

Fort Gordon Regional Growth
Management Plan
Chapter 3 Draft:
Transportation Analysis Report

October 13, 2021

3 Transportation

3.1 Background and Introduction

Fort Gordon is the lifeblood of the Augusta area and ensuring smooth flow of traffic in, out, and around the Installation is vital to the long-term sustainability and safety of the base and, subsequently, the region. As part of the transportation analysis, the existing transportation network and future conditions were evaluated. The future transportation network analysis focused on operations through optimizations of the existing system and improvements to the network.

Local access to Fort Gordon is primarily served by key Augusta area highways and thoroughfares: US-78/Gordon Highway, East Robinson Avenue, Jimmie Dyess Parkway, Tobacco Road, and US-1/Deans Bridge Road. US-78/Gordon Highway serves most trips to and from Fort Gordon, primarily drawing traffic from Augusta and Columbia County. US-1/Deans Bridge Road provides access to southeast Augusta, Richmond County and the Augusta Regional Airport. The Augusta area also has Augusta Transit and transfer connections to Aiken County’s Best Friend Express, though neither service stops at Fort Gordon.

Regional access to Fort Gordon is most served by I-20, I-520, and the Augusta Regional Airport. I-20 provides a direct interstate route to Atlanta and Columbia, SC, and from there, to the whole southeast



Figure 3.1: Augusta area map of transportation facilities in the vicinity of the study area. Source: Google Earth.

United States via I-75, I-77, I-85, I-95, and I-26. The Augusta Regional Airport also provides convenient commercial airline connections to major airline hubs in Atlanta, Charlotte, Dallas, and Washington. The airport is a gateway for many service members to Fort Gordon and plays a role in military missions. The key local and regional transportation facilities are highlighted in Figure 3.1.

Fort Gordon has several points of access. Some are closed with locked gates and most have security checkpoints. The access points in this study (see Figure 3.2) consist of the following:

- Jimmie Dyess Parkway/7th Avenue (Gate 1)
- East Robinson Avenue/19th Street (Gate 2)
- McCoys Creek Road/East 13th Avenue (Gate 3)
- Avenue of the States/Tobacco Road (Gate 5)
- Gordon Highway, south of Parham Road (Future Gate 6)

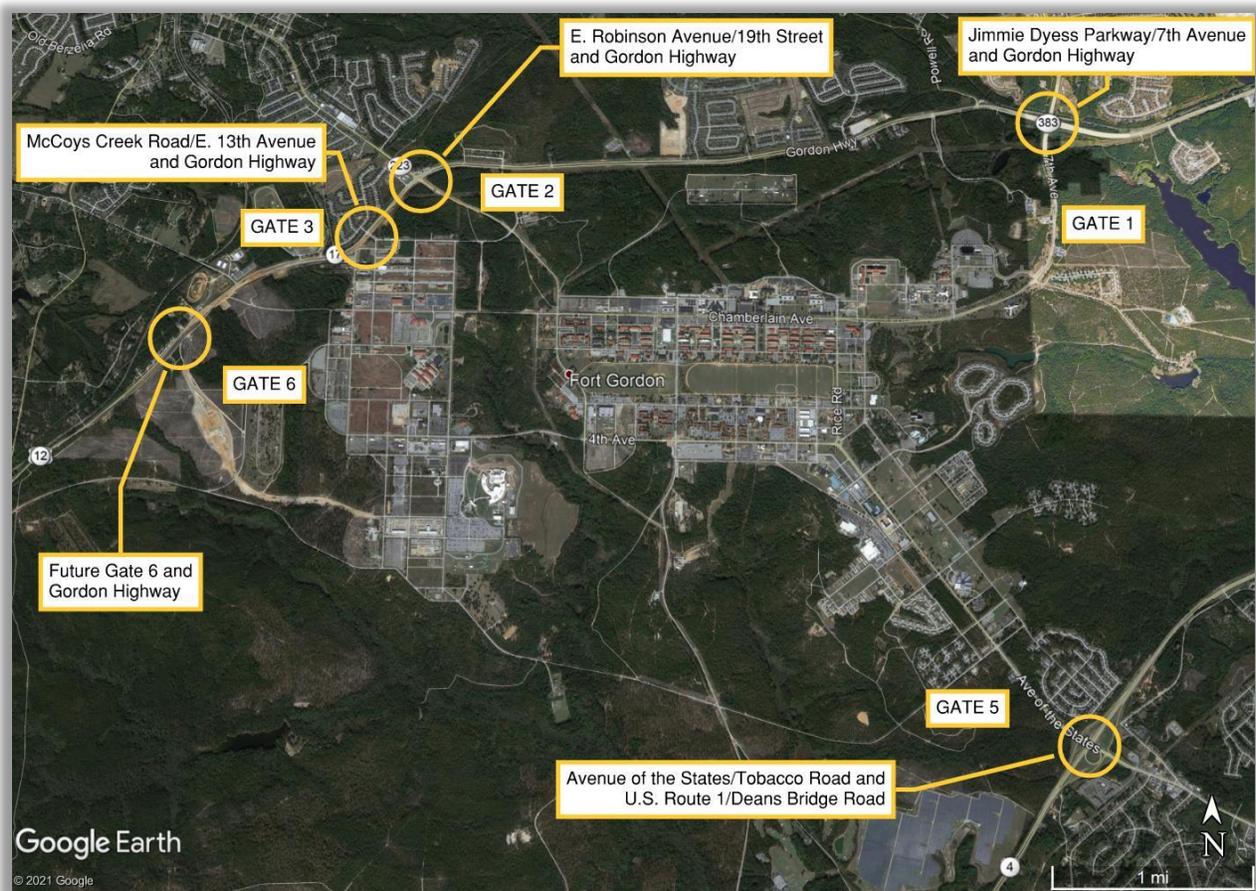


Figure 3.2: Access points and intersections included in this transportation study. Source: Google Earth.

Gates 1, 2, and 3 have direct access to Gordon Highway. This 4-lane divided facility provides high-volume service along the northern boundary of the Installation. Intersections at Jimmie Dyess Parkway/7th Avenue (Gate 1) and East Robinson Avenue/19th Street (Gate 2) have traffic signal control and McCoys Creek Road/East 13th Avenue (Gate 3) is stop controlled on the minor street. Gate 1 is the primary access point from I-20 (via Jimmie Dyess Parkway) and I-520 (via Gordon Highway). Both routes lead to downtown Augusta. The I-20/Belair Road/Jimmie Dyess Parkway interchange is the gateway to Columbia County,

where some civilian housing is located. Avenue of the States/Tobacco Road (Gate 5) provides access to the southern and eastern portions of the base with a grade-separated partial cloverleaf interchange at U.S. Route 1/Deans Bridge Road and housing in south Augusta from Tobacco Road.

Future Gate 6 on Gordon Highway, south of Parham Road, is currently under construction and is being built by two separate projects: the Georgia Department of Transportation's (GDOT) Gordon Highway Widening project and the Department of Defense's Gate 6 and new access road construction project. Gate 6 and the new visitor center are expected to open to traffic in October 2021. Traffic at the newly constructed full-movement intersection of Gordon Highway at Gate 6 will be controlled by a traffic signal. With the opening of Gate 6, traffic congestion at Gate 1, the Installation's busiest gate is expected to decrease. The opening of Gate 6 also corresponds with the closing of two other Gordon Highway access points (Gates 2 and 3).

3.2 Existing Conditions

3.2.1 Location

Fort Gordon is located in southwest Augusta-Richmond County, Georgia, though portions of the military reservation extend into Columbia, McDuffie, and Jefferson Counties. To the north and west of Fort Gordon are Grovetown and Harlem, Columbia County, Georgia. To the east of Fort Gordon is Hephzibah, Richmond County, Georgia. The Augusta-Richmond County metropolitan statistical area consists of five Georgia counties (Richmond, Burke, Columbia, Lincoln, and McDuffie Counties) and two South Carolina counties (Aiken and Edgefield Counties).

3.2.2 Installation Characteristics

Amid World War II, the U.S. Army activated Fort Gordon (formerly Camp Gordon) for infantry and armored training. With more than 55,000 acres and home to several Army training centers, schools, brigades, and commands, Fort Gordon has played a critical role in U.S. Army operations since its inception. The Installation is currently home to 32,429 service members and civilian employees. In 2014, the U.S. Army designated Fort Gordon as the U.S. Army Cyber Center of Excellence (Source: <https://home.army.mil/gordon/index.php/about/history>).

3.2.3 Existing Transportation Network

The Fort Gordon on-post transportation network is composed of an internal network of roadways and sidewalks. The transportation network is primarily concentrated in the northern reaches of the military reservation. Chamberlain Avenue serves as the spine of Fort Gordon's internal transportation network. On-going construction and improvements near Chamberlain Avenue impact mobility through the Installation. There are currently four gates, or access points, that connect the Fort Gordon transportation network with the greater Augusta area transportation network.

Roadway

Table 3.1 provides a detailed description of the existing roadway network in the Study Area. Gordon Highway and US 1 / Deans Bridge Road are both part of the Strategic Highway Network (STRAHNET), a national 62,791-mile system of roads deemed necessary for emergency mobilization and peacetime movement of heavy armor, fuel, ammunition, repair parts, food, and other commodities to support U.S. military operations. Gordon Highway, between I-520 and Fort Gordon, is a STRAHNET Connector and US 1 / Deans Bridge Road is a Non-Interstate STRAHNET Route south of I-520 (Source: ARTS Future Mobility

2050, September 10, 2020). The average annual daily traffic (AADT) information was obtained from the GDOT’s Traffic Analysis and Data Application (TADA).

Table 3.1: Existing Roadway Characteristics

Road Name	Road Number	Primary Cross-Section	Functional Classification	2019 AADT (vpd)	Speed Limit (mph)
Gordon Highway	US 78 / US 278 / GA 10	4-Lane Divided	Principal Arterial - Other	18,500	55
Jimmie Dyess Parkway	GA 383	4-Lane Divided	Principal Arterial - Other	21,600	55
East Robinson Avenue	GA 233	2-Lane Undivided	Principal Arterial - Other	17,300	45
McCoys Creek Road	-	2-Lane Undivided	-	-	35
Avenue of the States/Tobacco Road	-	5-Lane Section	Principal Arterial - Other	20,700	45

Source: Georgia Department of Transportation Traffic Analysis & Data Application / State Functional Classification Map, June 2021

At the time of this report, the Gordon Highway Widening project is nearing completion and the Gate 6 construction is underway. Both projects impact the Study Area along Gordon Highway between the proposed Gate 6 intersection and the East Robinson Avenue / 19th Street intersection. Further detail of the existing roadway network and base model assumptions in this study are provided in 1.2.6 Traffic Counts and 1.2.7 Traffic Volume Development and COVID-19 Adjustment Factor.

Transit

Fort Gordon does not have any transit services on the Installation. Augusta Transit’s Orange Line, which serves Barton Chapel Road (north of Fort Gordon) is the most proximate transit service, though it does not provide any direct connection to Fort Gordon or its access points.

Taxi / Ride-Share

Yellow Cab of Augusta provides app-based taxi service on Fort Gordon.

Bicycle and Pedestrian

In the study area, only Avenue of the States has bicyclist or pedestrian facilities entering Fort Gordon. Avenue of the States has sidewalks on both sides of the roadway. No other roadways entering Fort Gordon have bicyclist or pedestrian facilities. Further, neither thoroughfares that provide access to Fort Gordon, Gordon Highway and US 1 / Deans Bridge Road, have bicyclist or pedestrian facilities.

Within Fort Gordon, there are two bicycle road courses (one is approximately 23 miles long and another is approximately 15 miles long). There are also many off-road routes that provide access to scenic and recreational sites on the installation.

3.2.4 Existing Access Gates

Access to Fort Gordon is limited to four gates near key intersections or interchanges on the periphery of the base. Gates 1, 2, 3, and 5 have varying hours of operation and service. Gates 1 (Jimmie Dyess Parkway/7th Avenue/Gordon Highway) and 2 (East Robinson Avenue/19th Street/Gordon Highway) are the most-heavily used gates, while Gate 3 (McCoys Creek Road/East 13th Avenue) is limited to commercial traffic (Source: <https://home.army.mil/gordon/index.php/about/gate-information>). Gate 5 (Avenue of the States/Tobacco Road) provides access to the southern and eastern portions of the base with a grade-separated partial cloverleaf interchange at U.S. Route 1/Deans Bridge Road.

3.2.5 Crash Data

Crashes at each study intersection were evaluated to identify patterns in frequency, type, or severity. Data was obtained via the Georgia Electronic Accident Reporting System (GEARS) website. Data covered the five-year period from May 1, 2016 to April 30, 2021 for the following locations:

- Jimmie Dyess Parkway/7th Avenue (Gate 1)
- East Robinson Avenue/19th Street (Gate 2)
- McCoys Creek Road/East 13th Avenue (Gate 3)
- Avenue of the States/Tobacco Road (Gate 5)
- Gordon Highway, south of Parham Road (Future Gate 6)

At the study intersections, a total of 461 crashes were recorded. Almost half of these crashes occurred at Jimmie Dyess Parkway / 7th Avenue near Gate 1. Approximately one-third of the total crashes occurred of East Robinson Avenue / 19th Street near Gate 2. By far, the most prevalent crash-type at these two intersections is rear-end crashes. This is typical of congested conditions at signalized intersections. Figure 3.3 shows the total crashes by intersection in the study area. Crash data at each intersection is summarized in the following sections. The crash data can be found in the appendix.

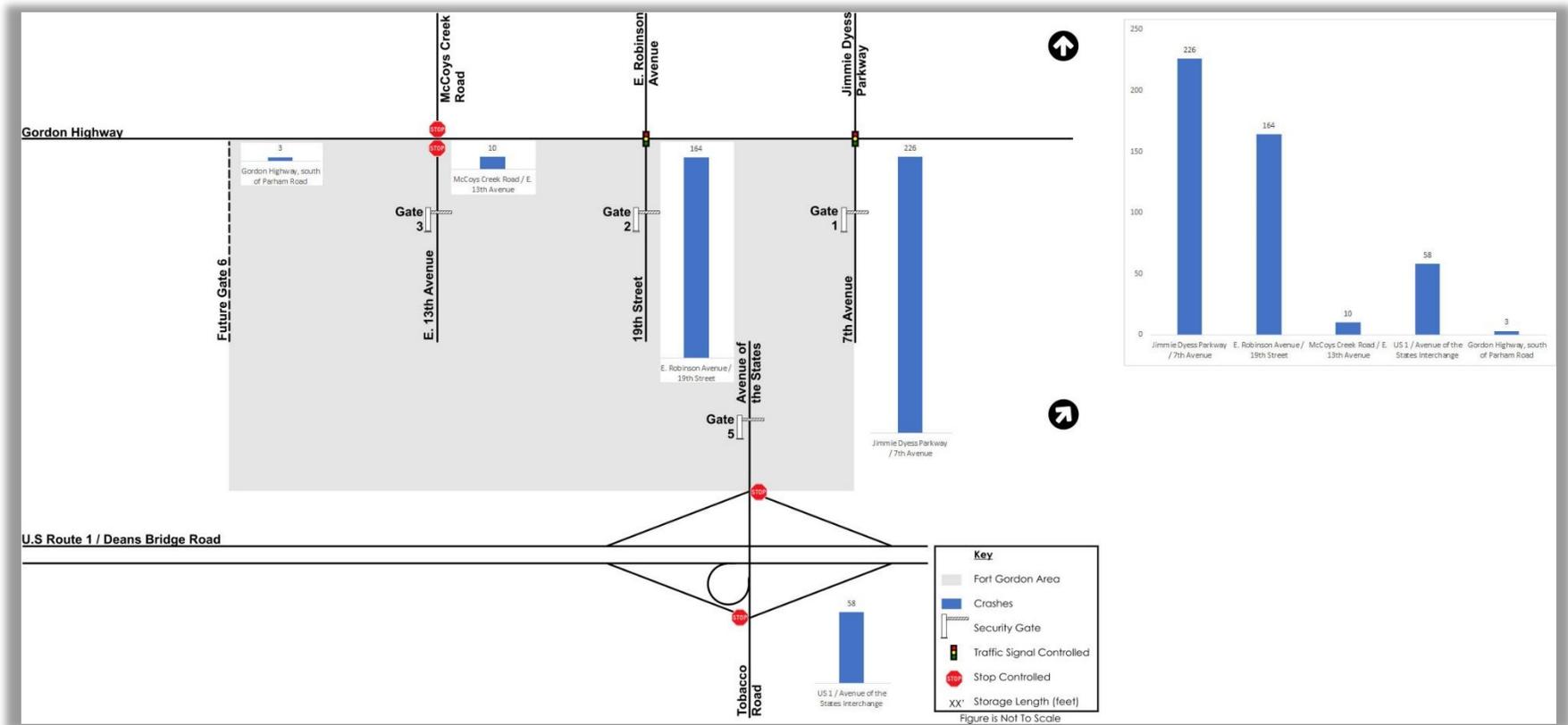


Figure 3.3: Crash frequency in the study area. Source: GEARS Database, Atlanta, Georgia, June 2021.

