Metrorail, Metrobus, and FXC) would not be affected by development of the Proposed Action at the Springfield site. The Franconia-Springfield Metro Station and all bus service would operate below capacity with the addition of the forecasted background growth and transit trips from the Springfield site. Three new bus bays are to be added to the Franconia-Springfield Metro Station and would accommodate the projected bus demand, including recommended shuttle buses operating between the station and Springfield site. It is assumed that WMATA would follow its long-term plan to address growth-related capacity issues for both bus and rail operations.

Parking availability would remain the same because the Springfield site would accommodate all parking needs on-site and implement a robust TMP to discourage employees from seeking alternative parking options in the nearby neighborhoods.

Truck access would be designed to accommodate the Springfield site from Loisdale Road at all times. This plan is not the official plan, but a plan to evaluate as part of the EIS. The Loisdale Road access would operate as a truck only access point, although it is assumed that all truck deliveries would be scheduled during the off-peak hours.

The traffic operations at one intersection (Franconia-Springfield Parkway at Manchester Boulevard/ Beulah Street) currently operate at an unacceptable level of service under the Existing Condition. Once the background growth, planned developments, and planned improvements are added (No-build Condition), the same intersection would continue to fail. There are a number of planned roadway improvements within the Springfield site study area to compensate for the vehicle trips added from the background growth.

The addition of the Springfield site to the traffic network would result in three intersections operating at an unacceptable level of service. These three failing intersections would experience equal or better operations than the No-build Condition as a result of recommended mitigation that include new turning lanes, extended turning lane lengths, new travel lanes, and a new roundabout. Overall, the roadway non-Interstate network would operate much better and experience shorter queues with the addition of the recommended mitigation when compared to the No-build Condition.

7.2.10 Greenhouse Gas Emissions and Air Quality

GREENHOUSE GAS EMISSIONS AND AIR QUALITY ASSESSMENT OF SIGNIFICANCE

Impacts to greenhouse gas emissions and air quality would not be significant, as defined in section 3.11.3.

7.2.10.1 Global Climate Change and Greenhouse Gases

This section provides a summary of the analysis results for GHG emissions and air quality. Additional technical supporting data and tables for this section are provided in Appendix F.

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no new measurable impacts to global climate change and GHGs because the continued operation of the site as a GSA warehouse complex would not alter the current level of GHGs in the atmosphere or otherwise contribute to climate change.

Springfield Alternative

Stationary source and building-related GHG emissions for the Springfield Alternative would be the same as those described for the Greenbelt site in section 5.2.10.1, resulting in direct, long-term, less than significant adverse impacts.

Table 7-52 summarizes the development of mobile source vehicle miles traveled (VMT) estimates for employee and contractor commutes to the Springfield site. The average one-way travel distance is based on existing FBI employee zip codes. If the Springfield site is selected, it is expected that new employees would locate in proximity to the Springfield site over time, reducing the average distance traveled. However, the data based on existing zip codes provides a realistic upper bound impact scenario.

Overall driving would increase relative to the Existing Conditions based on the mode share assumptions developed for the transportation analyses and the increase in the average distance traveled relative to existing employee zip codes. These factors combined result in an estimated 13 percent increase in mobile source GHG emissions relative to the JEH No-action Alternative (e.g., maintain FBI HQ at JEH and continue using off-site leased space). As a result, direct, long-term, adverse impacts to GHG emissions for the Springfield Alternative would be minimal.

Table 7-52: Springfield Alternative Employee Commute Vehicle Miles Traveled and Greenhouse Gas Emissions (2025)

	Springfield
Annual VMT (250 days)	45,366,629
Annual CO_2e- Metric Tons	11,541.0
Change in VMT from FBI HQ Remaining at JEH/off-site locations	5,305,816
Change in CO_2e from No-action FBI HQ Remaining at JEH/off-site locations (metric tons)	1,349.8
Percent Change	**13.24%**

7.2.10.2 Air Quality

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no new measurable impacts to air quality because the continued operation of the site as a GSA warehouse complex would not alter existing levels of air pollution.

SPRINGFIELD GLOBAL GREENHOUSE GASES ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Direct, long-term, adverse impacts to greenhouse gas emissions.

