## SR 307 Corridor Study Final Report

Prepared for:


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## List of Abbreviations

| AADT | Annual Average Daily Traffic |
| :---: | :---: |
| AASHTO | American Association of State Highway and Transportation Officials |
| ATS | Average Travel Speed |
| BFFS | Base Free Flow Speed |
| CAT | Chatham Area Transit |
| CMP | Congestion Management Plan |
| CORE MPO | Coastal Region Metropolitan Planning Organization |
| CSXT | CSX Transportation |
| DDHV | Directional Design Hourly Volume |
| DLT | Displaced Left Turn |
| EDFAC | Economic Development and Freight Advisory Committee |
| FHWA | Federal Highway Administration |
| FRA | Federal Railroad Administration |
| GCT | Garden City Terminal |
| GDOT | Georgia Department of Transportation |
| GEARS | Georgia Electronic Accident Reporting System |
| GPA | Georgia Ports Authority |
| HCM | Highway Capacity Manual |
| HMVMT | Hundred Million Vehicle Miles Traveled |
| ICE | Intersection Control Evaluation |
| LOS | Level of Service |
| MOE | Measure of Effectiveness |
| MPH | Miles Per Hour |
| MTP | Metropolitan Transportation Plan |
| MUTCD | Manual on Uniform Traffic Control Devices |
| NCHRP | National Cooperative Highway Research Program |
| NS | Norfolk Southern |
| PDO | Property Damage Only |
| PIOH | Public Information Open House |
| SAC | Stakeholder Advisory Committee |
| SEDA | Savannah Economic Development Authority |
| SF | Square Feet |


| SPUI | Single Point Urban Interchange |
| :--- | :--- |
| TADA | Traffic Analysis and Data Application |
| TCC | Technical Coordinating Committee |
| TEU | Twenty-Foot Equivalent Unit |
| TIP | Transportation Improvement Program |
| TMC | Turning Movement Count |
| TMP | Total Mobility Plan |
| TPM | Transportation Performance Management |
| TWLTL | Two-Way Left-Turn Lane |
| TWSC | Two-Way Stop Control |
| USDOT | United States Department of Transportation |
| V/C | Volume-to-Capacity Ratio |
| VPD | Vehicles Per Day |

## Appendices

A - Traffic Counts
B - Crash Data
C - Capacity Analysis Reports
D - ICE Worksheets
E - Public Outreach
F - Concept Layouts and Project Pages
G - Traffic Forecast

## 1 Executive Summary

The 8.5-mile SR 307 corridor, extending from SR 25/US 17/Ogeechee Road to SR 25/Coastal Highway, serves as a primary artery to the Georgia Ports Authority's (GPA) Garden City Terminal (GCT) and is a critical component of the region's economic and community vitality. Consistent with the goals highlighted in the Mobility 2045 Metropolitan Transportation Plan (MTP) published by the Coastal Region Metropolitan Planning Organization (CORE MPO), the purpose of this study is to identify and prioritize short-term ( $0-5$ Years) and long-term (5+ Years) improvement projects needed for motorized, nonmotorized, and transit users along the SR 307 corridor; facilitate planning and programming of projects through the CORE MPO MTP process; and justify the future programming of projects in the CORE MPO's Transportation Improvement Plan (TIP) and Total Mobility Plan (TMP). These objectives were accomplished through four primary elements:

First, an Existing Conditions Assessment including a comprehensive data collection effort, capacity analysis, and safety analysis was conducted to evaluate existing conditions along the SR 307 corridor at the 27 intersections and six contextual segments depicted in Figure 1. The results of existing capacity and safety analyses were used to identify transportation challenges, needs, and opportunities to be considered throughout the remainder of the study.

## Existing Capacity Analysis Results

The intersection- and segment-level results presented in this report demonstrate that the majority of the SR 307 corridor operates acceptably under existing conditions. However, existing bottlenecks at three major nodes - l-16, SR 26/US 80/Louisville Road, and SR 21/Augusta Road - lead to significant delays for freight and passenger car trips traversing the segments between the GCT and Southbridge community to the south of I-16. Ongoing projects such as the I-16 at SR 307 Interchange Reconstruction (GDOT PI No. 0031727) and SR 21 Access Management Study aim to improve conditions at two of these locations, but further improvements will be needed to ensure that the corridor continues to operate at an acceptable level of service over the next 20 to 30 years. The maps shown in Figure 2 and Figure 3 graphically summarize existing operations along the study corridor as defined by capacity analysis, SimTraffic outputs, and field observations.