Jimmie Dyess Parkway / 7th Avenue

Jimmie Dyess Parkway / 7th Avenue and Gordon Highway was listed as the ninth worst intersection by crash severity index (1.58) between 2015 and 2017 in the Augusta Regional Transportation Study (ARTS) MPO area (Source: ARTS Annual Traffic Crash and Intersection Analysis, 2011-2017 Report, April 2019). 226 crashes were reported during the study duration at this intersection. No fatal crashes were reported, however, 52 crashes (or 23%) resulted in an injury. The most common crash type was shown to be rear-end collisions, consisting of approximately two-thirds of the total crashes. This can be attributed to congested conditions at the intersection. Day-of-week distribution is relatively flat, though crashes peak on Wednesdays and Thursdays.

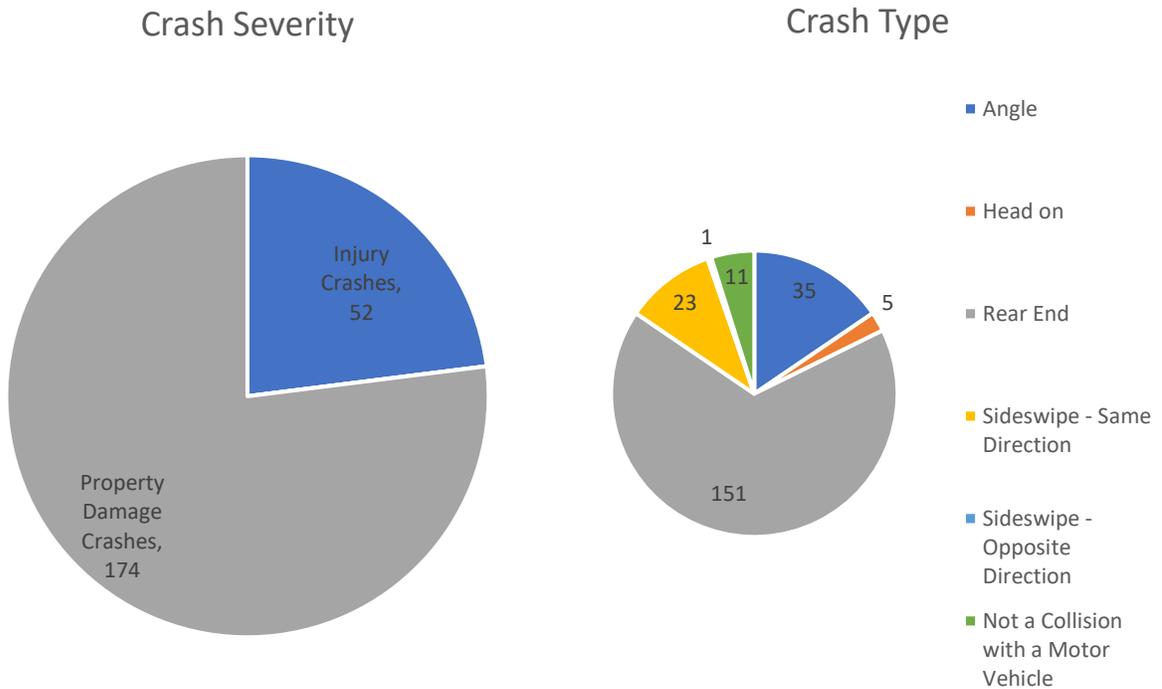


Figure 3.4: Crash severity at Jimmie Dyess Parkway / 7th Avenue. Source: GEARS Database, Atlanta, Georgia, June 2021.

Figure 3.5: Crash type at Jimmie Dyess Parkway / 7th Avenue Crash. Source: GEARS Database, Atlanta, Georgia, June 2021.

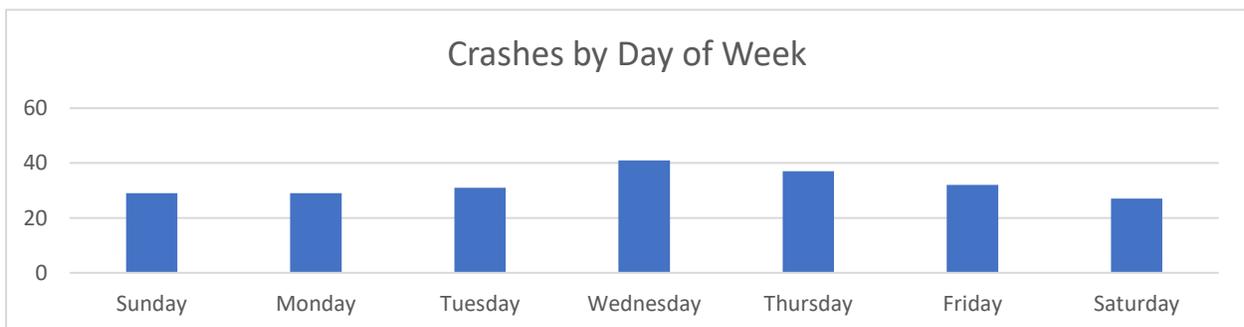


Figure 3.6: Jimmie Dyess / 7th Avenue Crashes by Day. Source: GEARS Database, Atlanta, Georgia, June 2021.

East Robinson Avenue / 19th Street

164 crashes were reported during the study duration at this intersection. No fatal crashes were reported, however, 34 crashes (or 21%) resulted in an injury. The most common crash type was shown to be rear-end collisions, consisting of more than half of the total crashes. This can be attributed to congested conditions at the intersection. Day-of-week distribution is relatively flat, though crash frequency is highest on Wednesdays.

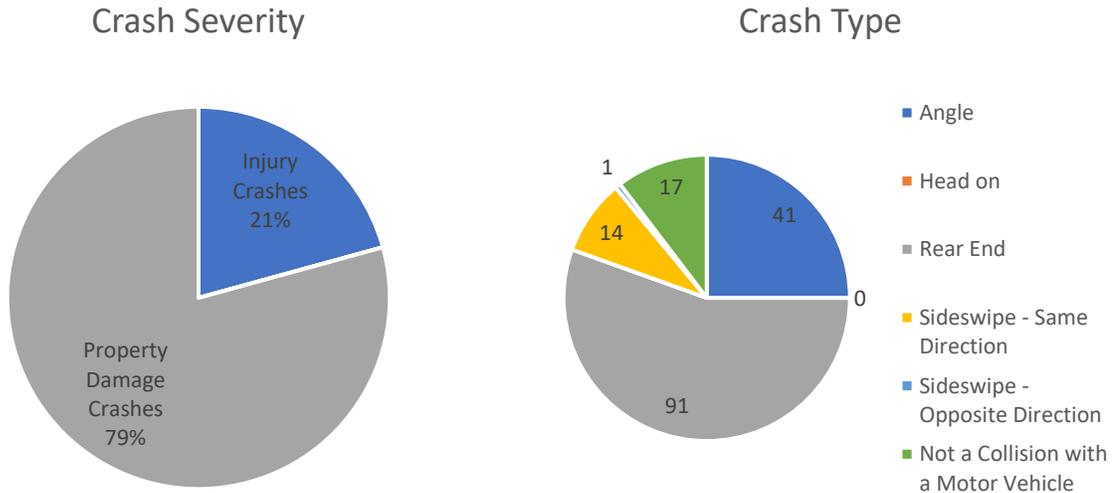


Figure 3.7: East Robinson Avenue / 19th Street Crash Severity. Source: GEARS Database, Atlanta, Georgia, June 2021.

Figure 3.8: East Robinson Avenue / 19th Street Crash Type. Source: GEARS Database, Atlanta, Georgia, June 2021.

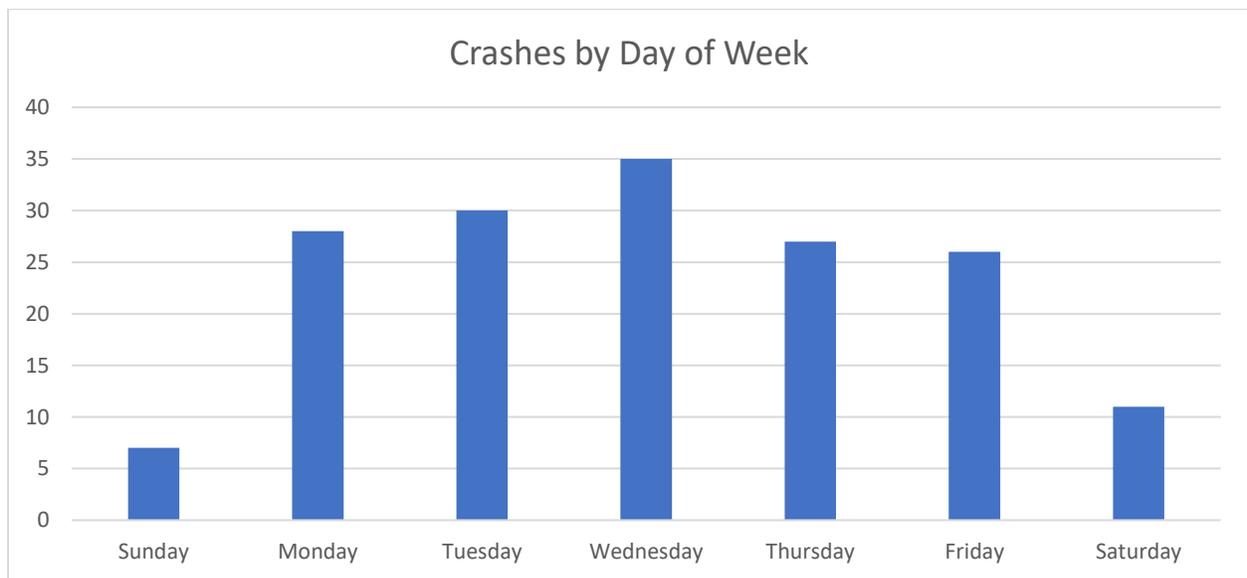


Figure 3.9: East Robinson Avenue / 19th Street Crashes by Day. Source: GEARS Database, Atlanta, Georgia, June 2021.

McCoys Creek Road / East 13th Avenue

10 crashes were reported during the study duration at this intersection. No fatal crashes were reported, however, 3 crashes (or 30%) resulted in an injury. The most common crash type was shown to be angle, consisting of 60% of the total crashes. At this intersection, the minor street approach is stop-controlled (McCoys Creek Road / East 13th Avenue). Angle crashes are more likely when vehicles entering the major street (Gordon Highway) have unprotected movements. The likelihood of an angle crash also increases during congested periods when vehicles make riskier movements to “shoot the gap” after extended periods of delay. Day-of-week distribution is clustered between Monday and Wednesday, with most crashes occurring on Mondays.

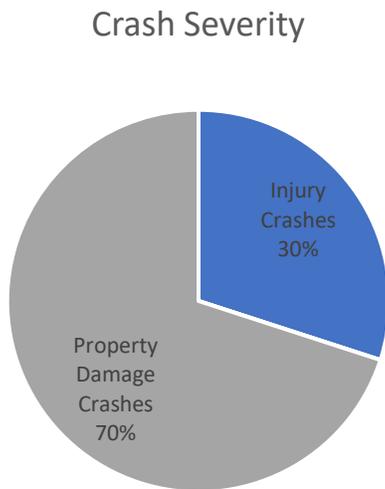


Figure 3.10: McCoys Creek Road / East 13th Avenue Crash Severity. Source: GEARS Database, Atlanta, Georgia, June 2021.

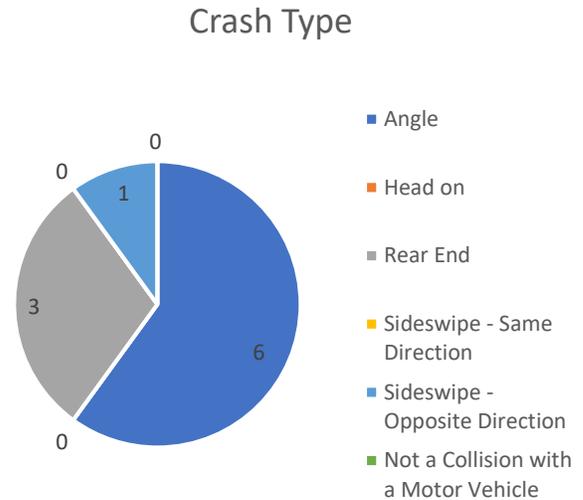


Figure 3.11: McCoys Creek Road / East 13th Avenue Crash Type. Source: GEARS Database, Atlanta, Georgia, June 2021.

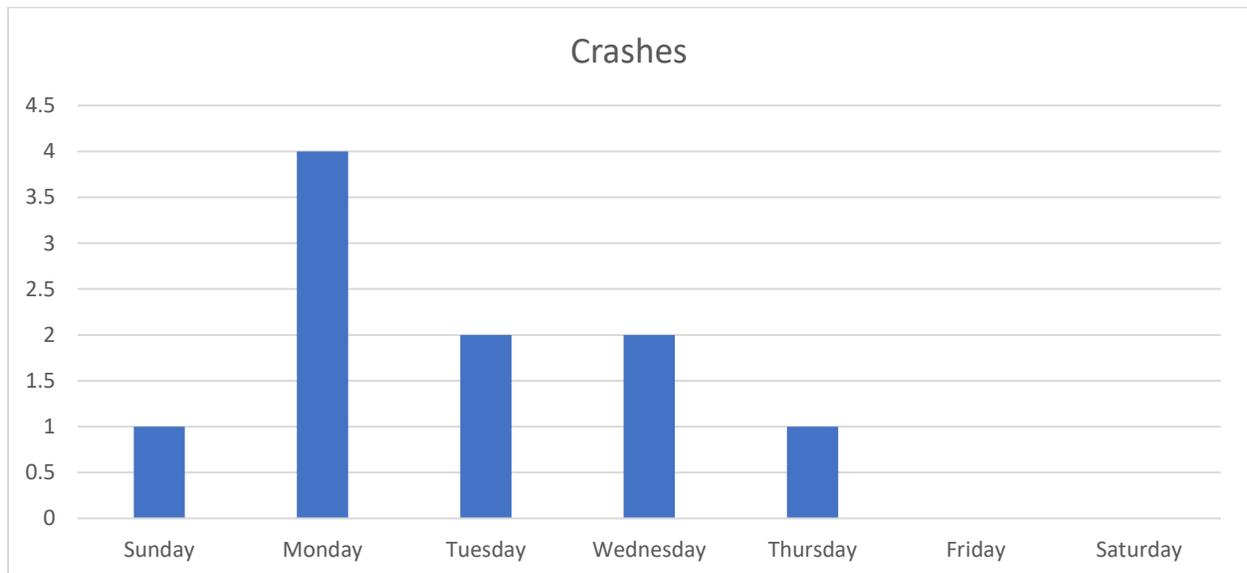


Figure 3.12: McCoys Creek Road / East 13th Avenue Crashes by Day. Source: GEARS Database, Atlanta, Georgia, June 2021.