SPRINGFIELD AIR QUALITY ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Direct, short- and long-term, adverse impacts.

Figure 7-50: Springfield 1-hour NO_2 Project Increment Results

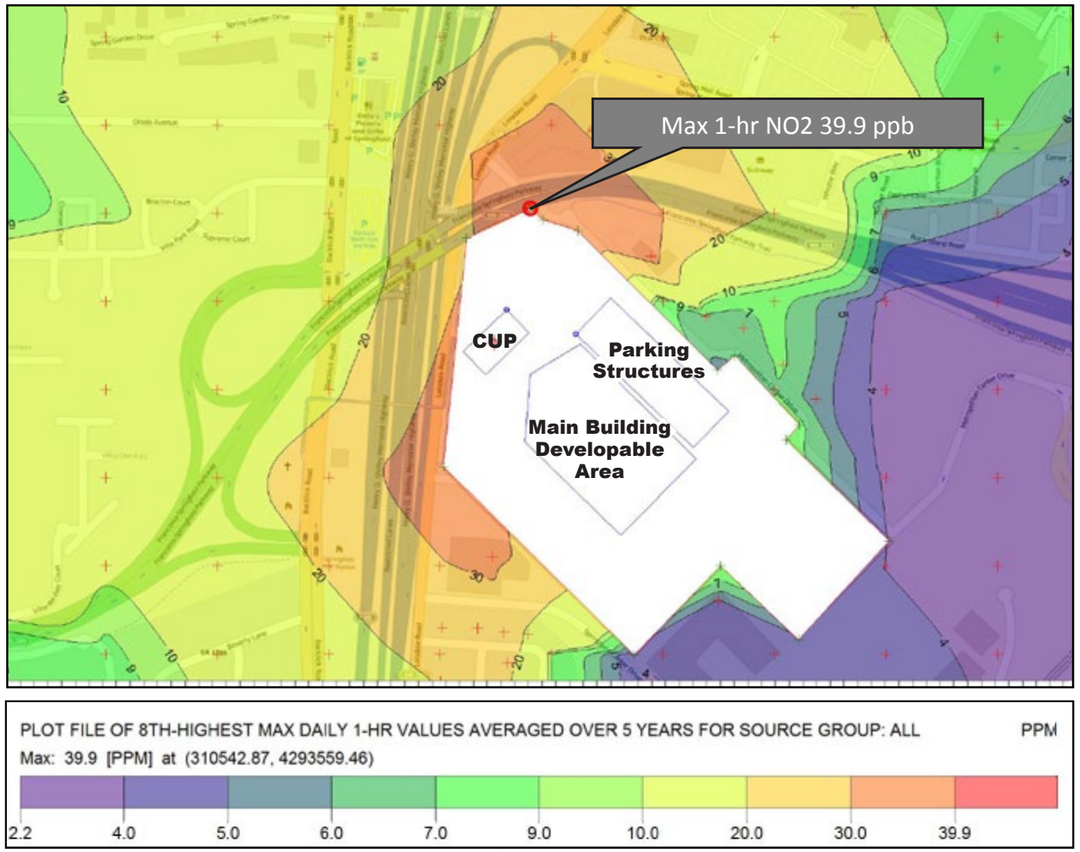


Table 7-53: Preliminary NO_2 Analysis Results - Springfield Site

	NO_2 1-hr (PPB)				NO_2 Annual Average (PPB)			
	Background	Max Project Increment	Total	NAAQS	Background	Max Project Increment	Total	NAAQS
Springfield	60.1	39.9	100	100	12.4	2.4	14.8	53

ppb = parts per billion

Springfield Alternative

Stationary Source Impacts

Based on the assumptions outlined in section 3.11, annual stationary source emissions from the natural gas boilers would be the same as those described for the Greenbelt site. The boiler emissions of criteria pollutants would be well below (less than 25 percent) the applicable General Conformity de minimis criteria, and therefore would be considered adverse, but less than significant based on the impact criteria presented in section 3.12.3.