## Existing Crash History Summary

The corridor- and intersection-level safety analyses presented in this report illustrate that trends in existing crash history follow the primary characteristics of the SR 307 corridor, specifically:

- Nearly 60\% of the SR 307 corridor consists of a five-lane, flush median (two-way-left-turn) section. The overall, 8.5 -mile-long corridor includes approximately 150 driveways, most of which are full-movement, unsignalized access points to heavy industrial land uses. Expectedly, 34\% of all crashes occurring on the study corridor over the five-year period from 2015 to 2019 were angle or sideswipe collisions.



## Key Field Observations:

1. Demand for the eastbound left-turn movement on SR 25/US 17/Ogeechee Road frequently exceeded the available turn bay storage
2. Queueing on southbound SR 307 extended up to 0.3 miles north of I-16
3. Queueing on the I-16 eastbound off-ramp to SR 307 occasionally spilled back to the freeway mainline
4. Queueing on eastbound SR 26/ US 80/Louisville Road extended approximately 0.9 miles upstream of the intersection
5. Long delays were observed on both approaches of SR 307 at SR 21/Augusta Road
6. Queueing on southbound SR 21/Augusta Road extended up to 1 mile upstream of the intersection with SR 307
7. Brief spikes in demand at GCT Gate 4 led to queuing extending across the Mason Mega-Rail grade-separated crossing


Savannah/Hilton Head International Airport

SR 21/Augusta Road


者
Port of Savannah Garden City Terminal

SR 25/Coastal Highway


Jimmy DeLoach Parkway

25

21

$\begin{array}{r}26 \\ 80 \\ \hline 8\end{array}$

I-16 Eastbound Ramps


## Legend

Intersection LOS A-CIntersection LOS D-EIntersection LOS F

- Field-Observed Queue LengthKey Observation


## Key Field Observations:

1. Queueing on southbound SR 307 frequently exceeded the available storage length for the southbound right-turn movement due to heavy demand and poor lane utilization
2. Constrained geometry at the I-16 interchange led to queueing that extended up to 0.5 miles upstream of the westbound ramp terminal on southbound SR 307
3. Geometric constraints and heavy truck turning movement volumes on southbound SR 307 led to queues that extended up to 0.75 miles north of the intersection with SR 26/US 80/Louisville Road
4. Moderate to long delays were observed on all approaches of the intersection of SR 307 with SR 21/Augusta Road, with congestion beginning well before the PM peak hour

SR 21/Augusta Road
Export Boulevard
Robert B. Miller Road

$\longrightarrow$ Hangar Road
$\longrightarrow$ Product Support Road
$\qquad$
torage


Savannah/Hilton Head International Airport

Truck percentages along some segments of the SR 307 corridor approach $\mathbf{8 0 \%}$ during the peak periods of the day. Due to the large volumes of heavy truck traffic on the study corridor, which intersects with four corridors exhibiting large volumes of commuting passenger car traffic, nearly one in four crashes occurring over the five-year period from 2015 to 2019 involved at least one tractor-trailer. On the six contextual segments presented in this study, truck-involved crashes represented as many as $43 \%$ of all crashes occurring on a given segment.

- Congested conditions at major intersections along the SR 307 corridor contribute to a high frequency of rear-end crashes. More than $50 \%$ of all crashes in the study database were rearend collisions. In fact, rear-end collisions occurring at the intersections of SR 307 with SR 25/US 17/Ogeechee Road and SR 21/Augusta Road comprise 30\% of all crashes in the study database.

Second, a Future Conditions Assessment was conducted to assess corridor operations under shortterm ( $0-5$ Years) and long-term (5+ Years) conditions based on the Design Traffic Forecasts for the SR 307 Corridor Study completed by HNTB in October 2021 on behalf of the Georgia Department of Transportation (GDOT). Findings from the Existing Conditions Assessment, traffic signal warrant analyses, GDOT Intersection Control Evaluation (ICE) analyses, and comparative capacity analyses conducted in Synchro and SimTraffic software were utilized to inform the selection of short- and longterm conceptual alternatives for the corridor. Projected intersection- and corridor-level operations under 2045 Build conditions are presented in Figure 4 along with an indexed list of short- and long-term projects, excluding those focused on non-motorized and transit modes.

