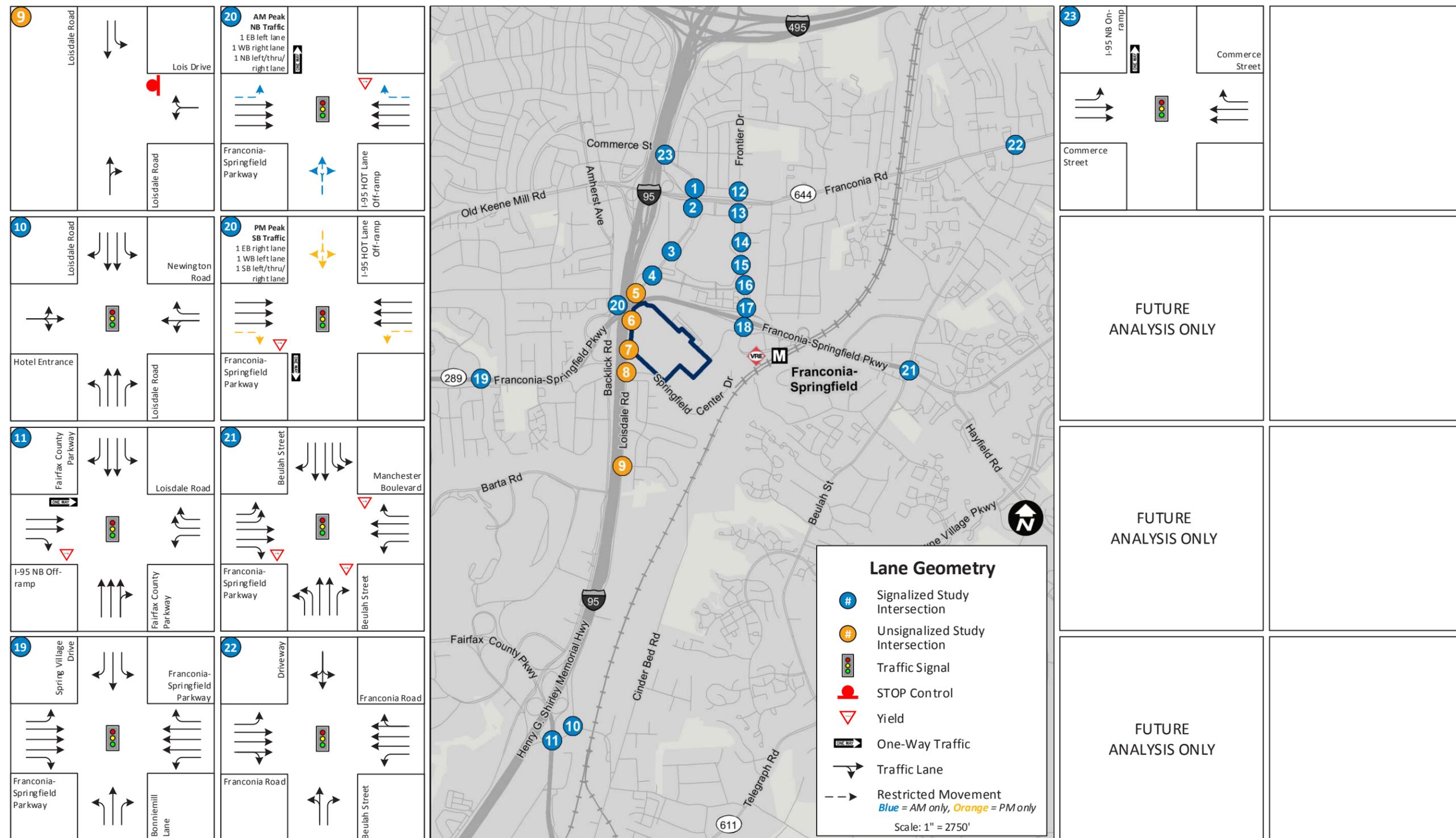


Figure 7-19: Springfield Existing Lane Geometry and Traffic Control Type (continued)