Table 7-53 and figure 7-50 summarize the nitrogen dioxide (NO_2) analysis results, including the background concentration, project impact at the receptor with the highest concentration, and the total concentration. Annual average NO_2 concentrations would be well below the National Ambient Air Quality Standards (NAAQS) of 53 parts per billion (ppb).

The maximum predicted 1-hour NO_2 concentration at the Springfield site would be equal to the 100 ppb NAAQS. This occurs because the closest and most representative monitoring site to the Springfield site has a NO_2 background concentration that is high relative to other monitors in the region. The maximum concentration occurs along the fence line at the northern portion of the Springfield site. Concentrations in the surrounding neighborhoods would be much lower than at the fence line and below the NAAQS. The reasonableness of the background concentration used for the Springfield site (City of Alexandria maintenance building) would also require further evaluation; it may be affected by a localized emission source, such as the adjacent railroad and rail yard.

Table 7-54 and figure 7-51 summarize the $PM_{2.5}$ analysis results, including the background concentration, project impact at the receptor with the highest concentration, and the total concentration. Annual average and 24-hour average $PM_{2.5}$ concentrations would be below the NAAQS. Similar to the NO_2 results, the maximum concentration occurs along the northern fence line of the Springfield site.

Mobile Source Impacts

All signalized intersections would operate at LOS D or better after taking into account traffic mitigation measures except for Intersection #21, Franconia-Springfield Parkway/Manchester Boulevard and Beulah Street, which would operate at LOS E in the AM peak hour and LOS F in the PM peak hour. Based on consideration of approach volumes and background concentrations (discussed in Appendix F), no exceedance of the carbon monoxide (CO) NAAQS is anticipated for this congested intersection under the Springfield Alternative, resulting in long-term, adverse, but less than significant impacts to air quality from mobile source emissions.

Temporary Construction Impacts

Table 7-55 summarizes the construction equipment and fugitive dust emissions for the Springfield site. The fugitive dust analysis was based on a construction site area of approximately 58 acres. Annual construction emissions would be below the General Conformity de minimis thresholds for all criteria pollutants. Overall direct, short-term, adverse impacts would occur during the construction period.

Construction at the Springfield site would incorporate the same construction air quality mitigation measures and BMPs discussed in section 3.11.3.2.

Figure 7-51: Springfield 24-hr $PM_{2.5}$ Project Increment Results

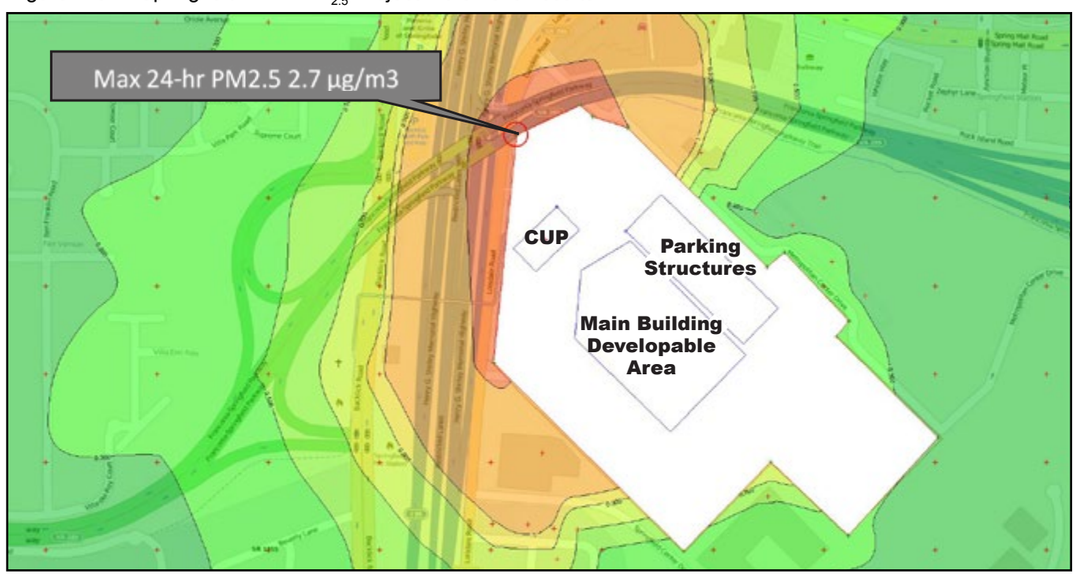


Table 7-54: Preliminary $PM_{2.5}$ Analysis Results - Springfield Site

$PM_{2.5}$ 24-hr (µg/m³)				$PM_{2.5}$ Annual Average (µg/m³)			
Background	Max Project Increment	Total	NAAQS	Background	Max Project Increment	Total	NAAQS
20.3	2.7	23.0	35	8.4	0.8	9.2	12