Third, Public Outreach was included as part of this study per the requirements and recommendations outlined in the CORE MPO's Public Participation Plan. Stakeholder outreach strategies, meeting summaries, and consistent topics of feedback are presented within this report and informed the final recommendations of the study.

Finally, Recommendations and Prioritized Projects were developed based on the outcomes of the prior sections in this report. A full listing of the short- and long-term projects recommended for consideration as part of future transportation planning efforts are summarized in Table 1 and Table 2, and total projected costs (including preliminary engineering, right-of-way, and construction) are summarized in Table 3 and Table 4, respectively. The projected costs include Preliminary Engineering, Right-of-Way Acquisition, and Construction, and itemized amounts for each are shown in the Project Pages included in Appendix F. The cost estimates assume the projects will not be prepared through GDOT's Plan Development Process (PDP), which would increase project costs, and have not been inflated as construction timelines are unknown at this time.

For reporting purposes, SR 307 is assumed to have a north-south orientation from SR 25/US 17/Ogeechee Road to Robert B. Miller Road and an east-west orientation from Robert B. Miller Road to SR 25/Coastal Highway. The short- and long-term projects have been prioritized relative to each other within each respective time category, and the prioritizations - which have been reviewed by the study team - are based on a high-level assessment of each project's potential to improve traffic operations and safety along the corridor, consistent with the primary goals of the study; neither cost-benefit analyses nor evaluation matrices were developed as part of the study.


Table 1: Recommended Short-Term Improvements Summary

| ID | Priority Ranking | Name | Jurisdiction(s) | Description of Improvements |
| :---: | :---: | :---: | :---: | :---: |
| IN-01 | 3 | Distribution Drive Signalization | City of Pooler City of Savannah | - Install a stop-and-go traffic signal <br> - Install pedestrian signals, crosswalks, and ramps in accordance with GDOT Policy |
| IN-02 | 1 | SR 26/US 80/Louisville Road Auxiliary Lanes | City of Garden City City of Pooler City of Savannah | - Install dual eastbound left-turn lanes with 500 feet of storage and extend eastbound right-turn lane storage to 500 feet <br> - Install dual westbound turn-lanes with 400 feet of storage extend westbound right-turn lane storage to 400 feet <br> - Install dual northbound left-turn lanes with 400 feet of storage and extend northbound right-turn lane storage to 400 feet <br> - Install dual southbound left turn lanes with 250 feet of storage and extend southbound right-turn lane storage to 250 feet <br> - Install pedestrian signals, crosswalks, and ramps in accordance with GDOT Policy <br> - Monitor the intersection for future growth and changes in traffic patterns in conjunction with recommended long-term improvements |
| IN-03 | 2 | Corridor Signal Retiming from SR 26/US 80/Louisville Road to Robert B. Miller Road | City of Savannah | - Conduct a 2.6 -mile-long corridor signal timing review to improve vehicular flow through time-of-day coordinated operations and optimize signal cycle length, splits, and offsets in conjunction with improvements constructed as part of project IN-02 <br> - Replace existing three-section permissive signal heads on SR 307 at Old Louisville Road intersection with four-section flashing yellow arrow signal heads <br> - Replace existing five-section protected/permissive signal heads on SR 307 at Robert B. Miller Road with four-section flashing yellow arrow signal heads |
| TS-01 | 4 | SR 307 Corridor Transit Expansion Study | Unincorporated Chatham County <br> City of Garden City City of Port Wentworth City of Pooler City of Savannah | - Coordinate with Chatham Area Transit (CAT) to review findings from the West Chatham Mobility Study and other recent studies conducted by CAT to inform recommendations for expanded service along 8.5-mile-long SR 307 corridor <br> - Coordinate with local Agencies, governing bodies, and other stakeholders to identify funding sources for construction and implementation of long-term improvements <br> - Assist development of potential route modifications to CAT Routes 3 and 17 <br> - Develop pilot program to track ridership numbers, identify new route(s) and stop/shelter location(s) |