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

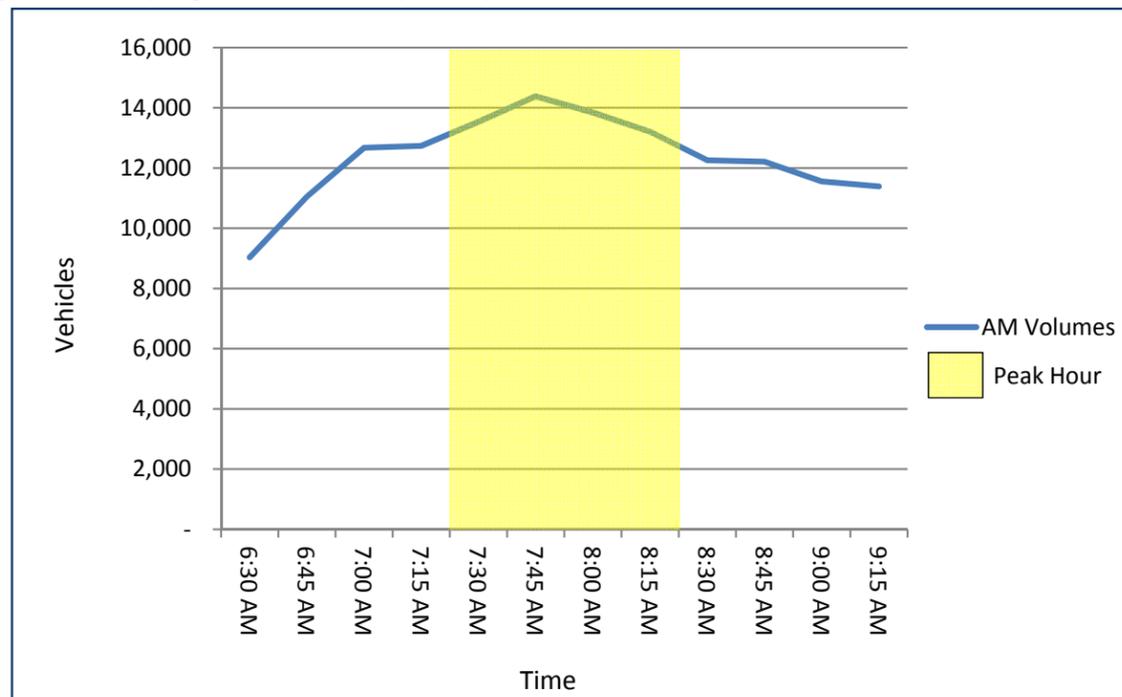


Figure 7-21: Springfield Intersection (Arterial) Cumulative PM Volumes

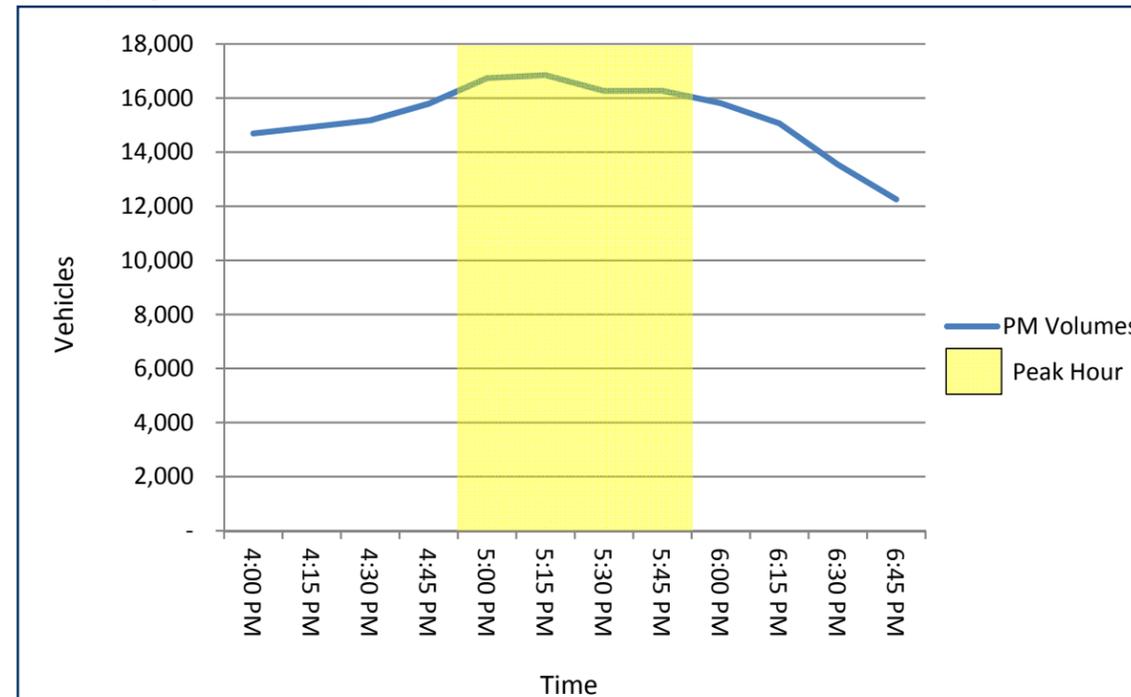
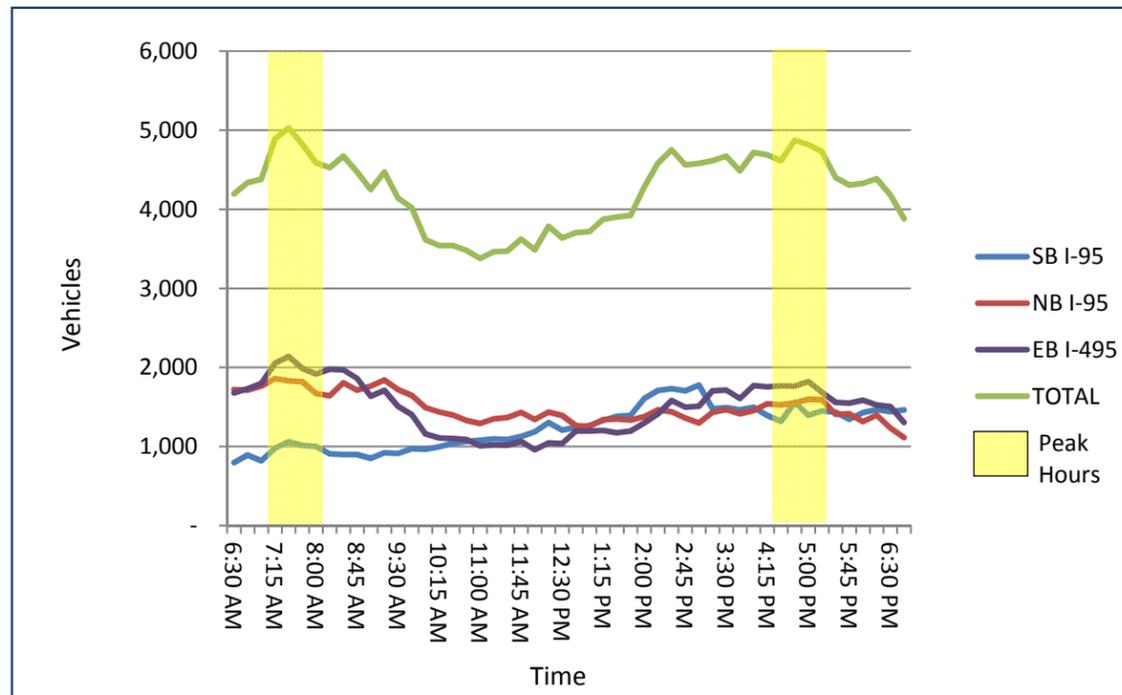
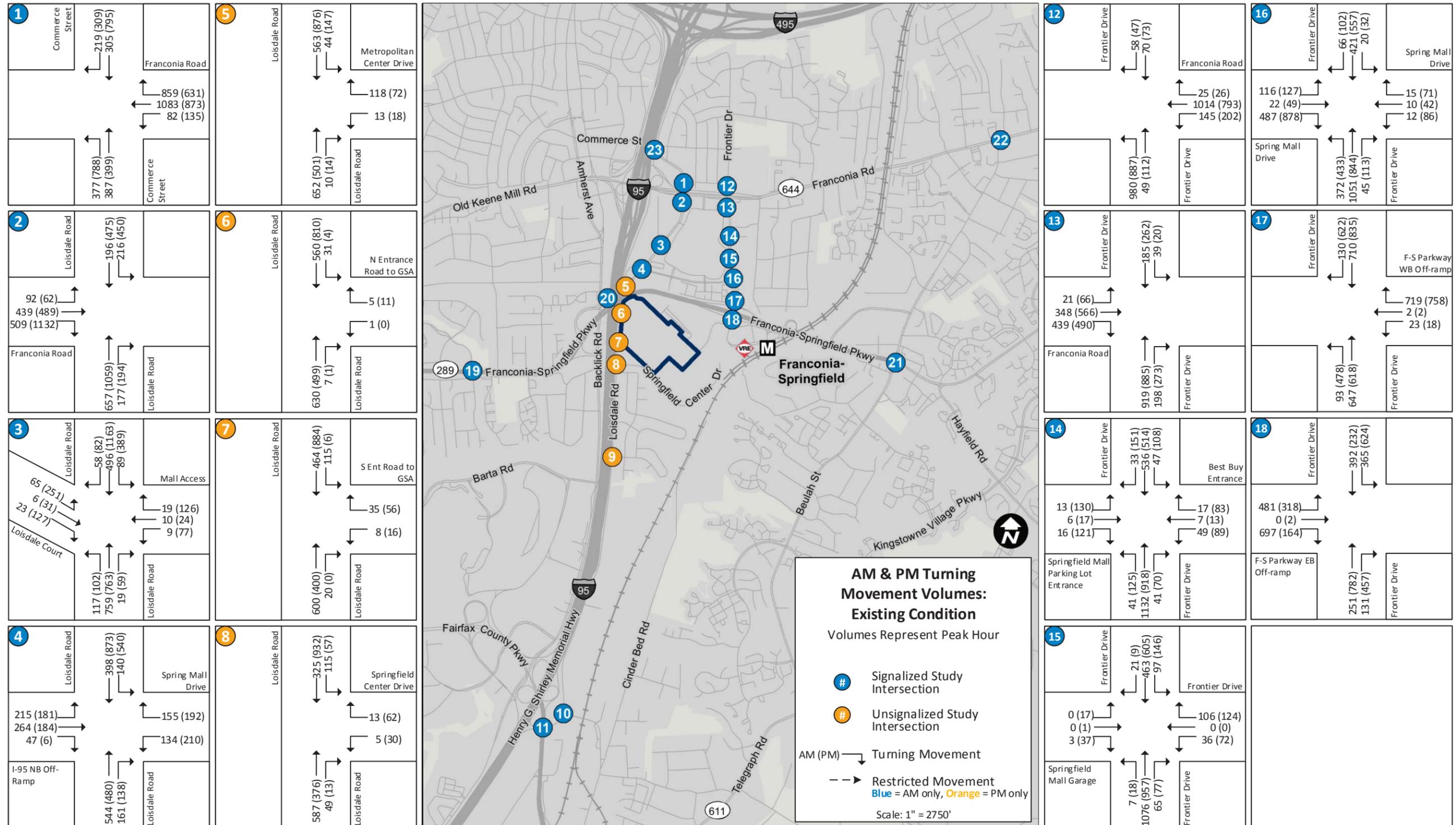