US 1 / Avenue of the States Interchange

58 crashes were reported during the study duration at this intersection. The intersection recorded one fatal crash and ten (or 17%) crashes resulted in an injury. The remaining 47 consisted of property damage only. The most common crash type was “Not a Collision with a Motor Vehicle”. One common cause of this crash type is when a vehicle runs off the road and collides with roadside infrastructure. The day of week distribution is clustered around Thursday and Friday, with most crashes occurring on Thursdays.

The fatal crash (March 30, 2020) at this intersection was “Not a Collision with a Motor Vehicle”. According to the Motor Vehicle Crash Report, the vehicle was traveling northbound on US 1 approaching the exit for Avenue of the States / Tobacco Road. The vehicle, shortly after taking the off-ramp, departed the roadway and crashed in the grass area between US 1 and the off-ramp.

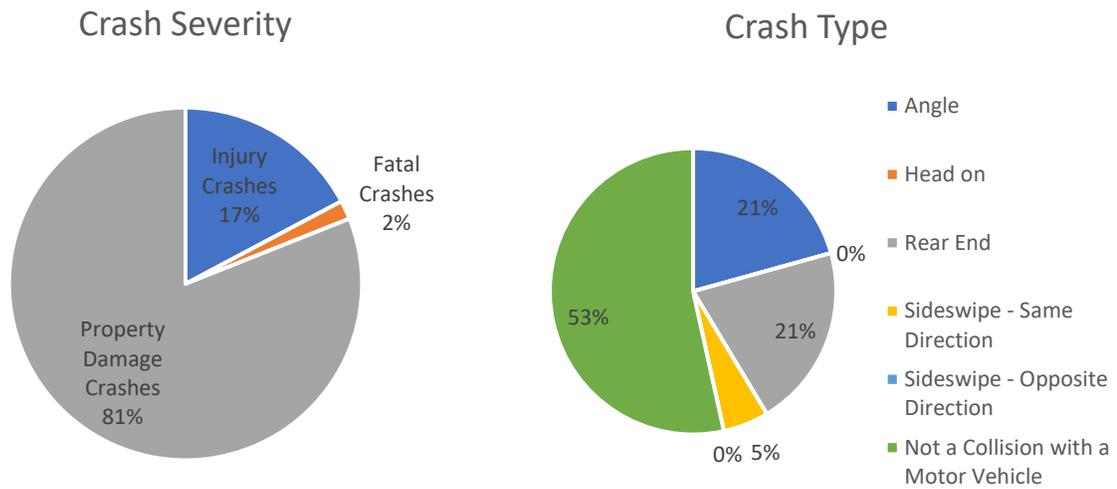


Figure 3.13: US 1 / Avenue of the States Interchange Crash Severity. Source: GEARS Database, Atlanta, Georgia, June 2021.

Figure 3.14: US 1 / Avenue of the States Interchange Crash Type. Source: GEARS Database, Atlanta, Georgia, June 2021.

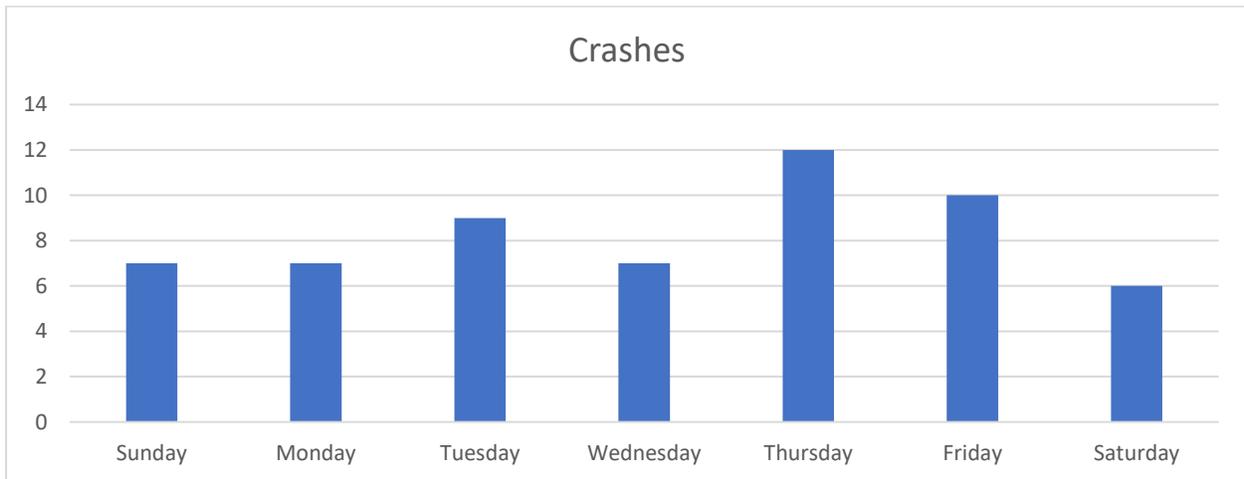


Figure 3.15: US 1 / Avenue of the States Interchange Crashes by Day. Source: GEARS Database, Atlanta, Georgia, June 2021.

Gordon Highway, south of Parham Road

Future Gate 6 will intersect with Gordon Highway approximately 0.5 miles southwest of Parham Road. In this area, three crashes were reported during the study duration. None of these three crashes resulted in a fatality or injury. With only three crashes, the sample size is insufficient to draw conclusions, but the following crash types were observed:

- Rear end;
- Sideswipe – same direction; and
- Not a collision with a motor vehicle.

3.2.6 Traffic Counts

National Data & Surveying Services collected turning movement counts at each of the existing study intersections (Jimmie Dyess Parkway/7th Avenue/Gordon Highway, East Robinson Avenue/19th Street/Gordon Highway, McCoys Creek Road/East 13th Avenue/Gordon Highway, Avenue of the States/U.S. Route 1/Deans Bridge Road southbound ramps, and Tobacco Road/U.S. Route 1/Deans Bridge Road northbound ramps) and 13-hour volume counts along U.S. Route 1/Deans Bridge Road at the Avenue of the States/Tobacco Road interchange on Thursday, 4/29/2021 and Saturday, 5/1/2021. At the time of the traffic counts, the Gordon Highway Widening project was in progress and Gate 6 was not open to traffic. Figure 3.16 shows the 2021 peak hour traffic counts.

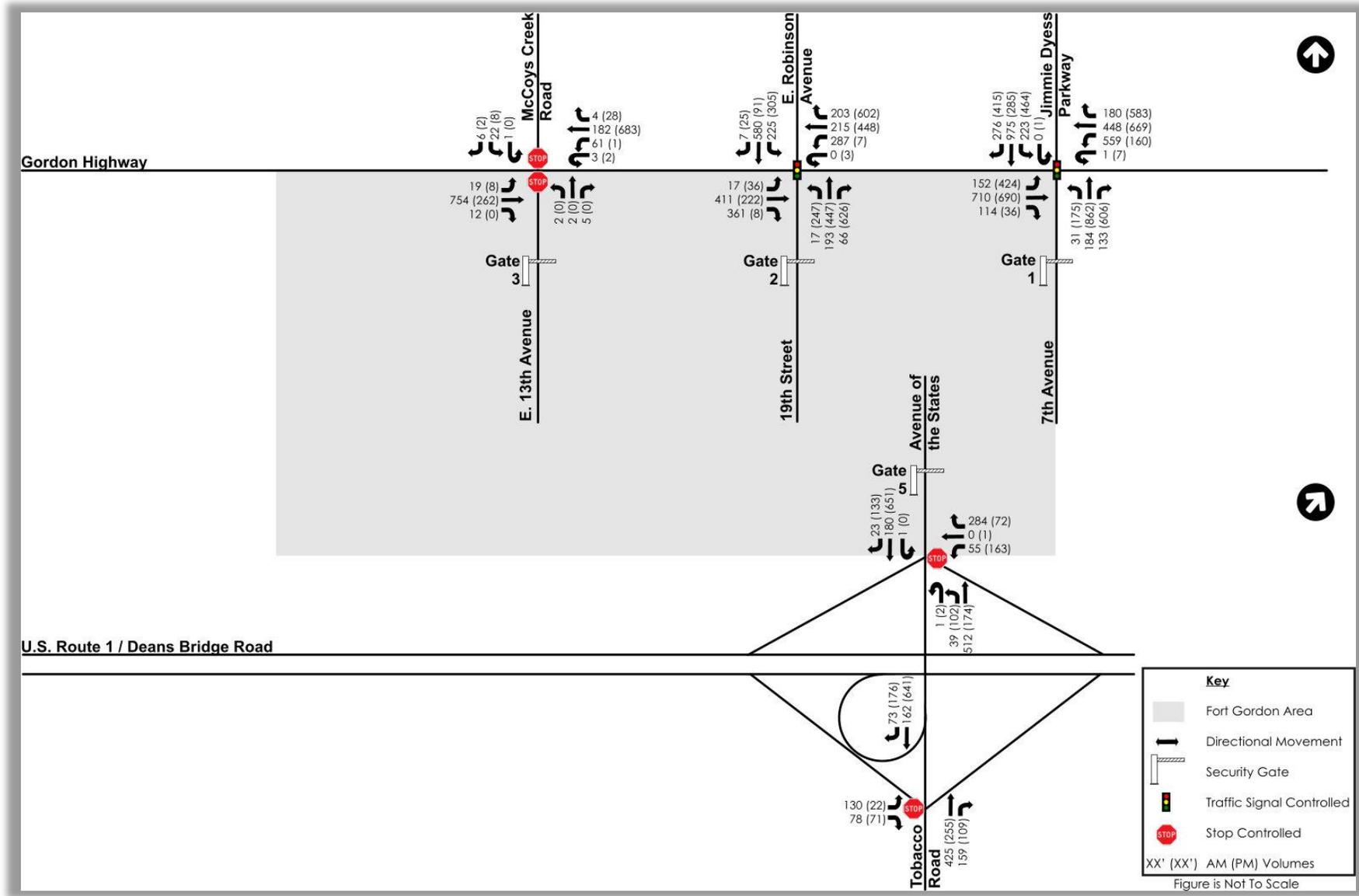


Figure 3.16: 2021 NDS peak hour traffic counts. Source: Stantec Consulting Services, 2021

3.2.7 Traffic Volume Development and COVID-19 Adjustment Factor

The newly collected traffic counts (April 29 and May 1, 2021) at two of the study intersections (East Robinson Avenue/19th Street/Gordon Highway and McCoys Creek Road/East 13th Avenue/Gordon Highway) have different approach geometry and permitted movements than the completed Gordon Highway Widening project geometry. In addition, Gate 6 was not open at the time of the traffic counts. Gate 6 and a new visitor center is expected to open in October 2021. Since the Gordon Highway Widening project is near completion, it was determined that the interim work zone geometry observed at the time of traffic counts is short-term and does not provide a suitable comparison to future year scenarios. Therefore, the project team concluded that the Gordon Highway Widening final geometry with Gate 6 open to traffic to be the most appropriate base model scenario for this analysis. The base model laneage is shown in Figure 3.17.

Stantec adjusted the traffic counts to reflect the completed Gordon Highway Widening project geometry. Figure 3.18 shows the 2021 peak hour traffic counts converted to the Gordon Highway Widening project's final geometry.

The converted movement volumes are significantly less than the design hourly volumes used in the Gordon Highway Widening project's traffic forecast. For several movements, the Gordon Highway Widening project's design hourly volumes were more than 40% higher than the converted 2021 traffic counts (shown in Figure 3.18). As such, and due to on-going impacts of the COVID-19 pandemic, an adjustment factor was derived to increase the converted volumes. Figure 3.19 lists the magnitude difference between the converted traffic counts and the Gordon Highway Widening project's design hourly volumes. An overall adjustment factor of 45.6% and 19.7% used to increase the traffic volumes for the AM and PM peaks, respectively, was determined by calculating the gross percent difference in traffic volumes.

The 2021 peak hour traffic counts (shown in Figure 3.18), were grown by the respective adjustment factor, to generate this study's 2021 Base Model volumes. The 2021 Base Model volumes are summarized in Figure 3.20.

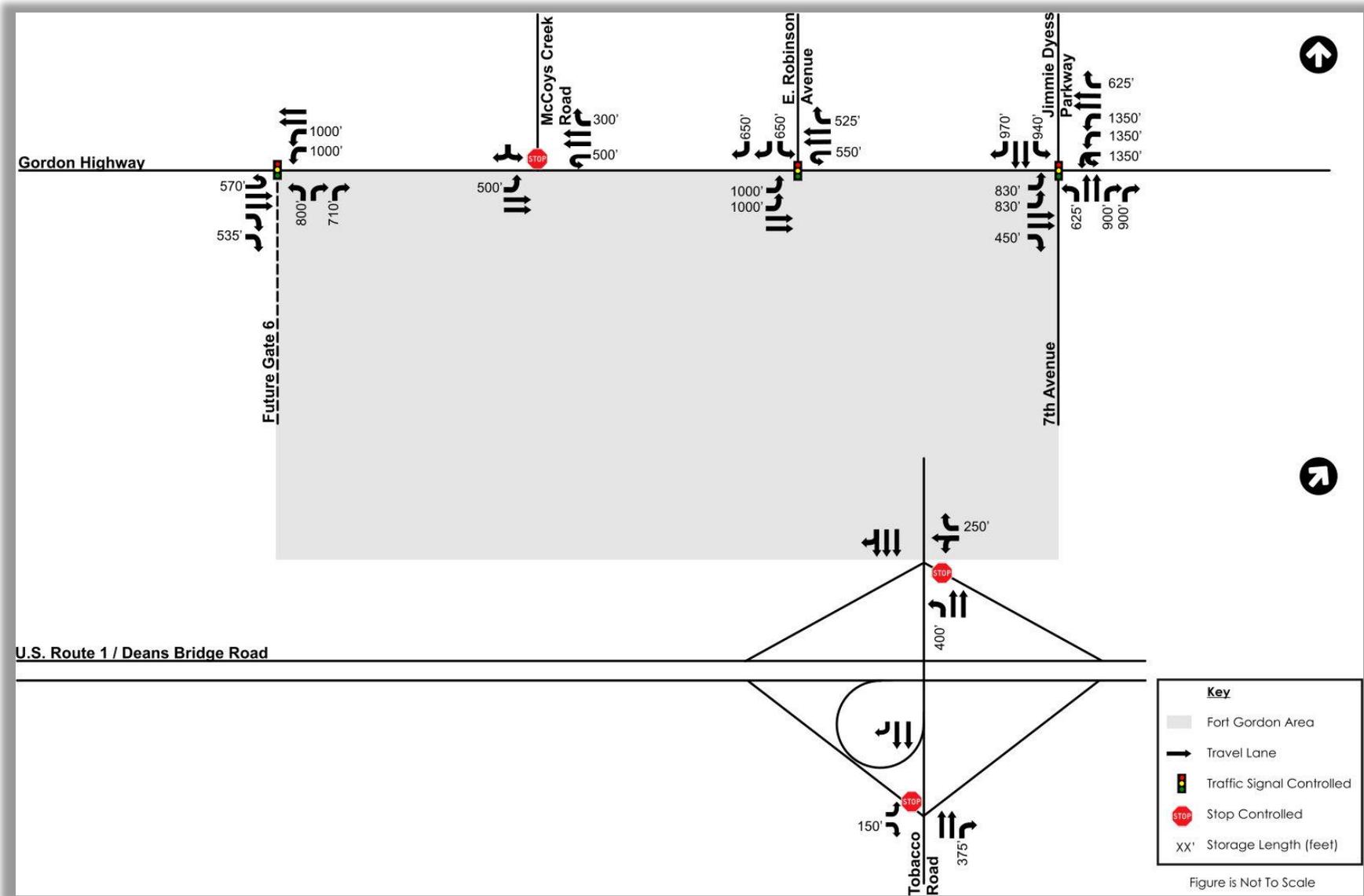


Figure 3.17: 2021 Base model laneage at the study intersections. Source: Stantec Consulting Services, 2021