Table 2: Recommended Long-Term Improvements Summary
Long-Term (5+ Years) Improvements

| Long-Term (5+ Years) Improvements |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| ID | Priority Ranking | Name | Jurisdiction(s) | Description of Improvements |
| IN-04 | 6 | SR 25/US 17/Ogeechee Road Intersection Improvements | Unincorporated Chatham County City of Garden City | - Install dual eastbound left-turn lanes with 300 feet of storage <br> - Remove free-flow channelization for the westbound right-turn lane to accommodate eastbound dual left-turn receiving lanes <br> - Shift westbound through lanes north to accommodate additional eastbound left-turn lane <br> - Modify signal phasing to provide protected-only operation for eastbound left-turn movement and permitted-overlap phasing for westbound right-turn movement <br> - Replace existing pedestrian signals, crosswalks, and ramps in accordance with GDOT Policy |
| IN-05 | 2B | Jamaica Run Road Signalization | City of Savannah City of Garden City | - Install a stop-and-go traffic signal to operate as part of a coordinated system with adjacent intersections after completion of project AC-01 <br> - Install a westbound left-turn lane and a westbound right-turn lane with 250 feet of storage <br> - Install all necessary pedestrian signals, crosswalks, and ramps in accordance with GDOT Policy |

RIDOR STUDY
F obr

| Long-Term (5+ Years) Improvements |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| ID | Priority Ranking | Name | Jurisdiction(s) | Description of Improvements |
| IN-06 | 2 C | Morgan Industrial Boulevard Signalization | City of Garden City City of Savannah | - Install a stop-and-go traffic signal to operate as part of a coordinated system with adjacent intersections after completion of project AC-01 <br> - Install all necessary pedestrian signals, crosswalks, and ramps in accordance with GDOT Policy |
| GS-01 | 1 | Grade Separation at CSX Crossing \#632473Y and SR 21/Augusta Road Interchange | Unincorporated Chatham County City of Garden City City of Port Wentworth | - Construct a grade-separated crossing of SR 307/Bourne Avenue over CSX Railroad crossing \#632473Y and SR 21/ Augusta Road <br> - Construct a signalized quadrant roadway system for access to and from SR 21/Augusta Road <br> - Modify traffic signal and construct dual southbound right-turn lanes with 525 feet of storage at Jimmy DeLoach Parkway <br> - Construct raised median along SR 307/Bourne Avenue from Commerce Boulevard/Export Boulevard to new signalized intersection west of Miller Tank Drive <br> - Construct raised median along SR 21/Augusta Road from Kaiser Chemical Road to new signalized intersection approximately 750 feet south of SR 307/Bourne Avenue <br> - Construct a 10 -foot-wide shared-use path on the west side of the interchange and a 5 -foot-wide sidewalk on the east side of SR 307/Bourne Avenue within the project limits to connect to projects GS-02 and PD-03 <br> - Extend 10 -foot-wide shared-use path along northeast quadrant ramp to SR 21/Augusta Road to connect to future pedestrian accommodations along SR 21/Augusta Road <br> - Reconfigure private access west of CSX Railroad on north and south sides of SR 307/Bourne Avenue <br> - Install roadway lighting at the grade separation <br> - Install pedestrian lighting adjacent to shared-use path and sidewalks |
| GS-02 | 4 | SR 307/Dean Forest Road Grade Separation at Norfolk Southern Crossing \#855067U | City of Garden City City of Savannah | - Construct a grade-separated crossing of SR 307/Dean Forest Road over Norfolk Southern crossing \#885067U <br> - Realign Bourne Avenue east to create a four-leg intersection at Westport driveway <br> - Construct raised median along SR 307/Dean Forest Road from Robert B. Miller Road to Bourne Avenue/Westport Driveway <br> - Construct 10-foot-wide shared-use path on west side and 5-foot-wide sidewalk on east side of SR 307/Dean Forest Road and connect to projects AC-02 and GS-01 <br> - Install roadway lighting at the grade separation <br> - Install pedestrian lighting adjacent to shared-use path and sidewalks |
| GS-03 | 3 | SR 26/US 80/Louisville Road Interchange | City of Garden City City of Pooler City of Savannah | - Construct an interchange at the intersection of SR 307/Dean Forest Road and SR 26/US 80/Louisville Road <br> - Construct raised median along SR 307/Dean Forest road from Morgan Industrial Boulevard to Old Louisville Road <br> - Replace dual northbound and southbound left-turn lanes constructed with IN-02 with a single northbound and southbound leftturn lanes on SR 307/Dean Forest Road <br> - Construct raised median and eastbound and westbound ramps along SR 26/US 80/Louisville Road with retaining walls to accommodate the interchange <br> - Install roadway lighting at the interchange <br> - Install pedestrian lighting adjacent to shared-use path and sidewalks |