Figure 7-22: Springfield Interstate Volumes



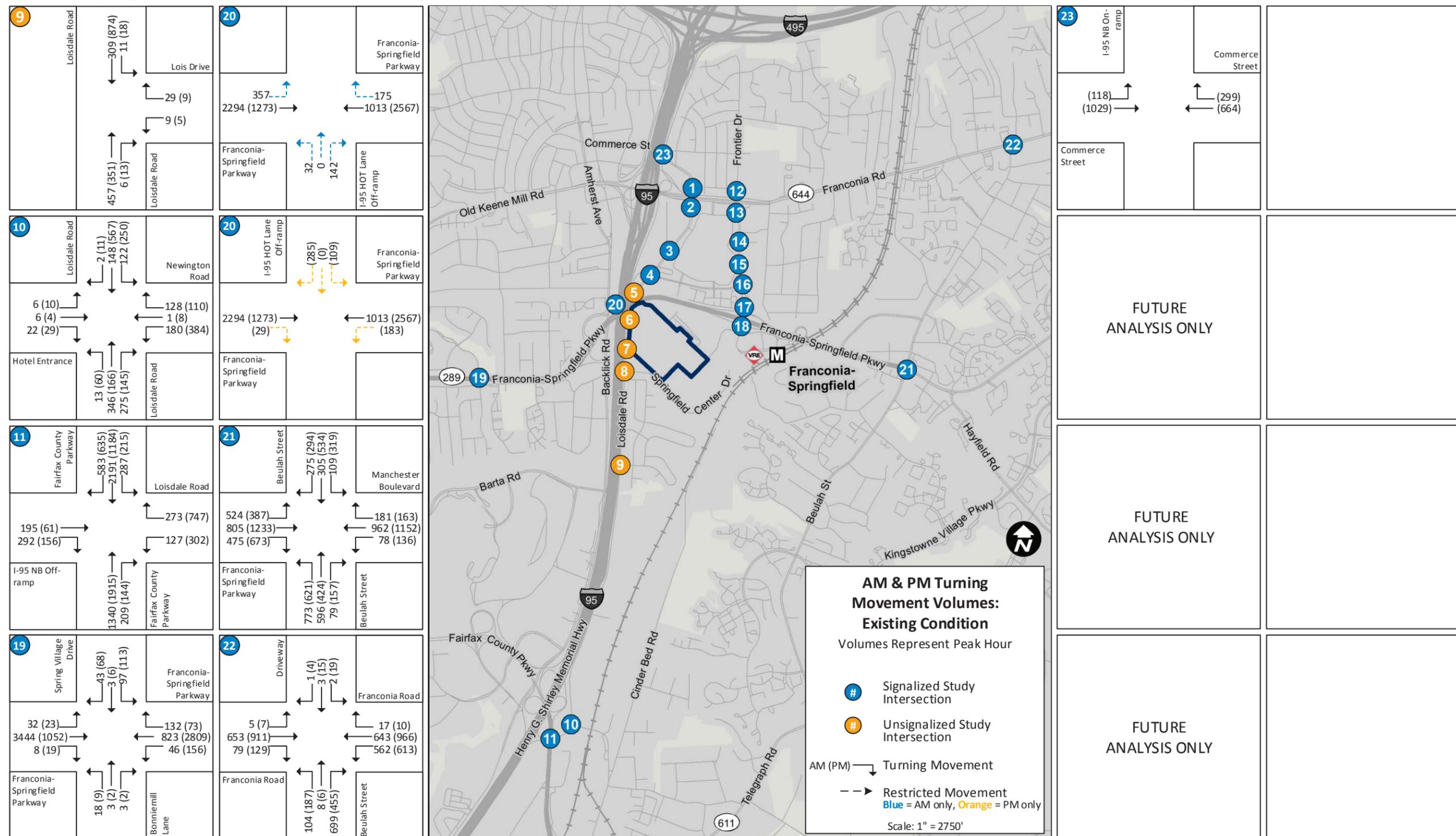
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Figure 7-23: Springfield Existing AM and PM Peak Hour Turning Movement Volumes



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.