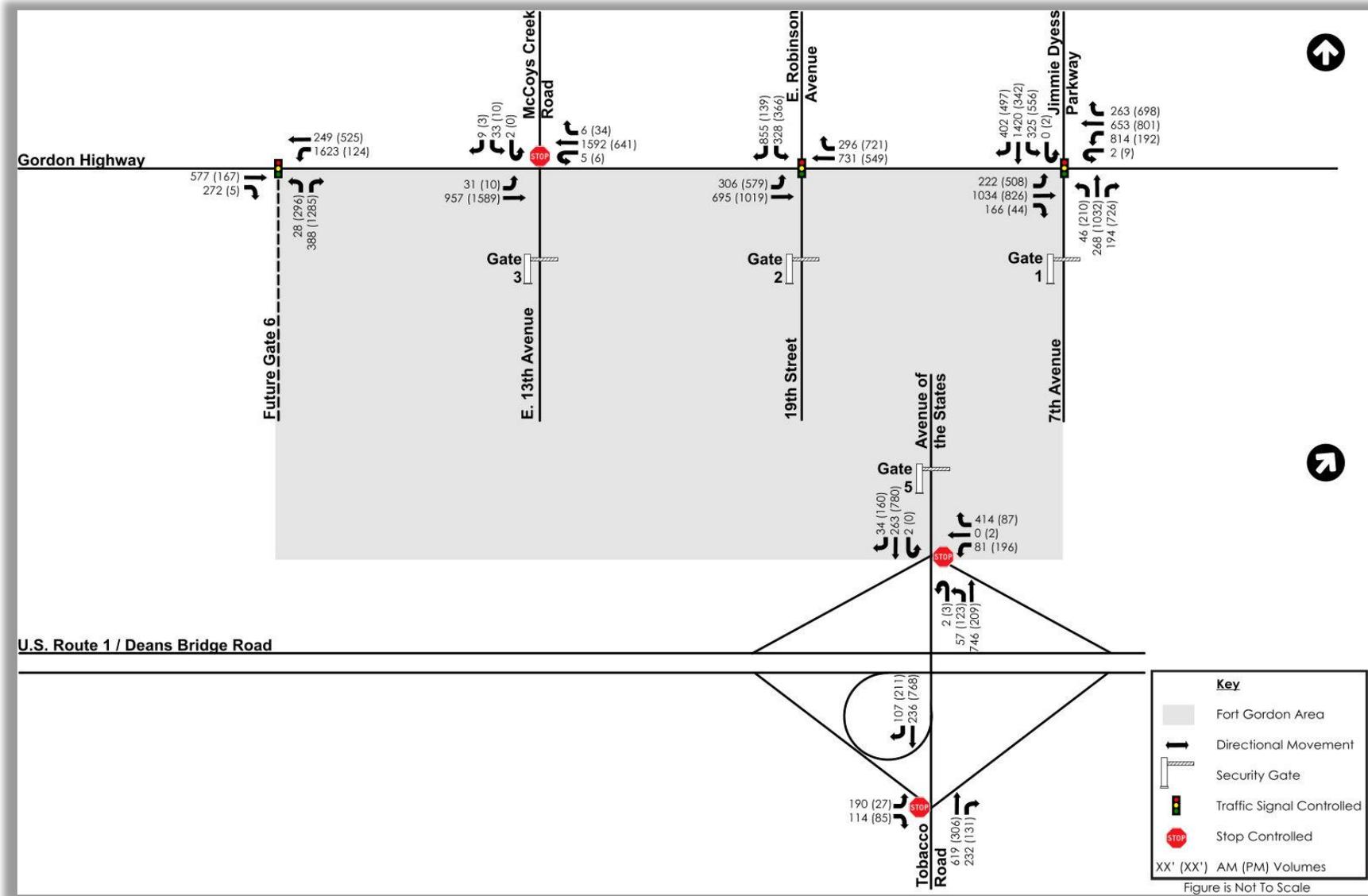


Figure 3.18: 2021 NDS Traffic counts were adjusted to reflect the Gordon Highway Widening project's final geometry. Source: Stantec Consulting Services, 2021

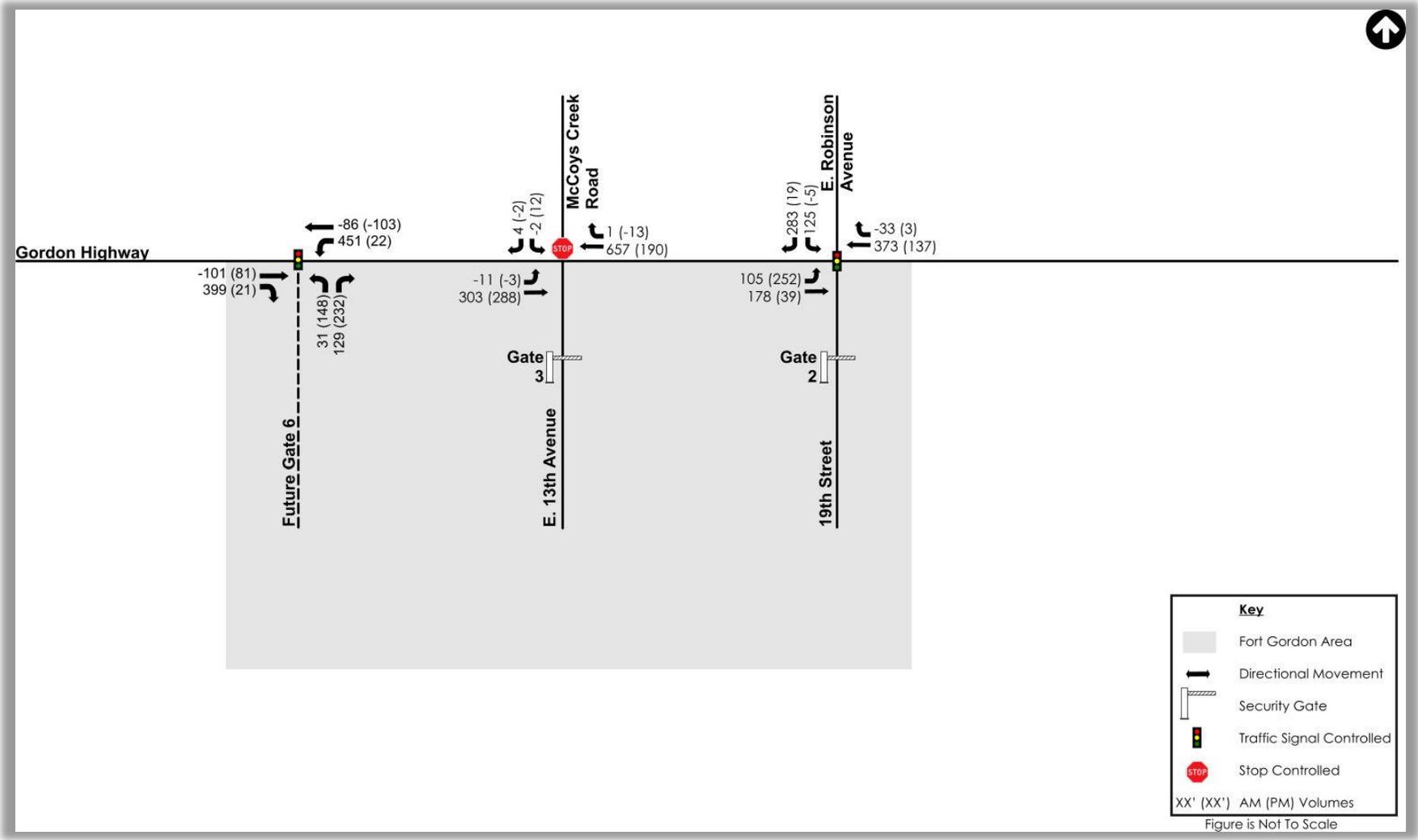


Figure 3.19: The magnitude difference of volumes between the converted traffic counts and the Gordon Highway Widening project's design hourly volumes.
 Source: Stantec Consulting Services, 2021

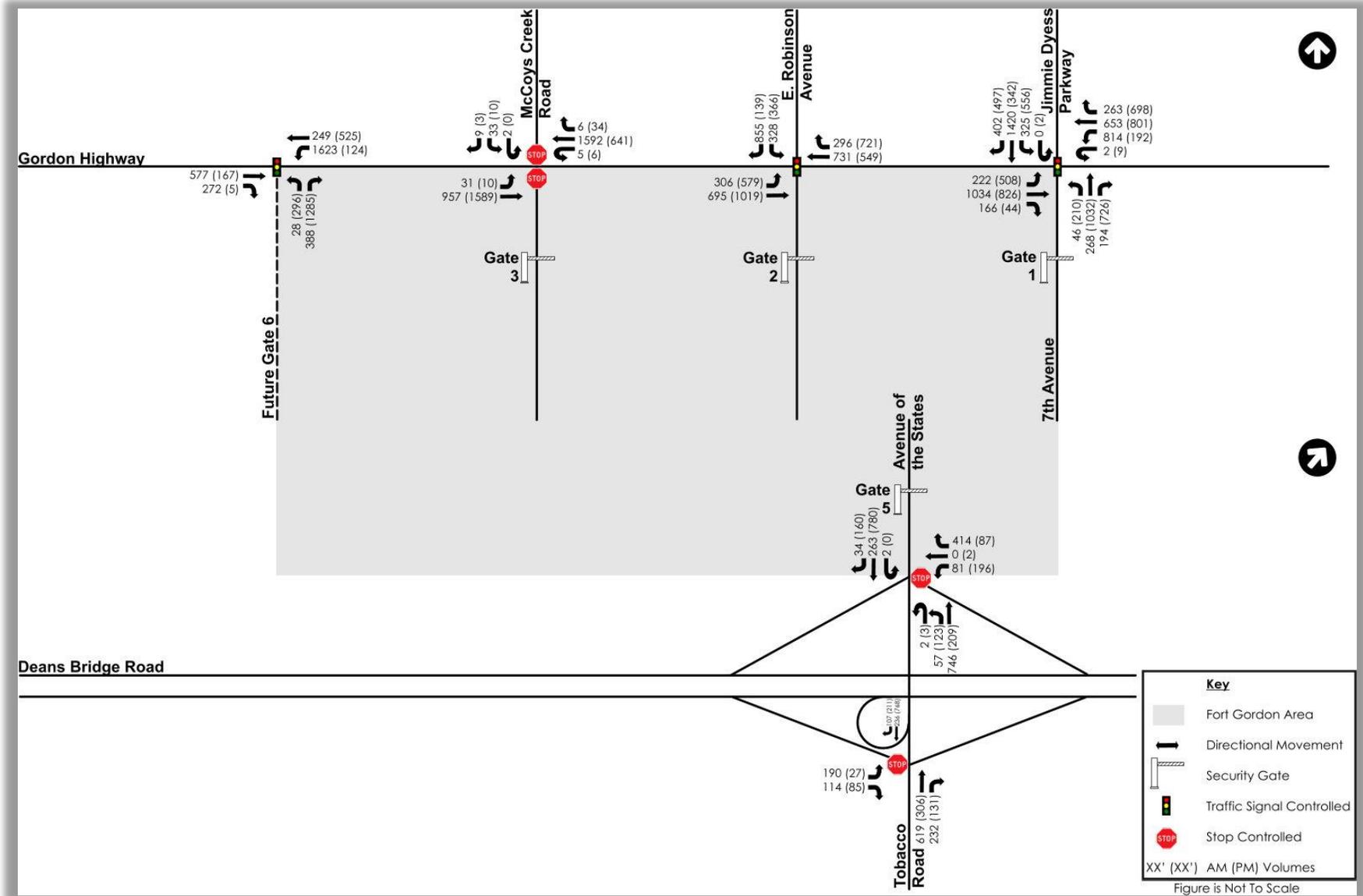


Figure 3.20: 2021 Base Model volumes converted to final Gordon Highway Widening project geometry and adjusted for impacts by COVID-19.
 Source: Stantec Consulting Services, 2021

3.3 Future Conditions

3.3.1 Plans and Studies

As part of this study, Stantec reviewed the following publicly available planning reports for information relevant to our analysis.

- Augusta Regional Transportation Study (ARTS) Transportation Improvement Program, February 2021
- ARTS Future Mobility 2050, September 10, 2020
- ARTS Annual Traffic Crash and Intersection Analysis, 2011-2017 Report, April 2019
- ARTS Transportation Improvement Program, Amended February 8, 2018
- ARTS 2040 Long Range Transportation Plan, Adopted September 2, 2015
- ARTS 2035 Long Range Transportation Plan, Adopted September 2, 2010

These reports outline the anticipated growth and future transportation needs for the Augusta-Richmond, GA and Aiken, SC metropolitan planning area. Between 2015 and 2050, the ARTS metropolitan planning area is estimated to grow 35% in population and 31% in employment. Columbia County alone is expected to increase in population by 91% and employment by 64% (Source: ARTS Future Mobility 2050, September 10, 2020). The ARTS Future Mobility 2050 plan estimates growth from a variety of sources, such as the American Community Survey, Georgia Statewide Travel Demand Model 2015/2050, and Georgia Governor’s Office of Planning and Budgeting. However, data directly linked to Fort Gordon or a narrative describing the impact of Fort Gordon’s growth on the ARTS planning area were not provided.

Fort Gordon, with the establishment of the National Cyber Command, is a contributing factor to employment growth in the ARTS metropolitan planning area. In recent years, the population of Fort Gordon has grown considerably and is a key impetus for this study.

There are several projects outlined in the ARTS planning reports that directly impact the intersections included in this transportation study. Those projects (funded and unfunded) are summarized in Table 3.2. Of most relevance to this study are the projects identified on Gordon Highway, Jimmie Dyess Parkway, and East Robinson Avenue. These projects may have the greatest impact to mobility along the northern perimeter of Fort Gordon where population growth from Columbia County will saturate the network.

Table 3.2: Future Projects at Study Intersections (or of direct impact to study intersections)

Project Category	GA Project Ranking	Location	Type	Costs
Tier 1 (2021-2024)	28	Louisville Road and I-20 New Interchange (PE and ROW)	New Road / Interchange	\$4,560,000
Tier 1 (2021-2024)	37	Jimmie Dyess Parkway between Powell Road & Gordon Highway	Operational	\$947,300
Tier 1 (2021-2024)	38	Gordon Highway from Robinson Avenue to Fort Gordon Gate 1, widen from 4 to 6 lanes (PE and ROW)	Capacity - Widening	\$13,012,017
Tier 1 (2021-2024)	40	SR 4/ US 1 (Deans Bridge Road) from Meadowbrook Drive to Tobacco Road, widen from 4 to 6 lanes (PE and ROW)	Capacity - Widening	\$4,416,151

Project Category	GA Project Ranking	Location	Type	Costs
Tier 2 (2025-2034)	80	Fort Gordon Access near Tobacco Road & Deans Bridge Road	Operational	\$3,421,663
Tier 2 (2025-2034)	81	SR 4/ US 1 (Deans Bridge Road) from Meadowbrook Drive to Tobacco Road, widen from 4 to 6 lanes (Construction)	Capacity - Widening	\$22,230,241
Tier 2 (2025-2034)	87	Robinson Avenue between Gordon Highway & Wrightsboro Road, widen from 2 to 4 lanes	Capacity - Widening	\$2,923,581
Tier 3 (2035-2050)	91	Gordon Highway between Savannah River and SR 223	Operational	\$4,215,887
Tier 3 (2035-2050)	28	Louisville Road and I-20 New Interchange (Construction)	New Road / Interchange	\$33,900,733
Tier 3 (2035-2050)	95	Gordon Highway & Jimmie Dyess Parkway	Safety	\$87,193
Tier 3 (2035-2050)	101	US 78 / SR 10 from Robinson Avenue to Fort Gordon Gate 1, widen from 4 to 6 lanes (Construction)	Capacity - Widening	\$96,736,165
Unfunded Priority	200	Parham Road between Newmantown Road and Gordon Highway, widen from 2 to 4 lanes	Capacity - Widening	\$8,453,200
Regional Transportation Needs	-	Gordon Highway Park and Ride and express bus service from US 78 to Jimmie Dyess Parkway	Transit	\$4,650,600
Regional Transportation Needs	-	US 1 / Deans Bridge Road Park and Ride at Tobacco Road	Transit	-

Source: ARTS Future Mobility 2050, September 10, 2020

3.3.2 Future Transportation Network

Tier 1 and 2 projects identified in the ARTS Future Mobility 2050 report have near-term potential to improve the transportation network. Beyond Tier 1 and 2, there are more significant and impactful projects in Tier 3. With more than \$96 million (project year estimate) budgeted for capacity and widening improvements on Gordon Highway between East Robinson Avenue and Jimmie Dyess Parkway, significant and transformative improvements are in the queue for Fort Gordon’s most congested access point. A new interchange at Louisville Road and I-20 is also listed in Tier 3 and would provide more direct access to Gate 6 and relief of traffic congestion at Jimmie Dyess Parkway and Gordon Highway (Gate 1). Additional capacity and widening improvements on East Robinson Avenue and U.S. 1 / Deans Bridge Road will further increase throughput at Fort Gordon access points.