SR 307
ORRIDOR STUDY


| Long-Term (5+ Years) Improvements |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| ID | Priority Ranking | Name | Jurisdiction(s) | Description of Improvements |
| AC-01 | 2A | Raised Median and Pedestrian Accommodations from Pine Meadow Drive to SR 26/US 80/Louisville Road | City of Garden City City of Pooler City of Savannah | - Construct raised median along SR 307/Dean Forest Road beginning 1,200 feet south of Pine Meadow Drive to Morgan Industrial Boulevard <br> - Construct a 10-foot-wide shared-use path on west side and 5-foot-wide sidewalk on east side of SR 307/Dean Forest Road <br> - Construct restricted crossing U-turn (RCUT) intersection at Old Dean Forest Road <br> - Construct southbound U-turn eyebrow at Prosperity Drive and Morgan Industrial Boulevard intersections <br> - Construct northbound U-turn eyebrow at Jamaica Run Road <br> - Install pedestrian signals, crosswalks, and ramps in accordance with GDOT Policy at all intersections to accommodate new shared-use path and sidewalk, including signal adjustments where necessary <br> - Install pedestrian lighting adjacent to shared-use path and sidewalks <br> - Connect to improvements constructed with GDOT PI No. 0013727 and Project GS-03 |
| AC-02 | 5 | Raised Median and Pedestrian Accommodations from SR 26/US 80/Louisville Road to Robert B. Miller Road | City of Garden City City of Pooler City of Savannah | - Construct raised median along SR 307/Dean Forest Road from SR 26/US 80/Louisville Road to Robert B. Miller Road <br> - Construct 10-foot-wide shared-use path on west side, and 5-foot-wide sidewalk on east side of SR 307/Dean Forest Road <br> - Construct northbound U-turn eyebrows at Old Louisville Road, Distribution Drive, and Davidson Road <br> - Construct southbound U-turn eyebrows at Sonny Perdue Drive and Product Support Road <br> - Construct restricted crossing U-turn (RCUT) intersection at Hangar Road/Darque Road and Billy B. Hair Drive <br> - Install pedestrian signals, crosswalks, and ramps in accordance with GDOT Policy at all intersections to accommodate new shared-use path and sidewalk, including signal adjustments where necessary <br> - Install pedestrian lighting adjacent to shared-use path and sidewalk <br> - Connect to improvements constructed with Project GS-02 |
| PD-01 | 8 | Pedestrian Accommodations from SR 25/US 17/ Ogeechee Road to Landfill Road | Unincorporated Chatham County City of Garden City City of Savannah | - Construct 10-foot-wide shared-use path on east side and 5-foot-wide sidewalk on west side of SR 307/Dean Forest Road <br> - Modify driveways along segment to accommodate new pedestrian facilities <br> - Install pedestrian lighting adjacent to shared-use path and sidewalk |
| PD-02 | 7 | Shared-Use Path from Landfill Road to I-16 Eastbound Ramps | Unincorporated Chatham County City of Garden City | - Replace existing sidewalk on east side of SR 307/Dean Forest Road with 10 -foot-wide shared-use path <br> - Modify driveways along segment to accommodate new shared-use path <br> - Install pedestrian lighting adjacent to shared-use path <br> - Connect to improvements constructed as part of GDOT PI No. 0013727 |
| PD-03 | 9 | Sidewalks from SR 21/Augusta Road Interchange to SR 25/Coastal Highway | Unincorporated Chatham County City of Garden City | - Construct a 5 -foot-wide sidewalk on both sides of SR 307/Bourne Avenue beginning approximately 1,000 feet west of Jimmy DeLoach Parkway <br> - Retrofit outside shoulders on existing bridge across GPA Mega-Rail to accommodate new 6.5 -foot-wide sidewalks on both sides of SR 307/Bourne Avenue <br> - Modify driveways along segment to accommodate new pedestrian facilities <br> - Install pedestrian lighting adjacent to sidewalks <br> - Connect to improvements constructed as part of GS-01 |
| TS-02 | 10 | SR 307 Corridor Transit Expansion | Unincorporated Chatham County City of Garden City City of Port Wentworth City of Pooler City of Savannah | - Construct improvements recommended by West Chatham Mobility Study and/or Project TS-01 <br> - Coordinate with CAT to install stop/shelter locations, pull-off areas, and route signage not already constructed by other longterm projects |