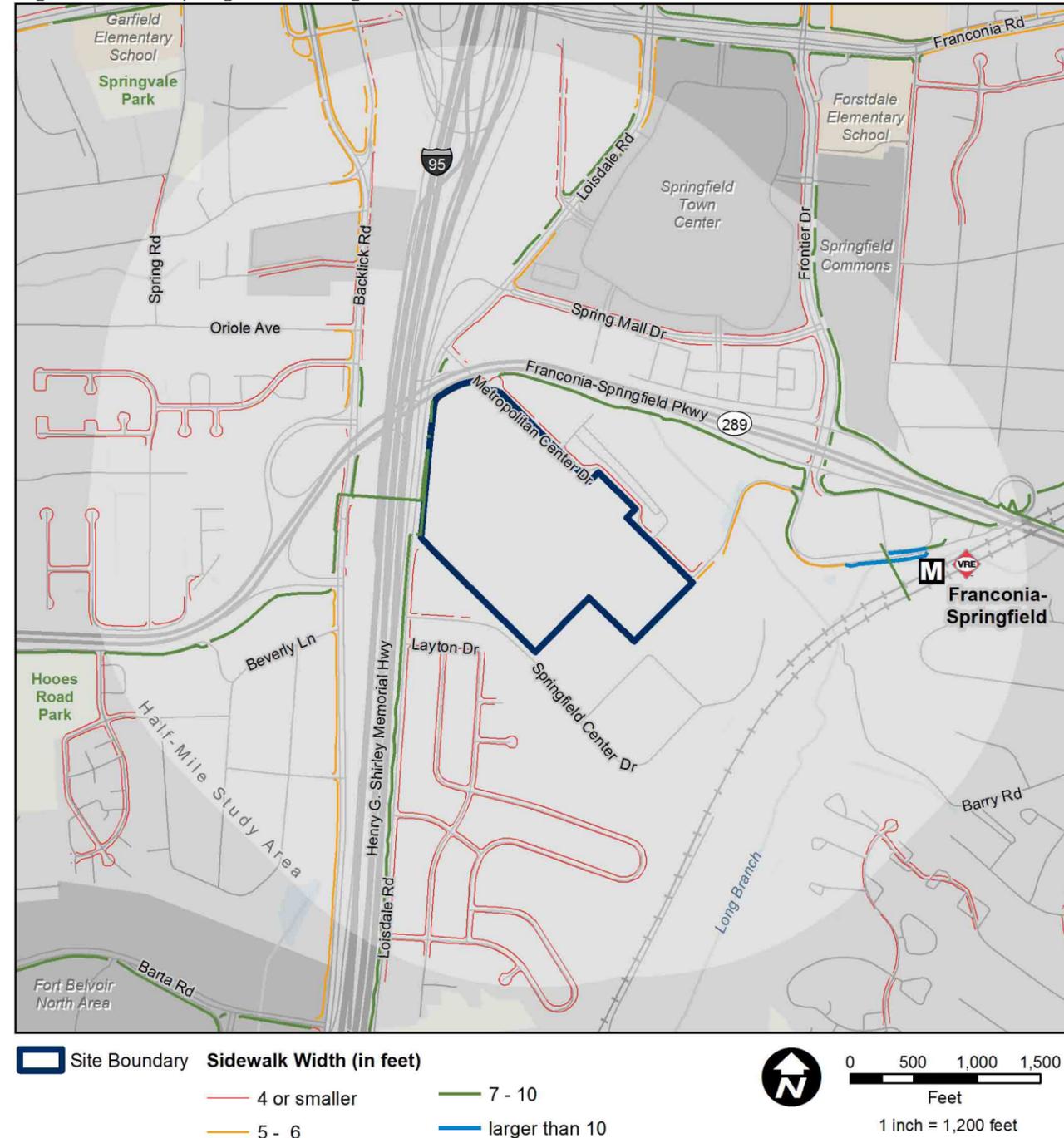
PEDESTRIAN DESIRE PATHS

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



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

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.