3.3.3 Future Access Gates

With the completion of the Gordon Highway Widening project and Gate 6 construction, access to Fort Gordon will be limited to three gates near key intersections or interchanges on the periphery of the base. Gates 1 (Jimmie Dyess Parkway/7th Avenue/Gordon Highway) and 6 (new Gate 6 access road / Gordon

Highway) will be signal controlled, while Gate 5 (Avenue of the States/Tobacco Road) is accessed from a grade-separated partial cloverleaf interchange (stop controlled) at U.S. Route 1/Deans Bridge Road. The future access gate layout and volume distribution is shown in Figure 3.21. The existing conditions and future conditions model analysis both use the future access gate layout for a reliable study benchmark and comparison.



Figure 3.21: Future access gate layout used for the existing and future model analysis and estimated volume share (%) by gate. Map Source: Google Earth; Data Source: Stantec Consulting Services, 2021

3.3.4 Anticipated Growth and Traffic Volume Development

Population growth identified in the ARTS Future Mobility 2050 report (average 0.87% annual population growth for planning area between 2015 and 2050) and historical AADT data (Source: GDOT Traffic Analysis and Data Application (TADA)) indicate growth between 0.4% and 5.2% per year between 2010 and 2019. GDOT’s historical AADT data consists of multi-year data at several locations around the perimeter Fort Gordon. The historical AADT data serves as a proxy for travel demand growth induced by Fort Gordon’s rapid growth (approximately 9,000 additional service members assigned to Fort Gordon) during the past decade. The historical AADT growth, summarized in Figure 3.22, supports the ARTS Future Mobility 2050 report that projects most Augusta area growth to occur in Columbia County (north of Fort Gordon and Gordon Highway). Traffic volumes at locations along Gordon Highway grew much faster (between 1.9 and

5.2%) than locations near the Deans Bridge Road/Avenue of the States/Tobacco Road interchange (0.4 and 1.2%). Demographic trends continue to point towards growth in Columbia County and future strain on Gates 1 and 6 along Gordon Highway.

In line with these data sources, this transportation study assumes a two percent average annual growth in traffic to conservatively account for Columbia County’s significant growth (91% between 2015 and 2050) and employment growth at Fort Gordon. This study’s growth rate does not explicitly account for growth on specific roadway segments, Fort Gordon gates, or employment centers; the growth rate is a



Figure 3.22: Average annual growth in AADT at GDOT locations between 2010 and 2019. Map Source: Google Earth; Data Source: GDOT Traffic Analysis and Data Application (TADA), 2021

universal average, determined by available data, to broadly represent the anticipated growth in the vicinity of Fort Gordon. Between the base year (2021) and future year analysis (2040), a two percent annual growth rate equates to a total traffic volume increase of 45.7%.

The 2021 converted traffic counts (shown in Figure 3.20) were grown by 45.7% to generate this study’s 2040 Future Year Model volumes, as shown in Figure 3.23.

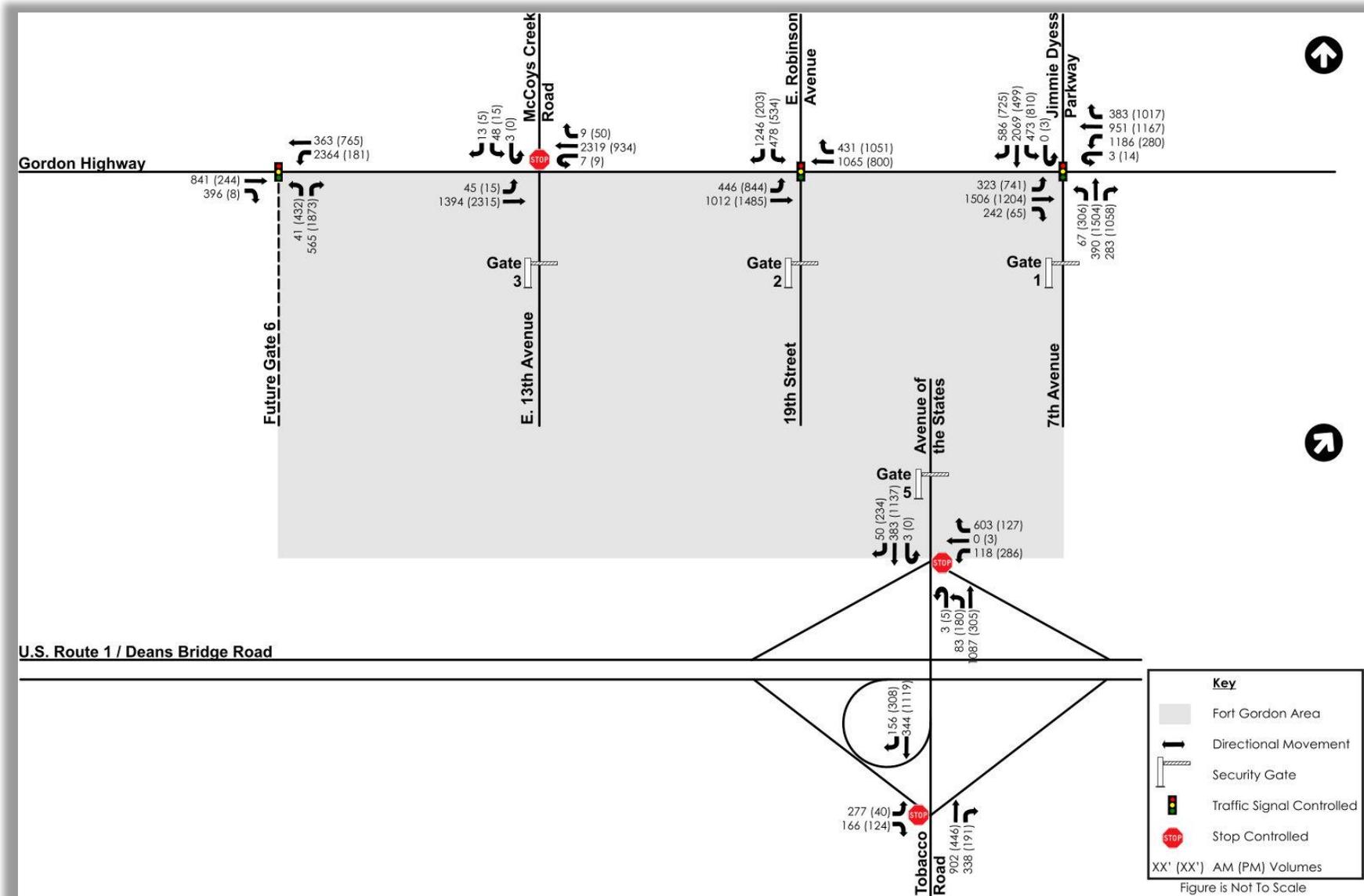


Figure 3.23: 2040 projected volumes. Source: Stantec Consulting Services, 2021

3.4 Air Service Assessment & Impact from Growth at Fort Gordon

This section assesses air service at the Augusta Regional Airport (AGS), focusing upon longer-term trends and using 2019 as a baseline. This assessment includes air service at AGS, “leakage” to other regional airports, and the potential for new air service. In addition, a summary of the impact of COVID-19 will also be provided. A review of increased personnel at Fort Gordon and the subsequent (forecasted) population increase will also be reviewed and its impact upon air travel demand from the region assessed.

3.4.1 Summary

Once disruptions related to the COVID-19 pandemic end and air travel demand normalizes to 2019 levels, it is likely that 2019 AGS air service levels will be insufficient to meet the increased air travel demand created as a result of growth at Fort Gordon. This assessment is based upon 2019 airline load factors and forecasted regional population growth. While airlines would add capacity over time to meet this increased travel demand, it is not likely to keep pace with demand. Regarding the Washington, D.C. market, flights to Ronald Reagan Washington National Airport are slot-restricted, meaning that capacity is limited. AGS will likely not get additional service to Washington, DC unless airlines reduce service to another Washington, DC market. The result is that AGS will see increased “leakage” to other area airports and relatively higher air fares and/or a combination of the two in future years.

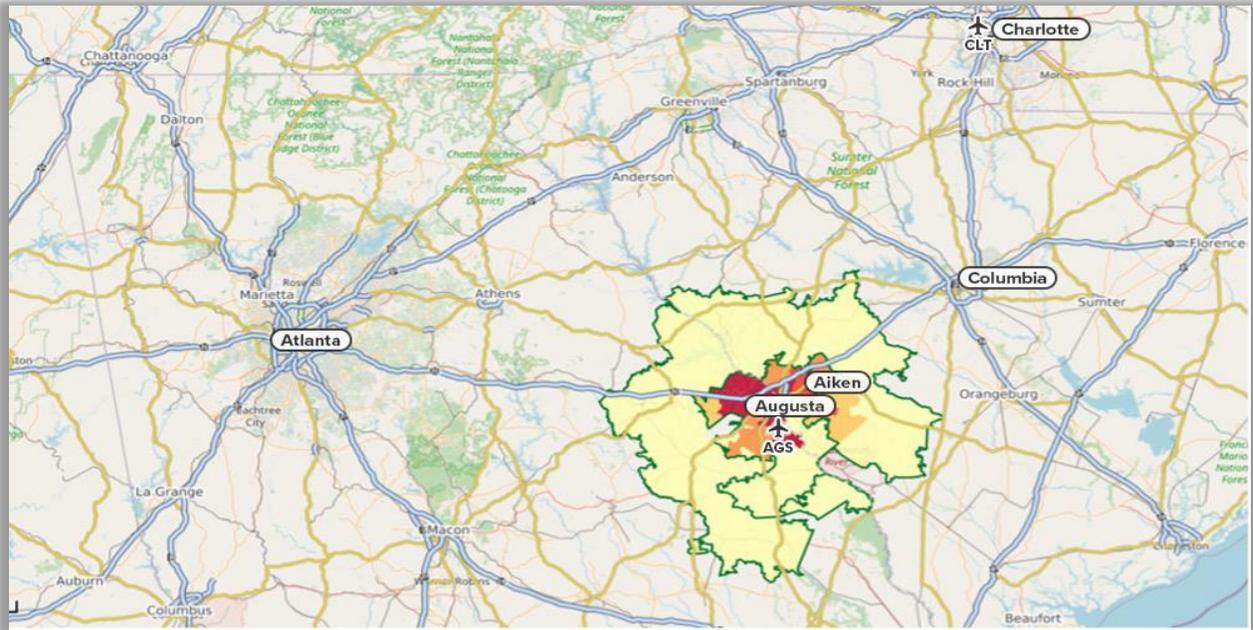
3.4.2 Augusta Regional Airport (AGS) Catchment Area Review

AGS is essential to the region’s economic infrastructure, supporting a number of industries including, but not limited to, aerospace technology, manufacturing, distribution, tourism, and agriculture. Some of the area’s major employers include Proctor & Gamble, John Deere, Kellogg, Bridgestone/Firestone, and T-Mobile. It also provides access to Fort Gordon and numerous leisure activities including the Augusta National Golf Club.

Figure 3.24 illustrates the AGS catchment area, which is defined as a 60-minute drive from AGS. Color density shows population density – the darker the color, the higher the population density. As shown, most of the population is in close proximity to AGS. The 60-miles catchment area (highlighted below) consists of a population of approximately 677,000 people. When looking at a core catchment area of 30 miles for AGS the population is 533,000 people.

The U.S. generated approximately 400 million Origin-Destination passengers in 2019. With a population of roughly 330 million people, this equates to about 1.2 passengers per capita. While this can vary widely by market, if AGS generated 1.2 trips/capita, this equates to approximately 640,000 enplaned passengers at 30 miles and almost 778,000 enplaned passengers at 60 miles. However, a fair amount of this air traffic base is “leaking” – instead driving to another regional airport such as at Atlanta or Charlotte.

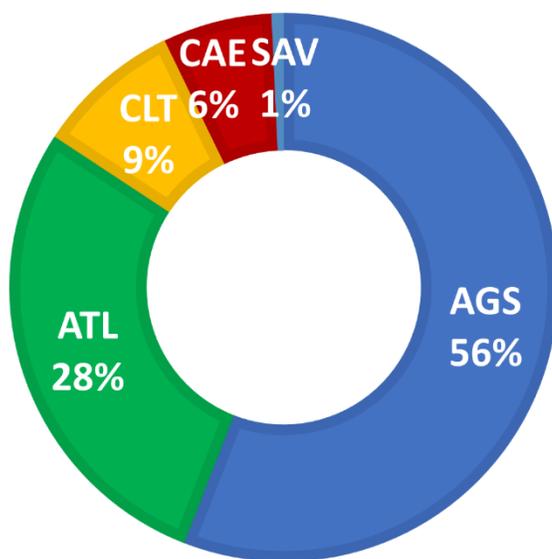
Figure 3.24: Augusta Regional Airport (AGS) Catchment Area



Source: Diio Mi & the U.S. Census Bureau, 2021

Leakage has and will likely continue to be an issue at AGS. It is a roughly 2.5-hour drive to Charlotte and about a 2.4-hour drive to Atlanta. Charlotte and Atlanta are two of the largest airport hubs in the world, offering nonstop service to most large cities, in addition to offering air fares that are generally lower than those offered in smaller spoke markets such as AGS. Columbia, SC is only a 1.3-hour drive away. In addition, Savannah to the south has seen significant tourism and subsequently air service growth over the past two years, including Southwest Airlines starting service in 2020. It is likely that more traffic will “leak” to Savannah going forward.

Figure 3.25: Airport of Origin CY 2019 (Bookings within 30 Miles)



Source: Airlines Reporting Corporation (ARC), 2021

Savannah is also a 2.5-hour drive from Augusta. Drives to Atlanta, Charlotte, Columbia, and Savannah are all on 4-lane highways.