Table 3: Recommended Short-Term Improvements Cost Summary

| Short-Term (0-5 Years) Improvements Cost Estimates |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| ID | Priority Ranking | Name | Jurisdiction(s) | Estimated Costs |
| IN-01 | 3 | Distribution Drive Signalization | City of Pooler City of Savannah | \$695,000 |
| IN-02 | 1 | SR 26/US 80/Louisville Road Auxiliary Lanes | City of Garden City City of Pooler City of Savannah | \$3,190,000 |
| IN-03 | 2 | Corridor Signal Retiming from SR 26/US 80/Louisville Road to Robert B. Miller Road | City of Savannah | \$425,000 |
| TS-01 | 4 | SR 307 Corridor Transit Expansion Study | Unincorporated Chatham County City of Garden City City of Port Wentworth City of Pooler City of Savannah | \$75,000 |
|  |  |  | Total Cost of Short-Term Improvements | \$4,385,000 |

Table 4: Recommended Long-Term Improvements Cost Summary

| Long-Term (5+ Years) Improvements |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| ID | Priority Ranking | Name | Jurisdiction(s) | Estimated Costs |
| IN-04 | 6 | SR 25/US 17/Ogeechee Road Intersection Improvements | Unincorporated Chatham County City of Garden City | \$1,060,000 |
| IN-05 | 2B | Jamaica Run Road Signalization | City of Savannah City of Garden City | \$580,000 |
| IN-06 | 2 C | Morgan Industrial Boulevard Signalization | City of Garden City City of Savannah | \$760,000 |
| GS-01 | 1 | Grade Separation at CSX Crossing \#632473Y and SR 21/Augusta Road Interchange | Unincorporated Chatham County City of Garden City City of Port Wentworth | \$36,410,000 |
| GS-02 | 4 | SR 307/Dean Forest Road Grade Separation at Norfolk Southern Crossing \#855067U | City of Garden City City of Savannah | \$17,600,000 |
| GS-03 | 3 | SR 26/US 80/Louisville Road Interchange | City of Garden City City of Pooler City of Savannah | \$23,955,000 |
| AC-01 | 2A | Raised Median and Pedestrian Accommodations from Pine Meadow Drive to SR 26/US 80/Louisville Road | City of Garden City City of Pooler City of Savannah | \$19,300,000 |
| AC-02 | 5 | Raised Median and Pedestrian Accommodations from SR 26/US 80/Louisville Road to Robert B. Miller Road | City of Garden City City of Pooler City of Savannah | \$28,560,000 |

SR 307
RIDOR STUDY


| Long-Term (5+ Years) Improvements |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| ID | Priority Ranking | Name | Jurisdiction(s) | Estimated Costs |
| PD-01 | 8 | Pedestrian Accommodations from SR 25/US 17/ Ogeechee Road to Landfill Road | Unincorporated Chatham County City of Garden City City of Savannah | \$3,540,000 |
| PD-02 | 7 | Shared-Use Path from Landfill Road to I-16 Eastbound Ramps | Unincorporated Chatham County City of Garden City | \$2,285,000 |
| PD-03 | 9 | Sidewalks from SR 21/Augusta Road Interchange to SR 25/Coastal Highway | Unincorporated Chatham County City of Garden City | \$2,175,000 |
| TS-02 | 10 | SR 307 Corridor Transit Expansion | Unincorporated Chatham County <br> City of Garden City City of Port Wentworth City of Pooler City of Savannah | \$250,000 |
| Total Cost of Long-Term Improvements |  |  |  | \$136,475,000 |

Note: Cost estimates presented in this report are opinions of probable cost, and the study team has no control over the cost of labor, materials, equipment, or the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on information known to the study team at this time and represent only the study team's judgment as professionals familiar with the construction industry. The study team cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinion of probable costs.