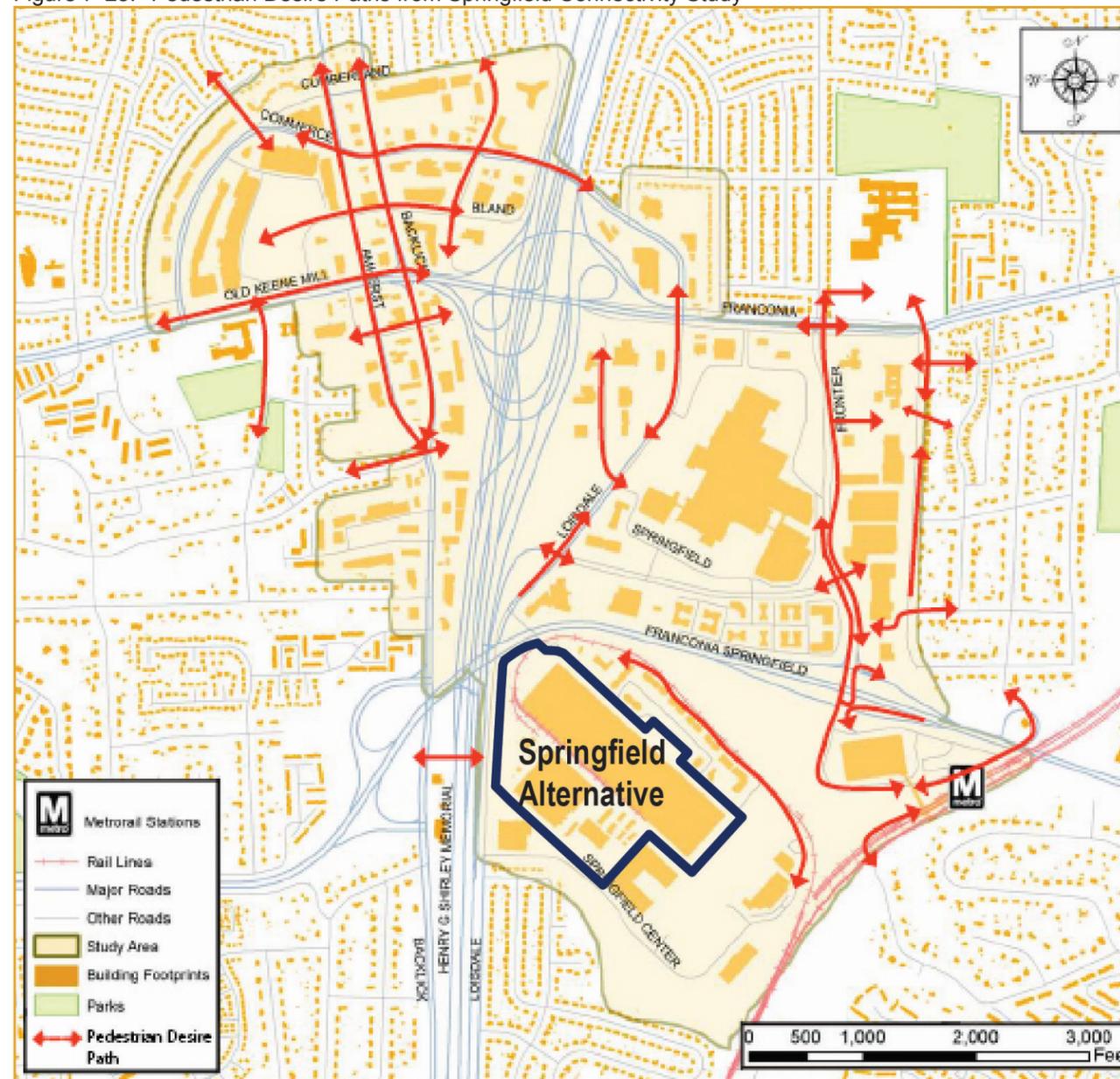
The study area is dominated by vehicle infrastructure, and pedestrian movement is complicated by high vehicle speeds and volumes and wide roadway cross-sections in some locations. The major roads in the study area, such as Franconia-Springfield Parkway and I-95, divide the area and complicate non-motorized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

^aAlthough 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)

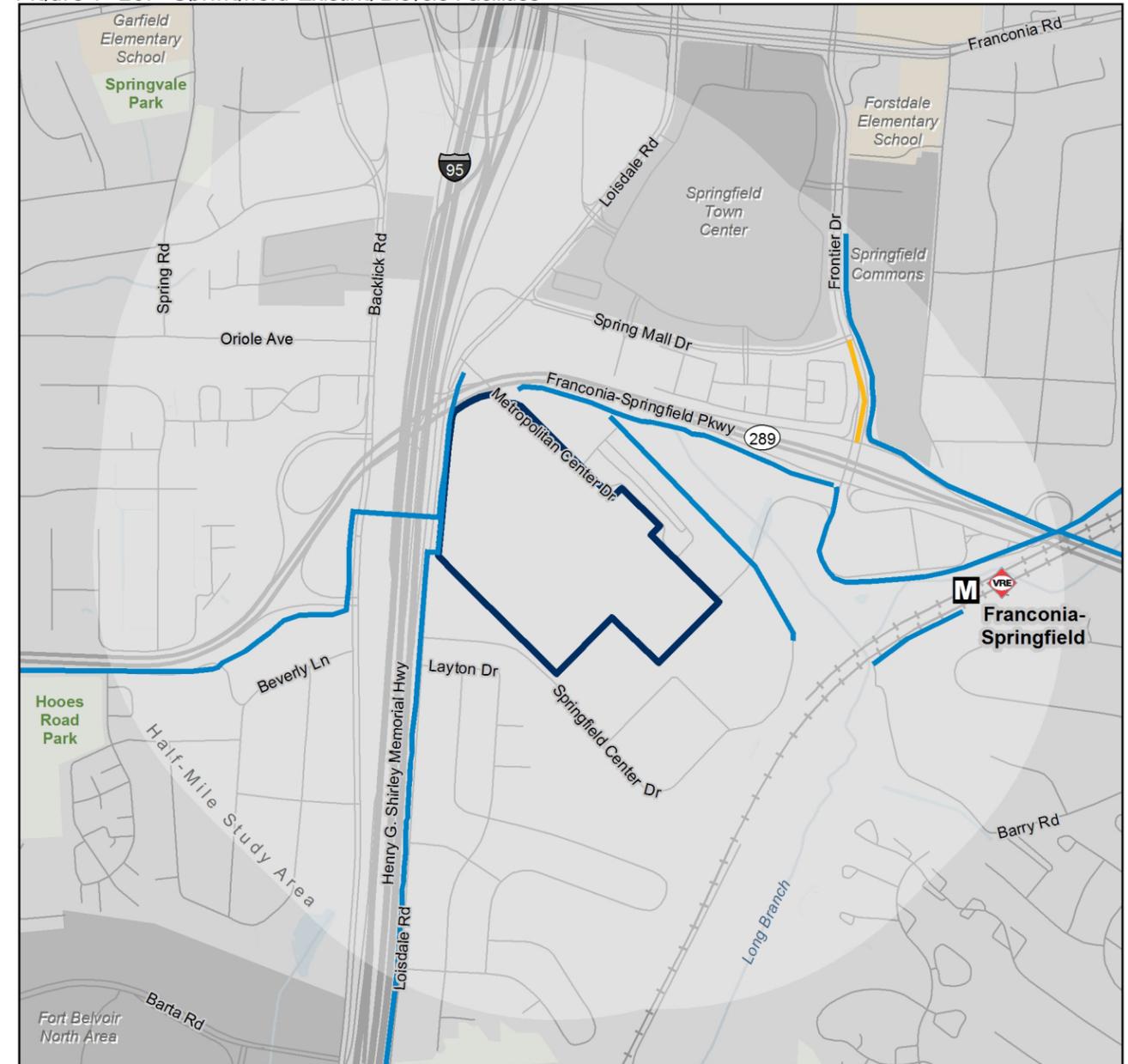
SPRINGFIELD BICYCLE NETWORK

- 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.