µg/m³ = micrograms per cubic meter

Table 7-55: Construction Emissions - Springfield

	VOC (tons)	CO (tons)	NO_x (tons)	SO_2 (tons)	PM_{10} (tons)	$PM_{2.5}$ (tons)
Total Construction Equipment Emissions (from FASTC EIS)	16.1	261.0	213.8	4.6	11.5	11.0
Annual Average Construction Equipment Emissions (over four years)	4.0	65.2	53.4	1.2	2.9	2.8
Annual Average Fugitive Dust emissions	--	--	--	--	83.5	8.4
Total Construction Emissions per year	4.0	65.2	53.4	1.2	86.4	11.1
General Conformity de minimis threshold (per year)	50	100	100	100	100	100

SPRINGFIELD NOISE ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Direct, short-term, adverse impacts.

SPRINGFIELD WATER SUPPLY ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: No measurable impacts.

SPRINGFIELD WASTEWATER COLLECTION & TREATMENT ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: No measurable impacts.

7.2.11 Noise

NOISE ASSESSMENT OF SIGNIFICANCE

Impacts to noise would not be significant, as defined in section 3.12.3.

7.2.11.1 No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to noise because the continued operation of the site as a GSA warehouse complex would not alter the existing noise levels.

7.2.11.2 Springfield Alternative

The Springfield Alternative would result in similar construction-related equipment noise levels as well as operational noise levels as described for the Greenbelt site. Construction-related noise impacts would be caused by the operation of construction equipment, including materials delivery and staff vehicle transportation, as well as site preparation, on-site construction equipment operation, and the presence of construction workers. Therefore, under the Springfield Alternative, there would be direct, short-term, adverse impacts to nearby sensitive noise receptors from the construction of a consolidated FBI HQ campus.

The majority of the surrounding area has been previously developed. Primary noise generating sources in the area include I-95, the Franconia-Springfield Parkway, existing rail corridors, and commercial parks – all of which contribute to a considerable ambient noise level. Sensitive noise receptors adjacent to the site include residences to the south, existing hotels to the north, and the Northern Virginia Community College – Medical Campus. The closest receptors include residences approximately 200-feet south and the Northern Virginia Community College – Medical Campus, approximately 200 feet to the east. As a result, noise impacts from construction activities would be more pronounced than those presented for the Greenbelt site. However, because extensive existing noise sources already exist, including I-95, the Franconia-Springfield Parkway, existing rail corridors, and the Springfield Town Center, impacts are not anticipated to dominate the landscape, but would result in a noticeable alteration to the noise environment. However, all construction activities would adhere to noise control regulations as established in the Fairfax County Code of Ordinances; therefore, construction activities would result in indirect, short term, adverse impacts to noise.

Over the long term, noise impacts as a result of the operation of a FBI HQ campus would be similar to those described for the Greenbelt site. These impacts would stem primarily from automobile traffic, employee and visitor parking, and from building operation and maintenance. There would also be generalized noise stemming from employee activities that would be expected to be similar to a large scale office complex. Existing noise sources in proximity to the site are prominent and are consistent with potential noise generated at the proposed FBI HQ. As such, although impacts would be more pronounced as a result of the close proximity of sensitive noise receptors, impacts would not be measurable because they would be similar to existing ambient noise levels. Similarly, although traffic is likely to increase from the presence of FBI HQ, impacts to noise are not expected to be substantial because of existing traffic and other noise sources in close proximity to the site.

Transportation Mitigations

Construction of the recommended transportation mitigations, as shown in figure 7-48, would result in direct, short-term, adverse impacts to noise from the operation of construction equipment within the transportation study area.