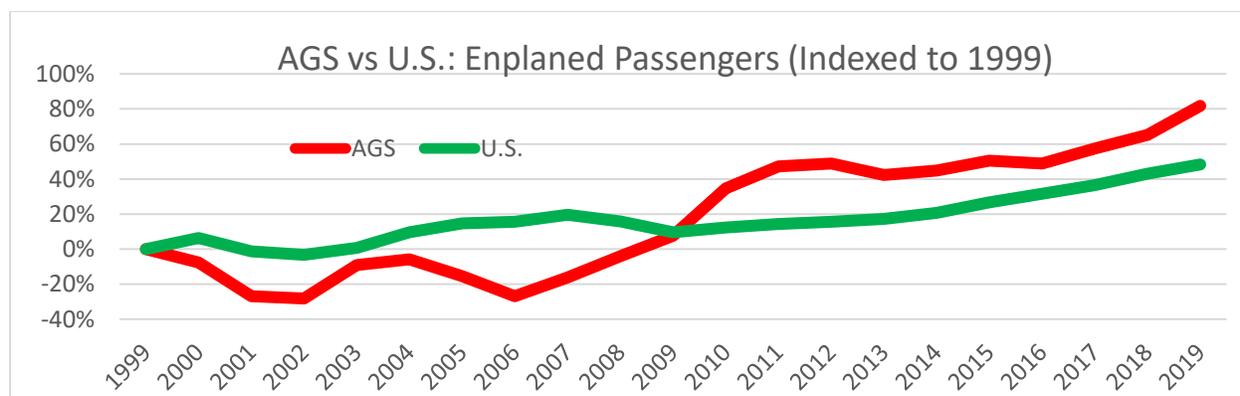
Figure 3.25 illustrates the airport of origin for passengers booking air travel from the Augusta catchment area for 2019. As shown, 56% of passengers from the region booked traveled out of AGS, while 44% flew out of other regional airports. AGS generated 320,000 enplaned passengers in 2019 (source: USDOT), this implies that 571,000 passengers booked travel out of the Augusta regional catchment area which is less when compared to the

population-based estimates derived earlier. Of the 517,000 people that booked a flight from the catchment area, approximately 251,000 chose to fly out of other regional airports.

3.4.3 Historical AGS Traffic Trends

Despite leakage, AGS has generated impressive air traffic growth over longer periods of time. As shown in Figure 3.26, AGS has experienced 82% passenger growth over the past 20 years (2019 vs 1999). Specifically, AGS’s Compound Annual Growth Rate over the past 20 years was 3.5%, 5.4% over 10 years, and 4.6% over 5 years. As shown, AGS has steadily outpaced U.S. trends since 2006. AGS’s performance since 2006 is rare, as most airports saw significant traffic declines during the deep recession from 2007-09 and only recovered later in the next decade.

Figure 3.26: AGS vs U.S. Enplaned Passengers (Indexed to 1999)



Source: Diio Mi (DOT Report T100), 2021

3.4.4 COVID-related Capacity & Traffic Trends

During the COVID-19 pandemic, AGS has generally outperformed U.S. trends. This is likely because of AGS’s service to outdoor types of leisure activities, as travelers pursued travel to markets that were deemed safer to travel to during the pandemic. The worst performing airports across the U.S. were generally large airports, particularly those on the east coast. Big cities were hit particularly hard by the pandemic, as business travel has dropped significantly as travelers avoid big cities. AGS particularly benefited from American Airlines who has kept capacity at relatively higher levels as compared to their competition during the pandemic.

In addition, American Airlines added nonstop service to Washington, D.C., starting what appears to be permanent service in February 2021 with one daily round-trip service. Going forward this route will likely be flown with a 65-seat, dual cabin CRJ-700 aircraft.

Table 3.4: Schedule Monthly Summary Report for Passenger (Air - All) flights from AGS for travel August 2021 vs. August 2019

Travel Period		Aug 2021			Aug 2019		
Mkt AI	Destination	Flights	Seats	ASMs	Flights	Seats	ASMs
AA	Charlotte	146	8,383	1,173,620	185	10,971	1,535,940
AA	Washington, DC	31	2,015	943,020	0	0	0
AA	Dallas-Fort Worth	31	2,356	2,059,144	31	2,015	1,761,110
DL	Atlanta	217	18,904	2,703,272	263	19,499	2,788,357
TOTAL		425	31,658	6,879,056	479	32,485	6,085,407
Difference				Percent Difference			
Flights	Seats	ASMs	Flights	Seats	ASMs		
(39)	(2,588)	(362,320)	(21.1%)	(23.6%)	(23.6%)		
31	2,015	943,020					
0	341	298,034	0.0%	16.9%	16.9%		
(46)	(595)	(85,085)	(17.5%)	(3.1%)	(3.1%)		
TOTAL	(54)	(827)	793,649	(11.3%)	(2.5%)	13.0%	

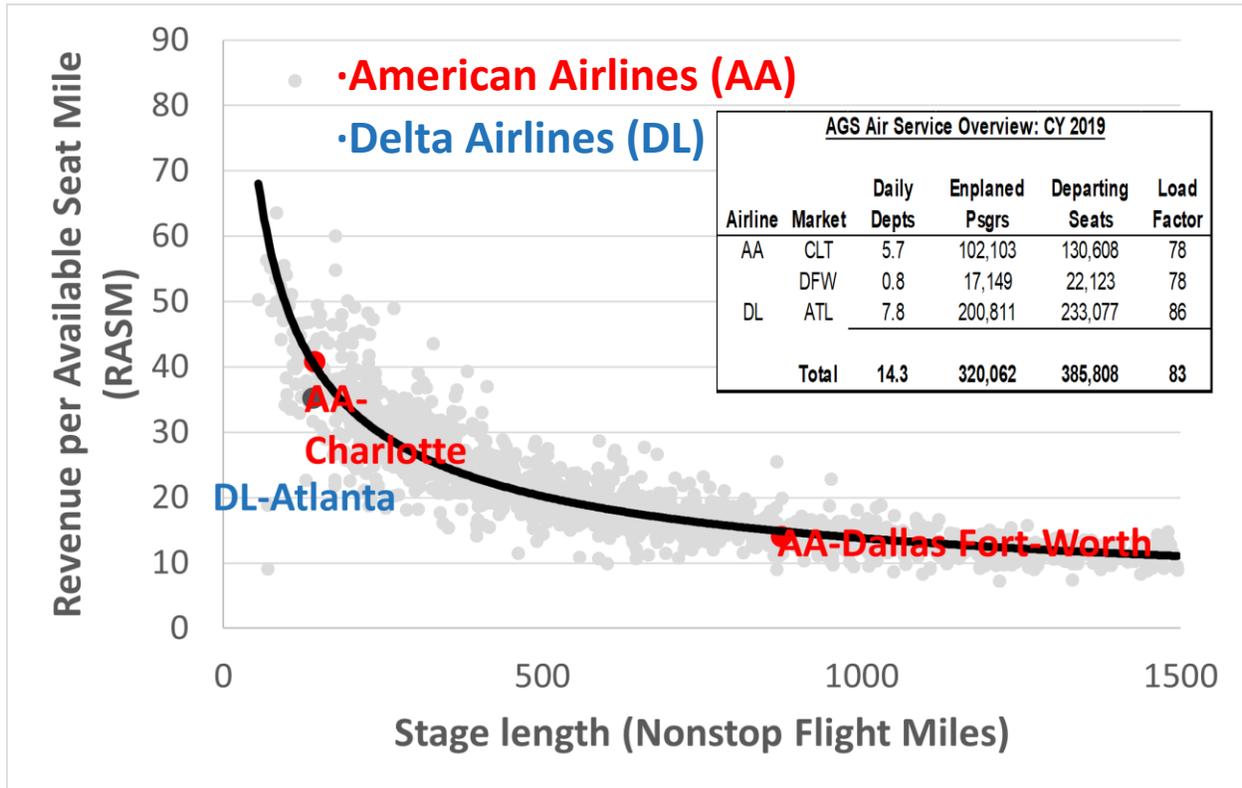
Source: Diio Mi (Innovata), 2021

Table 3.4 illustrates AGS capacity for the most current month (August 2021) as compared to August 2019. As shown, AGS’s seat capacity has decreased 2.5% versus 2019 levels. The U.S. as a whole has decreased approximately 15%. As shown, AGS benefited from the return of Dallas Fort Worth service and the new Washington, DC service. Finally, Delta Air Lines also returned service to near 2019 levels. For Delta, this was unusual as Delta’s system capacity has consistently been down about 20% versus 2019 levels. This table considers Available Seat Miles (ASMs) which measures carrying capacity available for all flights to generate revenues. This increased by nearly 800,000 from August 2019 to August 2021.

3.4.5 Air Service Assessment of Currently Served Routes

To assess AGS’s current air service, an evaluation of carrier Revenue per Available Seat Mile (RASM) was conducted as shown below. RASMs indicate a route’s relative profitability as compared to their system averages. As shown below, the curved line illustrates the average RASM or profitability at every mileagellevel. The light blue dots represent each market in the carrier systems (for American Airlines and Delta). The red dots show the RASM for American Airlines service to Charlotte and Dallas-Fort Worth), while the dark blue dot shows the RASM for Delta’s service to Atlanta. Data for Washington, DC service is not yet available. Both Atlanta and Charlotte are operated as “feeder” markets, where the vast majority of the traffic is connecting. This typically results in relatively lower yields, although airlines expect this in very short haul markets such as AGS-Charlotte and AGS-Atlanta. In summary, both routes are generating solid results as compared to similar markets.

Figure 3.27: Carrier RASM & Stage Length for Markets < 1,500 miles



* Source Diio Mi; YE 4Q2019, 2021

As shown, American Airlines’ Charlotte and Dallas-Fort Worth service operated at very close to system averages in 2019, while Delta’s Atlanta service was slightly below. Load factors were solid-to-high, with both American Airline’s Charlotte and Dallas-Fort Worth service operating at 78% load factors in 2019, with Delta’s Atlanta service generating a relatively high 86% load factor. Again, all three core routes are generating solid results. Finally, American Airline’s initial results flying to Washington, DC have been good, with April at a 61% load factor and May at 63%. In today’s environment, those results (which are the most current available at the route level) appear solid. These results would be expected to improve throughout the coming months.

3.4.6 Assessment of potential for new routes

In evaluating a market’s potential for new service, it is necessary to evaluate Origin-Destination level demand, both that which is flying out of the airport (AGS) and leakage from the catchment area that is flying out of other airports. For example, in the table below, there were an average of 32.5 Origin-Destination passengers daily each way (PDEW) flying between AGS and Dallas-Fort Worth. There were also another 22.5 leaking to other regional airports, indicating that approximately 54.8 passengers were booked daily from the Augusta catchment area to fly to Dallas-Fort Worth.

Table 3.5: Top AGS Origin-Destination Markets: 2019

Rank	City Name	Airport Code	Reported PDEW	Leaked PDEW	TRUE PDEW	Avg Fare
1	Dallas-Fort Worth	DFW	32.5	22.3	54.8	\$72
2	Baltimore	BWI	30.5	32.5	63.1	\$89
3	Washington, D.C.	DCA	28.7	24.2	52.9	\$208
4	New York-La Guardia	LGA	25.7	63.3	89.1	\$77
5	Chicago-O'Hare	ORD	22.1	30.8	52.9	\$201
6	Philadelphia	PHL	18.9	17.2	36.1	\$120
7	Detroit	DTW	17.5	12.3	29.8	\$93
8	Boston	BOS	17.4	40.0	57.4	\$202
9	Las Vegas	LAS	17.3	46.7	63.9	\$207
10	Denver	DEN	17.0	19.3	36.3	\$212

Source: Diio Mi (USDOT) and ARC, 2021

Based upon this review, there appear to be three markets with new/additional nonstop potential from AGS:

- Washington, D.C.** There were 116 PDEWs flying between AGS and the Washington, D.C. metro area when including Baltimore. Baltimore is likely attracting price-sensitive traffic flying to the DC area. As noted earlier, American Airlines has initiated service to Washington, DC from AGS earlier in 2021. Additional service to Washington, DC will likely be impacted by American Airlines being able to attract additional takeoff and landing slots at Washington, DC. Another option to DC would be service to either Washington, Dulles (mostly likely on United Airlines) or Baltimore on a carrier such as recent start-up Breeze Airways.
- New York City.** There are 89 booked PDEWs flying between AGS and New York LaGuardia. As with Washington, DC, LaGuardia is also a slot-restricted airport with limited access. Should those slots become available, Delta Air Lines would be the most likely carrier to add more service. Another option for New York City service would be to Newark on United Airlines.
- Chicago-O'Hare.** There are almost 53 booked PDEWs and significant connectivity options. The most likely carrier to add this service would be American Airlines or possibly United Airlines should they enter AGS.

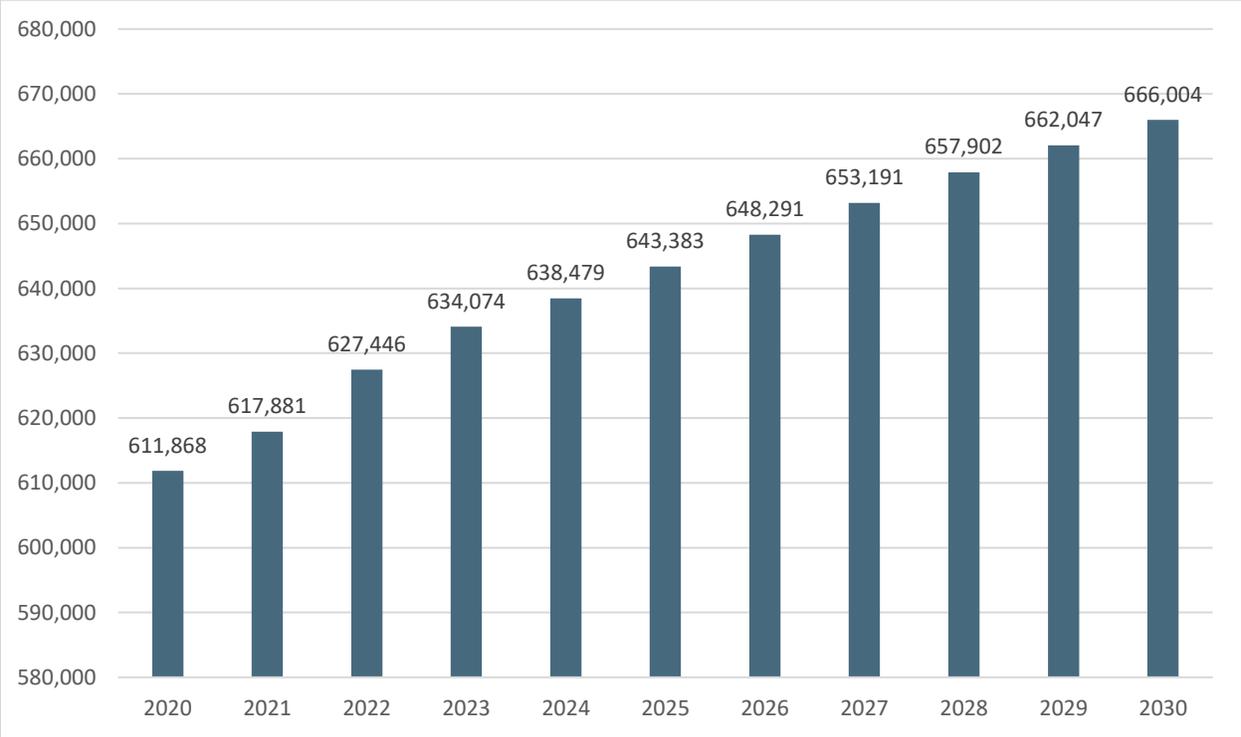
3.4.7 Forecasted Population Growth and Impact upon Air Travel Demand

Chapter 2 of this report estimates population projections for the Study Area and specifically for base growth at Fort Gordon. A summary of those population projections is shown below.

The study estimates a 54,136 population increase within the Study Area from 2020 to 2030. This is an 8.85% growth rate over the 10-year period or a 0.85% Compound Annual Growth Rate. This compares to forecasted U.S. population growth of 5.6% or a 0.55% Compound Annual Growth Rate over the same 10-year period. In other words, the Augusta region is forecasted to experience a population growth rate of approximately 50% more than the rate of growth of the country as a whole. Much of this growth will be tied to the increase in military personnel at Fort Gordon.