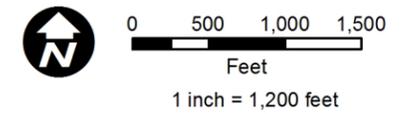
7.1.9.6 Bicycle Network

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

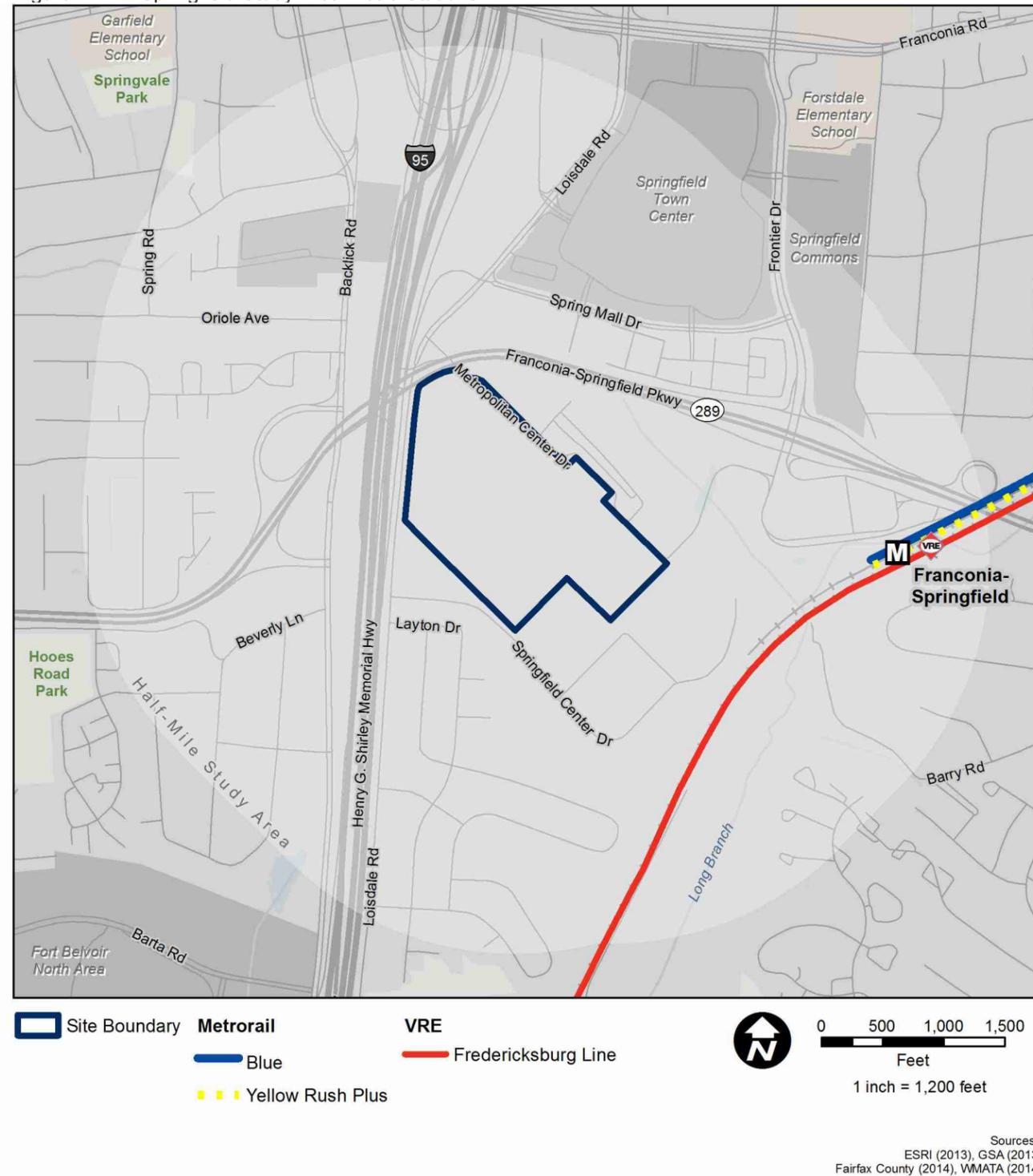


- Site Boundary
- Multi-Use Path
- Bicycle Lane



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

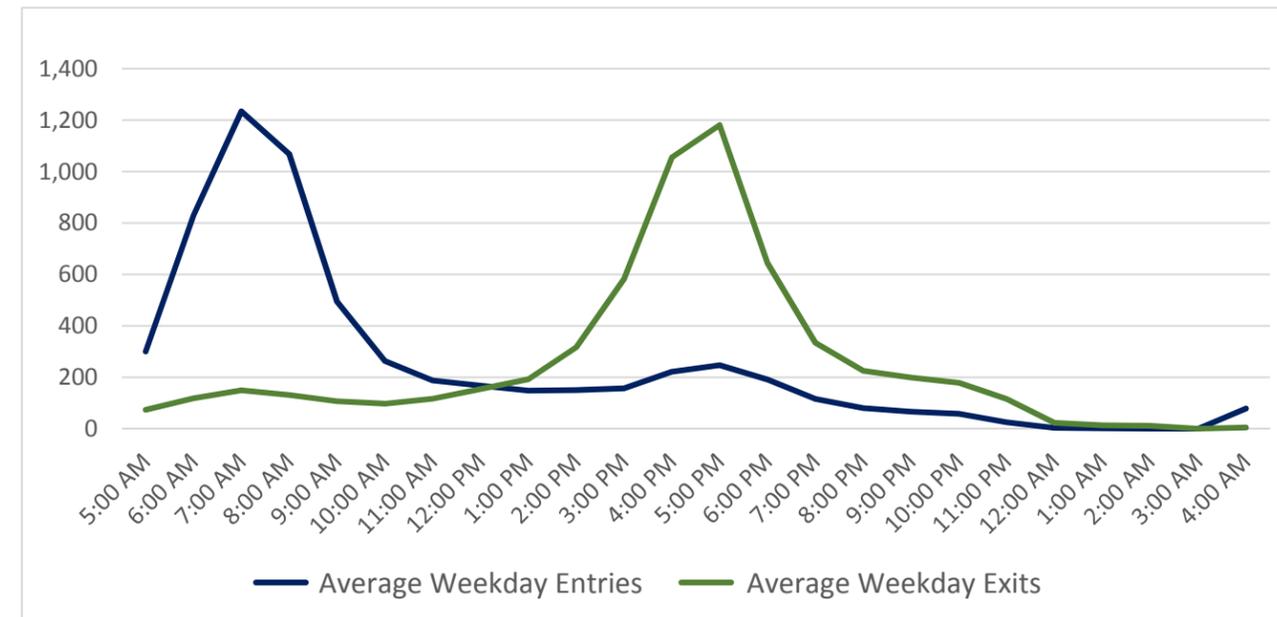
Day	Period	Span of Service	Headway (Minutes)		
			Blue	Yellow Rush +	Effective Headway
Weekday	Peak	5:00 AM to 9:30 AM/ 3:00 PM to 7:00 PM	12	12	6
	Midday	9:30 AM to 3:00 PM	12	-	-
	Evening	7:00 PM to 9:30 PM	12	-	-
	Late Night	9:30 PM to 12:00 AM ^a	20	-	-
Saturday	Daytime	7:00 AM to 9:30 PM	12	-	-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