7.2.12 Infrastructure and Utilities

The following sections describe the environmental consequences for infrastructure and utilities under both the No-action Alternative at Springfield and the Springfield Alternative.

INFRASTRUCTURE AND UTILITIES ASSESSMENT OF SIGNIFICANCE

Impacts to infrastructure and utilities would not be significant, as defined in section 3.13.3.

7.2.12.1 Water Supply

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to water supply or service because the continued operation of the site as a GSA warehouse complex would not alter the current demand or capacity for water service.

Springfield Alternative

The Springfield Alternative would result in an increased water demand for the site. Fairfax Water reported that the existing water infrastructure has ample capacity to support the proposed development and there are no master-planned improvements needed to service this site. There are multiple transmission lines serving the immediate area as well as a major storage facility to the north and a water treatment facility to the south. By virtue of its location, the Springfield site has redundant water supply. Therefore, there would be no measurable impacts to the water supply at the Springfield site. (Fairfax Water 2015b).

7.2.12.2 Wastewater Collection and Treatment

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to wastewater collection and treatment because the continued operation of the site as a GSA warehouse complex would not alter the current demand or capacity for wastewater collection and treatment.

Springfield Alternative

The Springfield Alternative would result in an increased wastewater flow from the site. Fairfax County reported that there is sufficient hydraulic capacity in the wastewater collection system and the Long Branch pump station, as well as the wastewater treatment plant that would serve the site (Noman M. Cole Jr. Plant), to support the proposed development. The proposed development would connect the Fairfax County collection system at the same location as the existing development. Therefore, there would be no measurable impacts to wastewater collection and treatment as a result of the Springfield Alternative (Fairfax Water 2015b).

7.2.12.3 Electric Power

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to electric power because the continued operation of the site as a GSA warehouse complex would not alter the current demand or capacity for electricity.

Springfield Alternative

The consolidation of the FBI HQ at the Springfield site Springfield Alternative would result in direct impacts to electric power. The anticipated load requirement for the consolidated FBI HQ campus is between 20 and 35 megavolt amperes. Dominion representatives reported that a dedicated 34.5-kV power supply could be made available to the Springfield site to meet this load requirement, and that no on-site substation would be required. However, upgrades to existing conductors and transformers serving the site would be necessary to accommodate the anticipated increased load. The existing electric service does not provide for the desired level of redundancy associated with the proposed development. A second, independent feeder could be extended to the site from the Hayfield Substation. This would require approximately 1.5 miles of new distribution lines installed within existing rights-of-way and/or easements. Dominion reported that the Hayfield Substation has adequate capacity to accommodate the anticipated demands associated with the proposed consolidation and that there are no planned upgrades at this substation (Dominion 2015d). Because of the required extension for redundant power supply and upgrades necessary to existing infrastructure, direct, short-term, adverse impacts are to be expected. However, no long-term, adverse impacts are anticipated under the Springfield Alternative.

7.2.12.4 Natural Gas

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to natural gas because the continued operation of the site as a GSA warehouse complex would not alter the current demand or capacity for natural gas service.

Springfield Alternative

Washington Gas representatives stated that it would be necessary to provide natural gas service to the Springfield site directly from a transmission pressure line to support the anticipated load associated with the proposed development. There is a transmission pressure gas main located along Loisdale Road, and the existing natural gas distribution system is connected to this main. Because transmission pressure gas service is currently available to the site, no measurable impacts would occur under the Springfield Alternative (Washington Gas 2015).

7.2.12.5 Telecommunications

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to telecommunications because the continued operation of the site as a GSA warehouse complex would not alter the current demand or capacity for telecommunications.

Springfield Alternative

Under the Springfield Alternative, there would be no measurable impacts to telecommunications. Providing telecommunications service to the Springfield site would not adversely impact current or future customers of the region. Development of the site would require coordinating the telecommunications needs of the proposed development with the appropriate providers, but no long-term, adverse impacts to availability or quality of telecommunications services to existing customers is expected because of the infrastructure already in place.

7.2.12.6 Stormwater Management

No-action Alternative

Under the No-action Alternative at the Springfield site, there would be no measurable impacts to stormwater management because the continued operation of the site as a GSA warehouse complex would not alter the existing stormwater management or infrastructure.