Based upon industry average of 1.2 trips per capita, the forecasted population increase of 54,136 would result in an additional 64,963 enplaned passengers being generated from the region - regardless of the airport of origin. Based upon studied 2019 leakage, a little over half of these would likely use AGS, with the remainder leaking to other regional airports due to the relative availability of nonstop air service or lower air fares.

Figure 3.28: Regional Population Projections



Source: Stantec, 2021

In summary, AGS’ current air service is performing well, particularly the 5 daily trips on American Airlines to their Charlotte hub and DL’s 7 daily roundtrips to their Atlanta hub. Both airline/routes will likely see additional seat capacity as traffic/loads continue growing. That said, due to the number of flights offered by American Airlines and Delta, they are already hitting the majority of their connecting banks at those hubs. Eventually, both will possibly look to add additional hub service. It appears that American Airlines is already doing this with service to both Dallas-Fort Worth and Washington, DC, with the potential for more in the future. There are 2-3 markets that appear to be candidates for new, nonstop air service over the next few years and possibly more in the longer-term.

In addition, AGS’s long-term traffic growth has been impressive as compared to the broader U.S. market, particularly when considering long-term leakage to the relatively larger airports from the region. However, determining the timing of any new service is very difficult right now. With the continuation of the COVID-19 pandemic, it is difficult to predict when air travel will return to pre-pandemic levels. While trends have improved since 2020’s depressed levels, business traffic is still down at least 60% versus 2019 levels and lower yielding leisure traffic isn’t sufficient to return airlines to pre-COVID profitability.

The airline industry is currently experiencing aircraft and pilot shortages. The major airlines are indicating that they could not maintain their 2019 schedules today even if they wanted to, given the shortage of planes and pilots. Airlines are indicating that operations will hopefully be normalized by the end of 2020.

“Leakage” for an airport is difficult to “fix.” This is particularly true for airports in relatively close to proximity to major airline hubs. In the case for AGS, there are two hubs in close proximity. Hubs can work as funnels, drawing traffic for both their nonstop air service and relatively lower air fares.

The best strategy to address leakage is garnering additional air service, particularly from low-cost airlines that will offer relatively lower air fares. However, this is not always a realistic option. Another strategy is for airports to work with their local businesses. One strategy is tied to corporate travel policies such as requiring corporate travelers to use the local airport unless air fares are a certain amount higher relative to other regional airports (\$200 is a fare difference that is regularly used). In addition, if there is a relatively large or influential corporation that is willing to take the role of a “champion” and encourage travel through the local airport, it can be useful in leading other companies to follow suit. One successful example of this is the South Bend International Airport, which has created a program called Project Propel. Project Propel has helped to shrink their air traffic’s leakage to Chicago by 25%. This was due to business travelers using the local airport and subsequently more air service has been added to the market – which further improved the results. The “champion” in this example was the University of Notre Dame.

3.5 Existing and Future Capacity Analysis

Capacity analyses of the study intersections were completed using the procedures in the Transportation Research Board’s Highway Capacity Manual (HCM) 6th Edition. Synchro 10 was used to apply the methodology at the study intersections.

Operating conditions at intersections are evaluated in terms of Levels of Service (LOS). LOS A through D are generally considered to be adequate peak hour operations. LOS E and F are generally considered inadequate conditions. However, in urban areas, LOS D and E are generally considered acceptable.

Levels of service for signalized intersection are reported in composite fashion, i.e., one LOS for the entire intersection, and are based on average control delay. Individual turning movements at a signalized intersection may experience inadequate LOS, particularly where those volumes are relatively low, while the intersection as a whole has an adequate LOS. This is due to the major movements being given priority in assigning signal green time.

Traffic conditions at unsignalized intersections, with stop sign control on the minor street only, are evaluated for the minor street approaches and for the left-turns from the major street. This is because the major street traffic is assumed to have no delay since there is no control (i.e. no stop sign). Inadequate LOS for minor street approaches to unsignalized intersections are not uncommon, as the continuous flow traffic will always get priority.

LOS For all-way stop-controlled intersections is reported both for key intersection movements, and in composite fashion. That is, one LOS for the entire intersection and are based on average control delay.

The HCM LOS criteria for intersections is shown in Table 3.3.

Table 3.3: HCM Intersection Level of Service Criteria

LOS	Control Delay (seconds per vehicle)
-----	-------------------------------------

	Signalized Intersection	Unsignalized Intersection
A	≤ 10	≤ 10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	> 80	> 50

Source: Highway Capacity Manual, Sixth Edition, 2016

3.5.1 2021 Existing Conditions Analysis

Table 3.4 shows the LOS results for the study intersections under the 2021 existing traffic conditions. The results of the existing conditions analysis highlight two locations with high delays:

- Jimmie Dyess Parkway / 7th Avenue (Gate 1)
- Avenue of the States / Tobacco Road (Gate 5) SB On/Off Ramp

All approaches to the intersection of Gordon Highway at Jimmie Dyess Parkway/7th Avenue near Gate 1 operate with long delays in both the AM and PM peak hours. This is attributed to high traffic volumes at the intersection.

The stop-controlled approach of US 1 / Deans Bridge Road southbound off-ramp operates at LOS F during the PM peak hour. This is traffic exiting US 1 and turning left (away from Fort Gordon). Delays on this approach can be attributed to high traffic volumes exiting Fort Gordon in the PM peak hour.

It should be noted that the southbound approach of McCoys Creek Road at Gordon Highway operates with high delays, but the volume of traffic is relatively low exiting the residential neighborhood.

Table 3.4: 2021 Existing Capacity Analysis Results

Intersection		2021 Existing				
		Overall	EB	WB	NB	SB
Jimmie Dyess Parkway/7 th Avenue (Gate 1)	AM	F (105.9)	F (135.4)	F (102.4)	E (62.1)	F (99.5)
	PM	F (119.1)	F (119.2)	F (144.6)	F (100.5)	F (114.2)
East Robinson Avenue/19 th Street (Gate 2)	AM	D (35.8)	C (20.5)	D (43.4)	-	D (42.0)
	PM	D (43.3)	D (47.0)	D (43.9)	-	C (30.0)
McCoys Creek Road/East 13 th Avenue (Gate 3)	AM	# (9.2)	# (0.5)	# (0.1)	-	F (185.3)
	PM	# (0.4)	# (0.1)	# (0.4)	-	D (29.2)
Avenue of the States/Tobacco Road (Gate 5) NB On/Off Ramp	AM	# (4.5)	# (0.0)	# (0.0)	C (17.0)	-
	PM	# (1.4)	# (0.0)	# (0.0)	C (15.0)	-
Avenue of the States/Tobacco Road (Gate 5) SB On/Off Ramp	AM	# (2.7)	# (0.2)	# (0.7)	-	D (32.0)
	PM	# (15.1)	# (0.0)	# (6.2)	-	F (101.2)
Gordon Highway at Future Gate 6	AM	D (35.7)	E (63.0)	C (27.6)	B (16.3)	-
	PM	C (22.4)	E (61.7)	A (2.6)	C (26.1)	-

Source: Stantec Consulting Services, 2021

3.5.2 2040 Future Conditions Analysis

Table 3.5 shows the LOS results for the study intersections under the 2040 future traffic conditions. The results of the existing conditions analysis demonstrate that several intersections within the study area operate with longer delays. Those are:

- Jimmie Dyess Parkway / 7th Avenue (Gate 1)
- McCoys Creek Road / East 13th Avenue (Gate 3)
- Avenue of the States / Tobacco Road (Gate 5) NB On/Off Ramp
- Avenue of the States / Tobacco Road (Gate 5) SB On/Off Ramp

All approaches to the intersection of Gordon Highway at Jimmie Dyess Parkway/7th Avenue near Gate 1 operate with long delays in both the AM and PM peak hours. This is attributed to high traffic volumes at the intersection. High delays were present at this intersection in the existing conditions analysis.

McCoys Creek Road / East 13th Avenue operates with high delays for the southbound approach exiting the residential neighborhood. High delays were present on this approach in the existing condition analysis.

High delays were observed for traffic turning left from the off-ramps at the Avenue of the States / Tobacco Road interchange with US 1/Deans Bridge Road. High delays are typical for unsignalized approaches to high-volume facilities.

High delays are observed at the intersection of Gordon Highway at Gate 6 in the AM peak hour. This is attributed to a high-volume of left-turning traffic entering Fort Gordon from Gordon Highway in the morning.

Table 3.5: 2040 Future Capacity Analysis Results

Intersection		2040 Future				
		Overall	EB	WB	NB	SB
Jimmie Dyess Parkway/7 th Avenue (Gate 1)	AM	F (224.9)	F (273.5)	F (207.3)	F (89.3)	F (239.0)
	PM	F (214.5)	F (164.2)	F (239.6)	F (199.5)	F (247.4)
East Robinson Avenue/19 th Street (Gate 2)	AM	D (50.6)	C (21.0)	E (66.2)	-	E (62.2)
	PM	E (78.5)	E (67.6)	F (100.4)	-	E (57.5)
McCoys Creek Road/East 13 th Avenue (Gate 3)	AM	# (1.4)	# (0.9)	# (0.1)	-	F (58.8)
	PM	# (2.3)	# (0.1)	# (1.5)	-	F (306.4)
Avenue of the States/Tobacco Road (Gate 5) NB On/Off Ramp	AM	# (20.1)	# (0.0)	# (0.0)	F (76.5)	-
	PM	# (2.5)	# (0.0)	# (0.0)	D (26.6)	-
Avenue of the States/Tobacco Road (Gate 5) SB On/Off Ramp	AM	# (17.0)	# (0.2)	# (0.8)	-	F (239.7)
	PM	# (298.8)	# (0.0)	# (15.6)	-	F (2190.2)
Gordon Highway at Future Gate 6	AM	F (100.2)	F (131.4)	F (103.9)	B (19.8)	-
	PM	C (28.4)	D (50.0)	A (7.8)	C (34.4)	-

Source: Stantec Consulting Services, 2021

3.6 Prioritization and Phasing

Improvements to the transportation network have been identified and recommended for near, mid, and long-term implementation.

3.6.1 Near-Term Priorities

Gordon Highway & Jimmie Dyess Parkway / 7th Avenue (Gate 1)

- Construct a third eastbound through lane. This can be achieved by reducing the free-flowing northbound right-turn lanes from two to one and reconfiguring the intersection.
- Extend the existing northbound left-turn lane on 7th Avenue from 600 to 900 feet of full-width storage and appropriate taper
- Convert the southbound right-turn lane to a free-flowing movement into the newly constructed lane traveling westbound from the intersection.

3.6.2 Mid-Term Priorities

Gordon Highway & Future Gate 6

- Construct a third westbound exclusive left-turn lane. Extend existing turn lanes to ensure that a minimum 1,300 feet of full-width storage and appropriate taper is provided on Gordon Highway.
- Construct a receiving lane for ingress traffic at Gate 6. This lane can merge with the current two lanes approximately 1,000 feet downstream to avoid impacting the existing security area.

Avenue of the States/Tobacco Road (Gate 5)

- Install traffic signals at both ramp terminals of the interchange to control traffic.

3.6.3 Long-Term Priorities

Long-term improvements have been identified for future consideration. These improvements will require further coordination with GDOT and local agencies. Two locations, Gordon Highway & Jimmie Dyess Parkway / 7th Avenue (Gate 1) and Gordon Highway & Future Gate 6, have been identified for this future consideration given the analysis results and funding required to plan, engineer, and construct such improvements.

Gordon Highway & Jimmie Dyess Parkway / 7th Avenue (Gate 1)

- Alternative intersection configurations such as a continuous flow intersection (CFI) should be considered at this location. Redirecting a movement such as the westbound left-turns could reduce delays at the intersection substantially.
- Beyond alternative intersection configurations, a grade-separated interchange should be considered. The railroad track and right of way largely constricts the type of interchange that can be constructed at this location, but a partial cloverleaf interchange may be considered. Figure 3.24 shows a nearby example of Interstate 520 at GA 56 south of Augusta.



Figure 3.24: I-520 / GA 56 interchange. Source: Google Earth, Augusta, Georgia, November 2019.

Gordon Highway & Future Gate 6

- Alternative intersection configurations such as a continuous flow intersection (CFI) should be considered at this location. Redirecting a movement such as the westbound left-turns could reduce delays at the intersection substantially. Another strategy to evaluate would be redirecting minor movements such as the northbound left-turns. In this scenario, the northbound left-turns would be directed to turn east onto Gordon Highway and can perform a U-turn on Gordon Highway. This allows additional green-time to be allocated to higher volume movements at the traffic signal.

It is worth noting that the ARTS Future Mobility 2050 report identifies two key GDOT projects (Tier 3: 2035-2050), a new road and interchange at Louisville Road and I-20 (MTP Project ID: 154) and Gordon Highway widening and intersection improvements at Jimmie Dyess Parkway (MTP Project ID: 321), that may alleviate the operational deficiencies noted in this study. Both projects may improve the distribution of Fort Gordon ingress and egress traffic between Gates 1 and 6, improve safety at Jimmie Dyess Parkway and Gordon Highway, and provide a bypass to Grovetown.

In addition to roadway network improvements, improvements in transit and active transportation facilities may help to alleviate growth in and around Fort Gordon. Fort Gordon is not directly served by local transit and does not have convenient access to regional transportation modes (i.e., air), but investments in transit may improve mobility of those that work, live, and visit the fort. Park-and-ride shuttles or designated bus stops near gate entrances may improve mobility to and from the fort. On the Installation, last-mile service with automated or micro-transit may enhance connectivity within the Installation and with the greater Augusta area.

The study area is also relatively low-density and does not have mixed-use development that supports active modes (walking and biking). Planning and foresight to include amenities for pedestrians and bicyclists in future improvements provides more options for travel. Today, the predominant mode is a single-occupant vehicle, which drastically reduces the utilization and efficiency of roadway infrastructure. Greater emphasis and investment in shared modes, such as transit and last-mile services, along with pedestrian and bicyclist facilities will help offset the burden of traffic growth on Fort Gordon-area roads. This study recommends further analysis into the range of multimodal improvements in the study area as a means to reduce traffic congestion.

3.6.4 2040 Future Conditions with Improvements Analysis

The future conditions with improvements analysis incorporate the near and mid-term priorities discussed previously. The corresponding laneage is shown in Figure 3.25. Figures with the location of improvements overlaid on aerial imagery or construction plans are provide in Figures 1.26, 1.27, and 1.28.