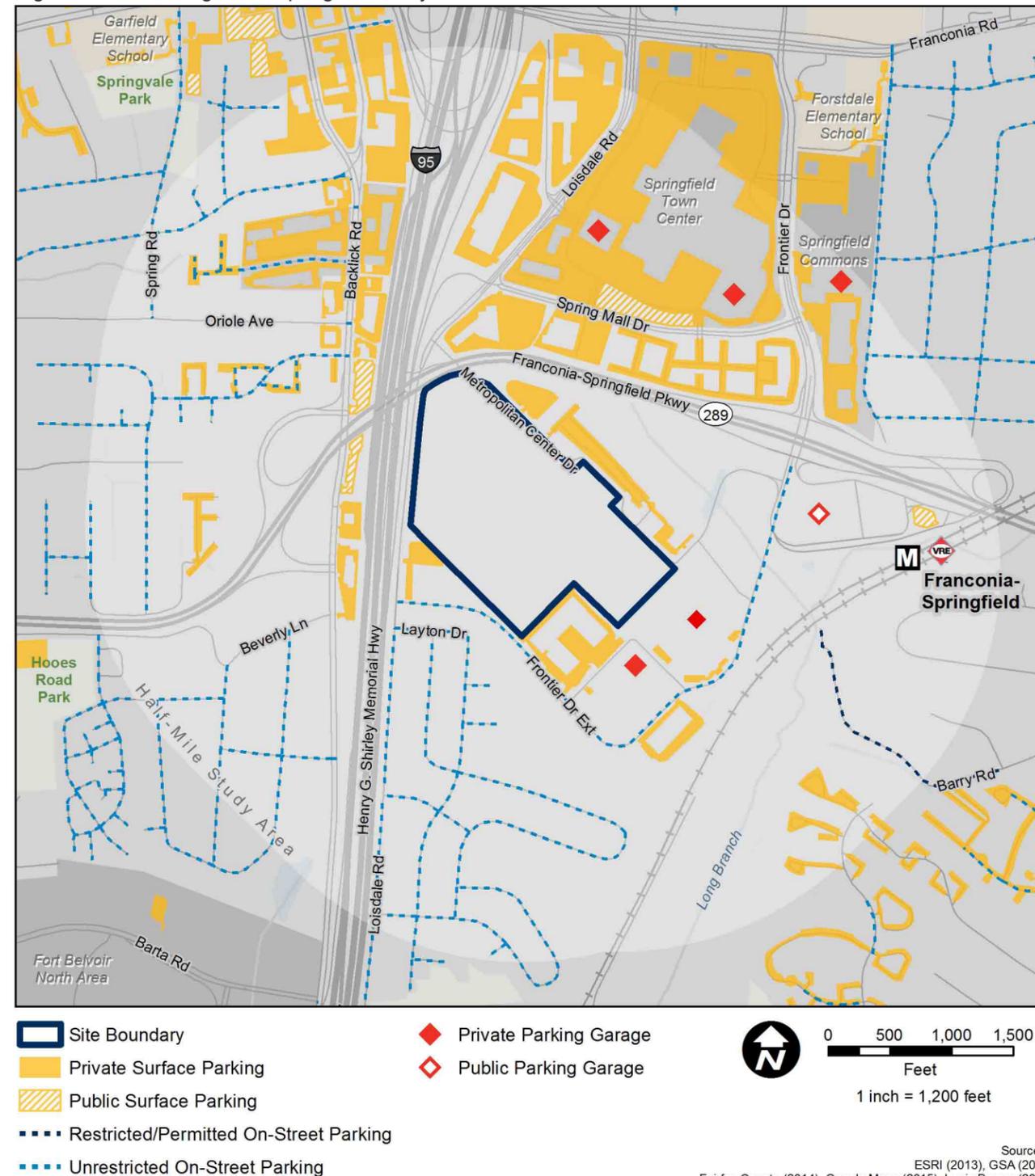
A variety of structured parking is available within the vicinity of the Springfield site. There are several parking garages in the Springfield Town Center that are located about 0.5 mile away from the Springfield site; however, these garages are typically restricted for use by the customers of the surrounding 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

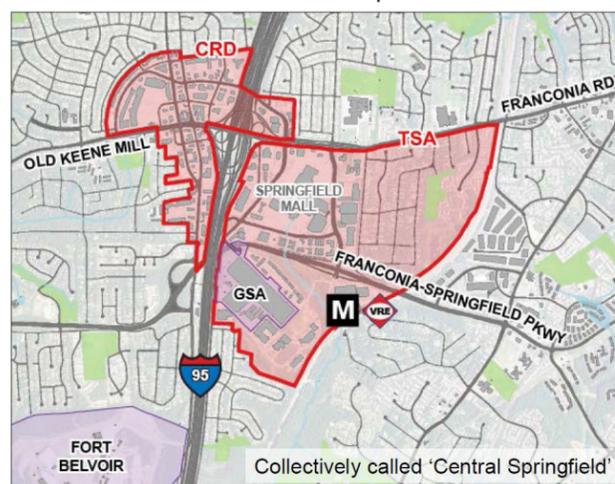
Trucks accessing the Springfield site currently use both the north and south vehicular entrances to/from Loisdale Road. Trucks access the site primarily during business hours, Monday through Friday, 8:00 AM to 6:00 PM. Based on correspondence with GSA staff, there do not appear to be pronounced peak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

Figure 7-30: Parking in the Springfield Study Area



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

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.