Springfield Alternative

Development of the site would require compliance with the Public Facilities Manual, which is the technical guidance developed to implement the requirements of the Code of the County of Fairfax, Virginia (County Code). The site is currently nearly all impervious surface (i.e., roof tops, parking lots, and roadways). It is anticipated that low-impact development measures and on-site stormwater BMPs would be incorporated into the design. This would curtail, and potentially reduce, stormwater runoff from the site so as to not adversely affect downstream properties or facilities. Therefore, direct, long-term, beneficial impacts are expected under the Springfield Alternative as a result of the incorporation of on-site stormwater BMPs.

SPRINGFIELD ELECTRIC POWER ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Direct, short-term, adverse impacts.

SPRINGFIELD NATURAL GAS ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: No measurable impacts.

SPRINGFIELD TELECOMMUNICATIONS ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: No measurable impacts.

SPRINGFIELD STORMWATER MANAGEMENT ENVIRONMENTAL CONSEQUENCES SUMMARY

No-action Alternative: No measurable impacts.

Springfield Alternative: Direct, long-term, beneficial impacts.

7.2.13 Summary of Impacts

Table 7-56 presents a summary of the impacts associated with the Springfield Alternative to the resource topics analyzed in this EIS, including the No-action Alternative at Springfield.

Table 7-56: Springfield Summary of Impacts

Resource Area	Impact Description	
Earth Resources		
Geology and Topography	N	Under the No-action Alternative, there would be no measurable impacts.
	ADV	Under the Springfield Alternative, there would be direct, short-term, adverse impacts to topography.
	ADV	Under the Springfield Alternative, there would be direct, long-term, adverse impacts to geology.
Soils	N	Under the No-action Alternative, there would be no measurable impacts.
	ADV	Under the Springfield Alternative, there would be direct, short-term, adverse impacts.
Water Resources		
Surface Water	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts.
Hydrology	N	Under the No-action Alternative, there would be no measurable impacts.
	ADV	Under the Springfield Alternative, there would be direct, short-term, adverse impacts.
	BEN	Under the Springfield Alternative, there would be direct, long-term, beneficial impacts.
Groundwater	N	Under the No-action Alternative, there would be no new measurable impacts.
	BEN	Under the Springfield Alternative, there would be direct, long-term, beneficial impacts.
Wetlands and Floodplains	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts.
Biological Resources		

N	No Measurable Impact	ADV	Adverse Impact	ADV	Major Adverse (Significant) Impact	BEN	Beneficial Impact

Table 7-56: Springfield Summary of Impacts

Resource Area	Impact Description	
Vegetation	N	Under the No-action Alternative, there would be no measurable impacts.
	BEN	Under the Springfield Alternative, there would be direct, long-term, beneficial impacts.
	ADV	Under the Springfield Alternative, there would be direct, long-term, adverse impacts.
Aquatic Species	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts.
Terrestrial Species	N	Under the No-action Alternative, there would be no measurable impacts.
	BEN	Under the Springfield Alternative, there would be direct, short- and long-term, beneficial impacts.
	ADV	Under the Springfield Alternative, there would be direct, short- and long-term, adverse impacts.
Special Status Species	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts.
Regional Land Use, Planning Studies, and Zoning		
Regional Land Use, Planning Studies, and Zoning	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts to zoning.
	ADV	Under the Springfield Alternative, there would be direct, long-term, adverse impacts to land use and land use with respect to planning studies.
	BEN	Under the Springfield Alternative, there would be direct, long-term, beneficial impacts to land use with respect to planning studies.
Visual Resources		
Visual Resources	N	Under the No-action Alternative, there would be no measurable impacts.
	ADV	Under the Springfield Alternative, there would be direct, long-term, adverse impacts.
Cultural Resources		
Archaeological	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts.
Historic Resources	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts.
Socioeconomics		
Population and Housing	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts to population or housing in the Washington, D.C. MSA. There is insufficient information to assess impacts to population or housing in Fairfax County..
Employment and Income	N	Under the No-action Alternative, there would be no measurable impacts.
	BEN	Under the Springfield Alternative, there would be indirect, short- and long-term, beneficial impacts as a result of construction-related spending.
Taxes	N	Under the No-action Alternative, there would be no measurable impacts to taxes.
	BEN	Under the Springfield Alternative, there would be indirect, short- and long-term beneficial impacts to tax revenues.
	N	Under the Springfield Alternative, there would be no measurable impacts to property tax revenues.
School and Community Services	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there is insufficient information available to determine impacts to community services. No measurable short-term impacts to schools. Insufficient information available to determine long-term impacts to schools.
Recreation and Other Community Facilities	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there is insufficient information available to determine impacts.
Environmental Justice	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no long-term adverse impacts to minority or low-income communities.
Protection of Children	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, no mitigation of disproportionate and adverse impacts to children is required under EO 13045
Public Health and Safety/Hazardous Materials		
Public Health and Safety	N	Under the No-action Alternative, there would be no measurable impacts.
	ADV	Under the Springfield Alternative, there would be indirect, short-term, adverse impacts.
Hazardous Materials	N	Under the No-action Alternative, there would be no measurable impacts.
	BEN	Under the Springfield Alternative, there would be direct, long-term, beneficial impacts.
Transportation		