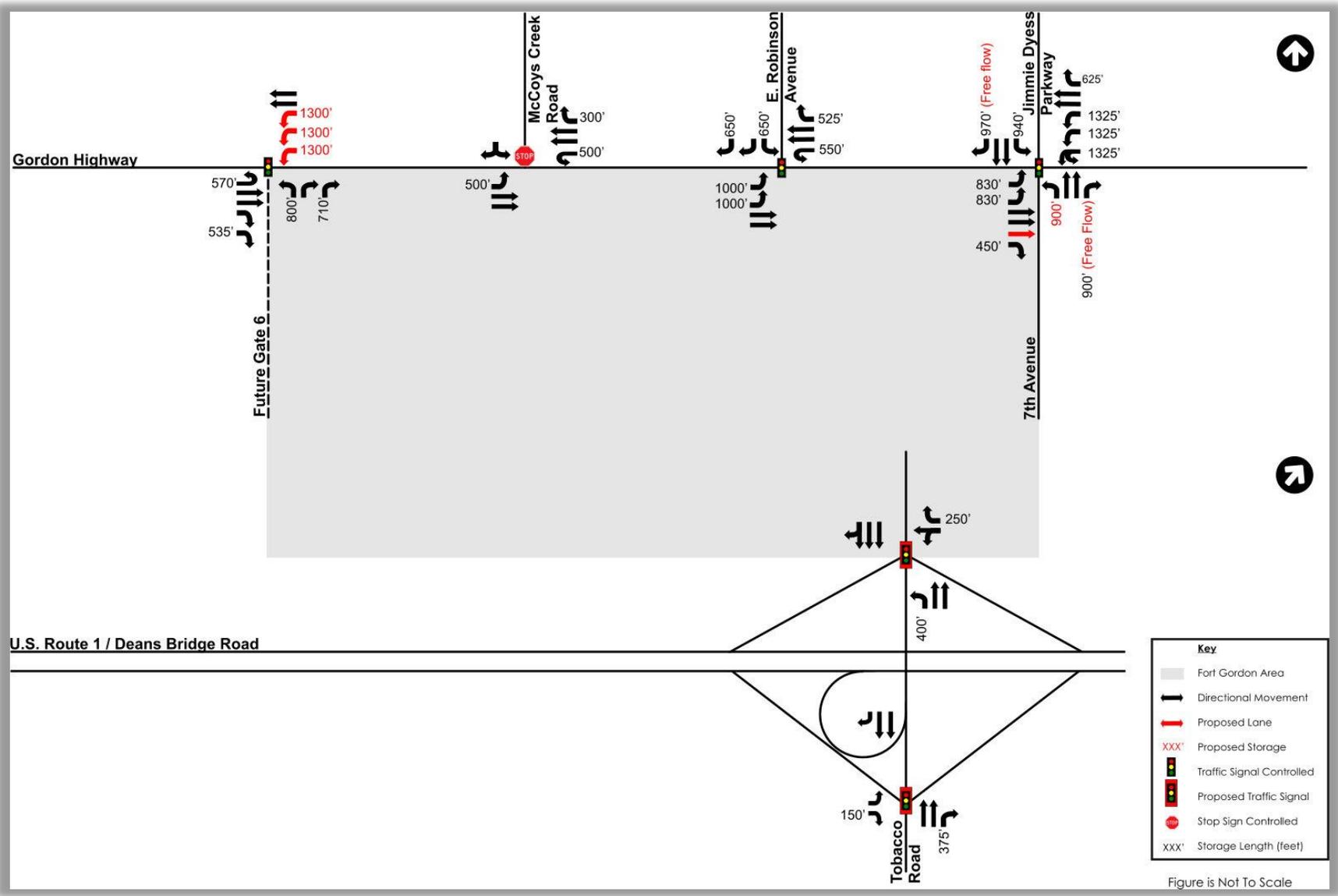


Figure 3.25: 2040 Build model laneage at the study intersections.

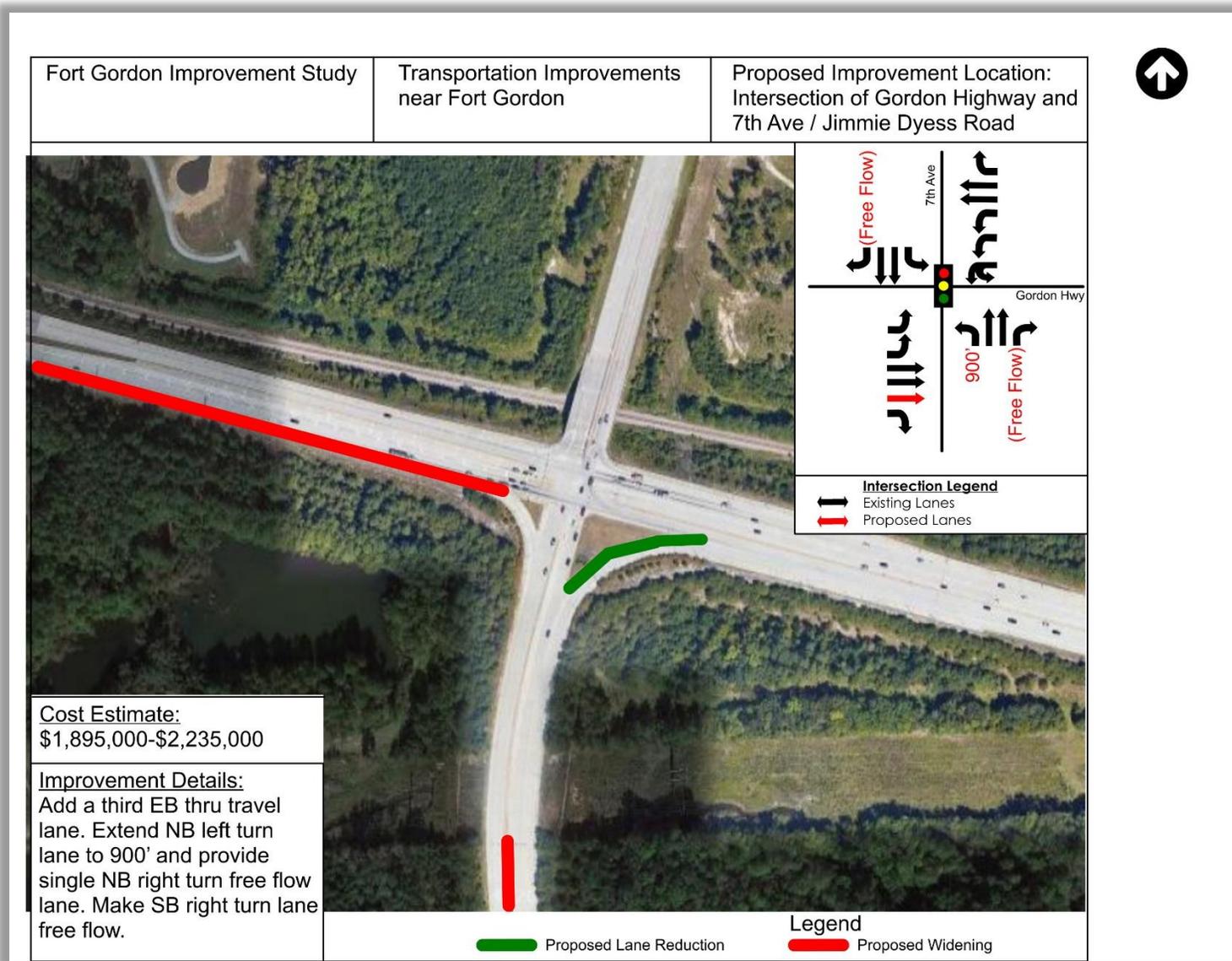


Figure 3.26: Gordon Highway & Jimmie Dyess Parkway / 7th Avenue (Gate 1) Proposed Improvements

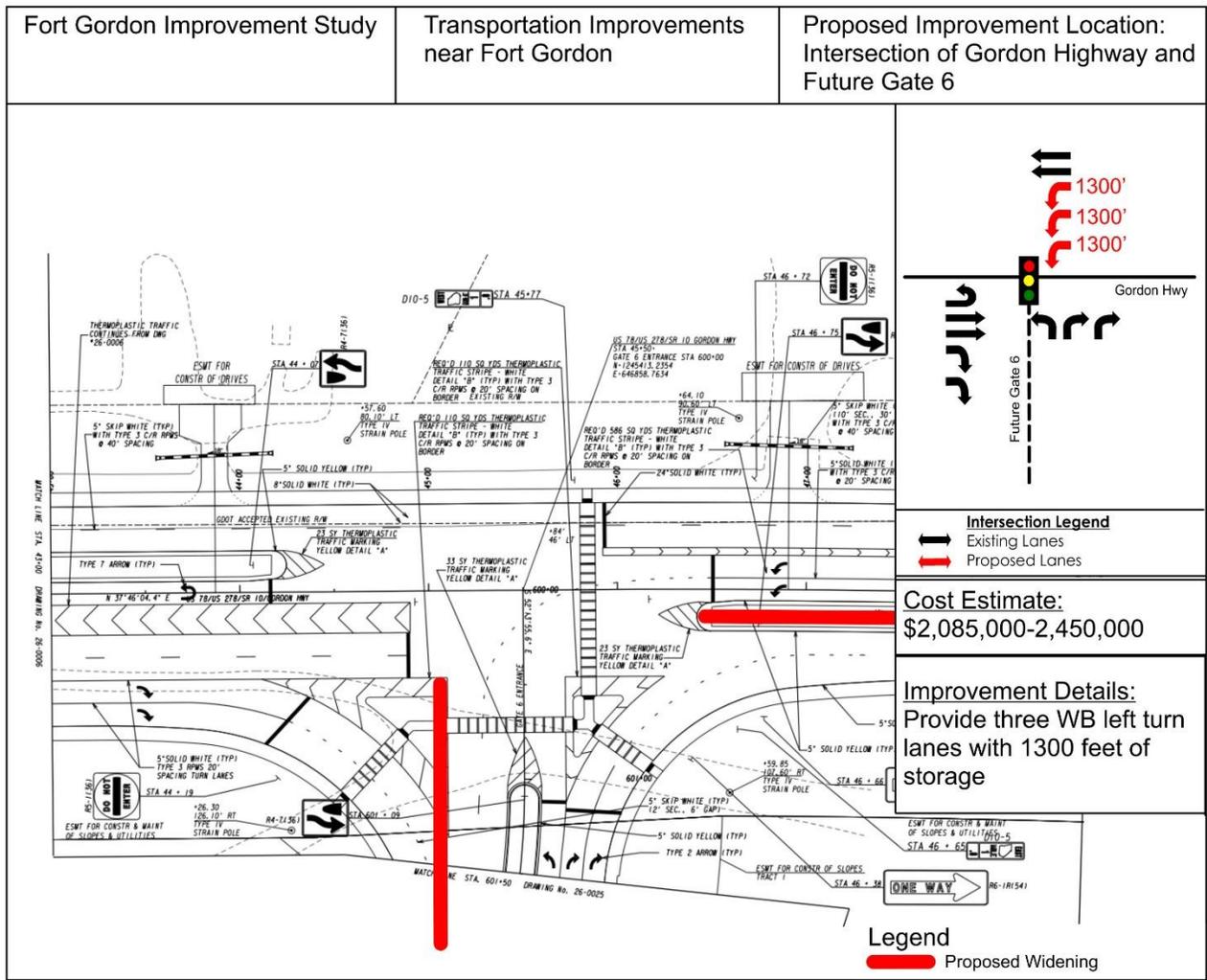


Figure 3.27: Gordon Highway & Future Gate 6



Figure 3.28: Avenue of the States/Tobacco Road (Gate 5)

Table 3.6 summarizes the LOS results for the study intersections under the 2040 future traffic conditions with the near and mid-term recommendations in place. As a result, LOS of the study intersections is improved. However, Jimmie Dyess Parkway / 7th Avenue (Gate 1) still operates with long delays in both peak hours. This is attributed to high traffic volumes at the intersection. Long-term funding and coordination are recommended with GDOT and local stakeholders to plan, design, and construct a potential conversion to a grade-separated interchange.

Table 3.6: 2040 Future with Improvements Capacity Analysis Results

Intersection		2040 Future with Improvements				
		Overall	EB	WB	NB	SB
Jimmie Dyess Parkway/7 th Avenue (Gate 1)	AM	F (181.9)	F (219.2)	F (173.0)	F (93.8)	F (185.2)
	PM	F (181.1)	F (169.5)	F (228.7)	F (193.7)	F (128.3)
East Robinson Avenue/19 th Street (Gate 2)	AM	D (53.3)	C (25.1)	E (68.3)	-	E (64.2)
	PM	E (77.9)	E (67.8)	F (99.5)	-	E (55.4)
McCoys Creek Road/East 13 th Avenue (Gate 3)	AM	# (1.6)	# (1.0)	# (0.1)	-	F (68.3)
	PM	# (2.3)	# (0.1)	# (1.5)	-	F (306.4)
Avenue of the States/Tobacco Road (Gate 5) NB On/Off Ramp	AM	B (13.6)	A (3.0)	A (7.5)	D (38.8)	-
	PM	A (5.2)	A (0.7)	A (3.3)	D (43.2)	-
Avenue of the States/Tobacco Road (Gate 5) SB On/Off Ramp	AM	A (7.8)	B (10.7)	A (6.6)	-	A (8.0)
	PM	C (26.4)	C (25.2)	C (21.7)	-	D (35.8)
Gordon Highway at Future Gate 6	AM	D (50.0)	E (75.3)	D (43.0)	C (29.1)	-
	PM	C (31.4)	D (46.9)	A (6.0)	D (40.1)	-

Source: Stantec Consulting Services, 2021

3.6.5 Cost Estimates

Planning level estimates of probable costs were prepared for all the near and mid-term recommendations. Tables 3.7 and 3.8 list the estimated costs for near and mid-term improvements, respectively. It should be noted that these costs include planning-level estimates of paving, grading, traffic control, drainage, utilities, signing, marking, traffic signals, right-of-way, engineering, inspection, and construction contingencies.

Table 3.7: Planning Level Cost Estimation: Near-Term Recommended Improvements

Gordon Highway & Jimmie Dyess Parkway / 7 th Avenue (Gate 1)	Total Project Cost	
	Lower Range	Upper Range
Construct a third eastbound through lane	\$1,630,000	\$1,920,000
Extend the northbound left-turn lane by 300 feet	\$195,000	\$230,000
Convert the southbound right-turn lane to a free-flowing movement	\$70,000	\$85,000
<i>Subtotal</i>	<i>\$1,895,000</i>	<i>\$2,235,000</i>

Source: Stantec Consulting Services, 2021

Table 3.8: Planning Level Cost Estimation: Mid-Term Recommended Improvements

Gordon Highway & Future Gate 6	Total Project Cost	
	Lower Range	Upper Range
Construct a third westbound exclusive left-turn	\$1,110,000	\$1,305,000
Construct a receiving lane for ingress traffic at Gate 6	\$975,000	\$1,145,000
<i>Subtotal</i>	<i>\$2,085,000</i>	<i>\$2,450,000</i>
Avenue of the States/Tobacco Road (Gate 5)	Total Project Cost	
	Lower Range	Upper Range
Install traffic signals at both ramp terminals	\$635,000	\$750,000

Source: Stantec Consulting Services, 2021

3.6.6 Funding

Infrastructure improvements identified in this study may be funded in part or whole by a variety of sources. For state-maintained roads, such as Gordon Highway (US-78) or Deans Bridge Road (US-1), state and federal funds typically cover projects identified and prioritized by the state. Local roads owned by municipalities use a combination of local, state, and federal monies to cover infrastructure improvements. In either case, the owner maintains discretion for the prioritization, funding, and implementation of infrastructure improvements. A list of common funding sources is provided below.

- Federal (use taxes and fees; grants):
 - Federal Highway Administration
 - Federal Transit Administration
- State (use taxes and fees; grants):
 - Central Savannah River Area Transportation Special Purpose Local Option Sales Tax (SPLOST)
 - Georgia Transportation Infrastructure Bank
 - GO! Transit Capital Program
- Local (property taxes, general funds, and use taxes)

SPLOST is a sales tax increase implemented on the county level in Georgia. These are voted on via referendum. At the time of the vote, all expenditures (i.e. projects) must be defined before the vote. If passed, the SPLOST is in-place for five (5) years. The most recent SPLOST passed in March of 2021 and included \$78,500,000 for infrastructure projects.

Table 3.9 lists these potential transportation funding sources.

Table 3.9: Potential Transportation Funding Sources

Fund Name	Funding Agency	Description
Federal Infrastructure Spending	GDOT	A new federal infrastructure bill is being developed in the Federal Legislature. The bill would provide over \$100 billion for transportation infrastructure and nearly \$40 billion for public transit.
National Highway Performance Program (NHPP)	FHWA	Provides funding for improvements to rural and urban roads including the Interstate Highway System.
Highway Safety Improvement Program	FHWA	Federal-aid program with the purpose to achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
Surface Transportation Block Grant Program	FHWA	Funds may be used for many transportation improvements; including bicycle and pedestrian facilities.
Grant Anticipation Revenue Vehicles Bonds (GARVEE)	USDOT	A debt instrument with the pledge of future Title 23 Federal-aid funding. It is authorized for Federal reimbursement of debt service and related financing costs. These allow a state to accelerate construction timelines
Transportation Alternatives Program	FHWA	These funds encompass a variety of smaller-scale transportation projects such as bicycle and pedestrian facilities.

Source: Stantec Consulting Services, 2021