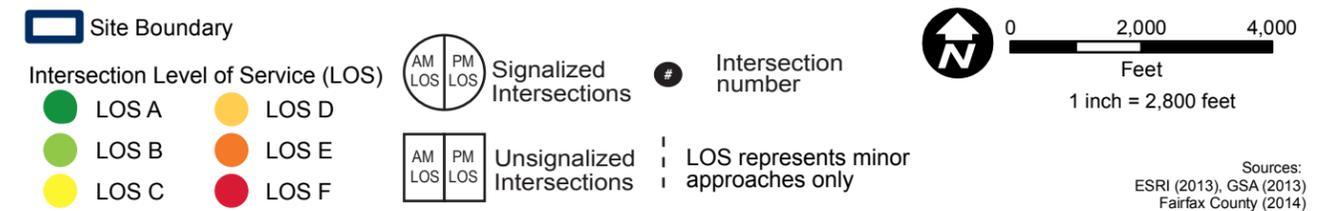
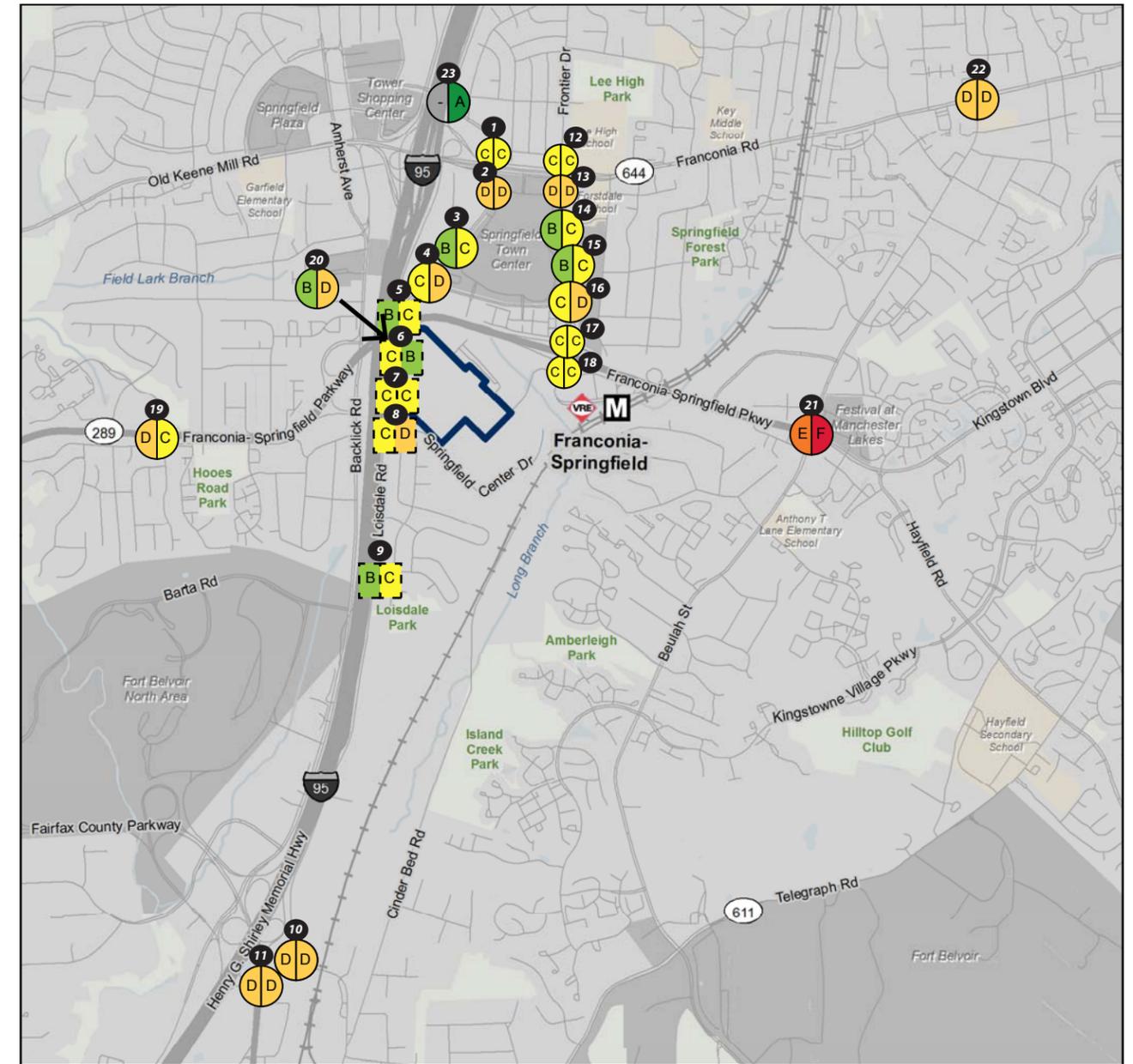
A total of 12 signalized intersections experience unacceptable conditions for one or more turning movements. The Springfield TIA (Appendix E) contains a more detailed Existing Condition traffic operations analysis.

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

#	Intersection	AM Peak Hour Overall			PM Peak Hour Overall		
		Delay (sec/veh)	LOS	Check	Delay (sec/veh)	LOS	Check
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)	0.095/0.091	0.099/0.096	0.106/0.097	0.076/0.068	0.078/0.072
24-Hour PM _{2.5} (µg/m ³)	35.5/33.7	29.0/27.8	38.1/26.6	24.4/23.9	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 (O₃) 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 O₃, 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 2015I). 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 (2015I)

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 Foreseeable 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 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

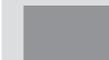
Under the Springfield Alternative, there would be a range of direct impacts to terrestrial wildlife at the Springfield site as a result of the increase of usable habitat, but also increased noise, human activity, and light sources.

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.

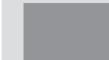
 **Springfield Alternative:** Direct, long-term, beneficial impacts; direct, long-term, adverse impacts.

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.