N	No Measurable Impact	ADV	Adverse Impact	ADV	Major Adverse (Significant) Impact	BEN	Beneficial Impact

Table 7-56: Springfield Summary of Impacts

Resource Area	Impact Description	
Pedestrian Network	BEN	Under the No-build Condition, there would be direct, long-term, beneficial impacts.
	BEN	Under the Build Condition, there would be direct, long-term, beneficial impacts.
Bicycle Network	BEN	Under the No-build Condition, there would be direct, long-term, beneficial impacts.
	N	Under the Build Condition, there would be no measurable impacts.
Public Transit	N	Under the No-build Condition, there would be no measurable impacts to public transit.
	N	Under the Build Condition, there would be no measurable impacts to public transit capacity.
	ADV	Under the Build Condition, there would be direct, short- and long-term, adverse impacts to bus operations.
Parking	BEN	Under the No-build Condition, there would be direct, long-term, beneficial impacts.
	N	Under the Build Condition, there would be no measurable impacts.
Truck Access	BEN	Under the No-build Condition, there would be direct, long-term, beneficial impacts.
	N	Under the Build Condition, there would be no measurable impacts.
Traffic Analysis	ADV	Under the No-build Condition, there would be direct, long-term, adverse impacts.
	ADV	Under the Build Condition, there would be direct, long-term, adverse impacts to isolated intersections.
	ADV	Under the Build Condition, there would be direct, long-term, major adverse corridor-level traffic impacts.
	ADV	Under the Build Condition, there would be direct, short-term, adverse impacts.
Greenhouse Gas Emissions and Air Quality		
Global Climate Change/ Greenhouse Gases	N	Under the No-action Alternative, there would be no measurable impacts.
	ADV	Under the Springfield Alternative, there would be direct, long-term, adverse impacts.
Air Quality	N	Under the No-action Alternative, there would be no measurable impacts.
	ADV	Under the Springfield Alternative, there would be direct, short- and long-term, adverse impacts.
Noise		
Noise	N	Under the No-action Alternative, there would be no measurable impacts.
	ADV	Under the Springfield Alternative, there would be direct, short-term, adverse impacts.
Infrastructure and Utilities		
Water Supply	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts.
Wastewater Collection and Treatment	N	Under the No-action Alternative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts.
Electric Power	N	Under the No-action Alternative, there would be no measurable impacts.
	ADV	Under the Springfield Alternative, there would be direct, short-term, adverse impacts.
Natural Gas	N	Under the No-action Alternative, there would be no meausrable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts.
Telecommuni-cations	N	Under the No-action Alterative, there would be no measurable impacts.
	N	Under the Springfield Alternative, there would be no measurable impacts.
Stormwater Management	N	Under the No-action Alternative, there would be no measurable impacts.
	BEN	Under the Springfield Alternative, there would be direct, long-term, beneficial impacts.

N	No Measurable Impact	ADV	Adverse Impact	ADV	Major Adverse (Significant) Impact	BEN	Beneficial Impact