## 2 Introduction

The SR 307 corridor extends approximately 8.5 miles through the heart of Chatham County, Georgia between SR 25/US 17/Ogeechee Road to the south and SR 25/Coastal Highway at the Port of Savannah's Garden City Terminal to the north. As a Georgia Statewide Designated Freight Corridor that serves as a primary artery to the Georgia Ports Authority's (GPA) Garden City Terminal (GCT) with approximately one mile of frontage with the Savannah/Hilton Head International Airport, SR 307 provides connectivity to more than 18,000 jobs within a one-mile radius of its centerline and is a critical component of the region's economic and community vitality. Moreover, Georgia Department of Transportation (GDOT) Annual Average Daily Traffic (AADT) data suggests that as many as 117,000 vehicles per day (VPD) cross the SR 307 corridor on intersecting routes. As a result, the corridor serves not just as a gateway to the Port of Savannah and adjacent activity centers, but also as a required point of passage to and from downtown Savannah. Maintaining mobility and safety along and across this multijurisdictional corridor-which traverses the boundaries of the cities of Savannah, Pooler, Port Wentworth, and Garden City-is key to the long-term success of the surrounding area.

Sustained safe and efficient movement of people and goods hinges on effective transportation planning. As such, the primary goals and objectives of the SR 307 Corridor Study are:

- Identify and prioritize short-term (0-5 Years) and long-term (5+ Years) improvement projects needed for the SR 307 corridor to operate at an acceptable level of service.
- Prioritize recommended improvements to facilitate planning and programming of projects through the Coastal Region Metropolitan Planning Organization (CORE MPO) Metropolitan Transportation Plan (MTP) process.
- Justify the future programming of projects in the CORE MPO's Transportation Improvement Program (TIP) and Total Mobility Plan.

As a supporting document to the CORE MPO MTP process, this study's goals, objectives, and outcomes are intended to align closely with those highlighted in the CORE MPO's Mobility 2045 MTP. The goals and objectives of the MTP focus on the safety, security, resiliency, accessibility, mobility, and sustainability of transportation options available to people and freight. Based on the Federal Highway Administration's (FHWA) Transportation Performance Management (TPM) strategy, the MTP outlines several key performance measures used to inform transportation investment decisions. Some of the measures most relevant to this study include:

- Reduce the frequency and severity of crashes involving motorized and non-motorized road users. A total of 1,466 crashes occurred along the SR 307 corridor over the five-year period from 2015-2019. Of these, 339 (23\%) involved at least one injury.
- Reduce the number of at-grade railroad crossings. The corridor includes four highway-rail at-grade crossings, three of which are located in a 0.7 -mile-long segment between SR 21/ Augusta Road and Robert B. Miller Road. Per data from the Federal Railroad Administration (FRA) Highway-Rail Crossing Inventory, 59 trains cross the corridor daily, and 25 (42\%) of these crossings occur between 6AM and 6PM.
- Improve emergency response time and hurricane evacuation routes. According to data from the Chatham Emergency Management Agency, l-16, SR 26/US 80/Louisville Road, and

SR 21/Augusta Road are three of the major hurricane evacuation routes for the region. Both SR 26/US 80/Louisville Road and SR 21/Augusta Road must traverse at-grade intersections with SR 307 that exhibit long peak hour delays. The 2016 CORE MPO Congestion Management Process (CMP) Report Card cited the segments of SR 21/Augusta Road passing through SR 307 as top 15 among the most congested roadway segments in Chatham County.

- Minimize work and freight trip congestion by improving efficient access to job centers and maximizing truck travel time reliability. The GPA supports more than 369,000 jobs and $\$ 20.4$ billion in personal income annually, and Savannah/Hilton Head International Airport is the second busiest commercial airport in Georgia, serving as world headquarters for Gulfstream Aerospace. Numerous existing at-grade railroad crossings, intersection bottlenecks, and access management deficiencies act as impediments to maintaining these economic engines.

The remainder of this document is organized as follows:
Section 3 | Existing Conditions Assessment: This section summarizes a comprehensive data collection effort, capacity analysis, and safety analysis conducted to assess existing conditions along the SR 307 corridor and identify transportation challenges, needs, and opportunities to be considered throughout the remainder of the study.

Section 4 | Future Conditions Assessment: Known improvement projects, approved developments, and growth at the GPA's GCT are detailed with respect to growth in traffic volumes on the SR 307 corridor, and horizon year traffic forecasts are presented. Conceptual alternatives for the corridor are introduced, categorized by likely implementation timeframe, and evaluated against a baseline "No-Build" condition through traffic analyses conducted under short- and long-term time horizons.

Section 5 | Public Outreach: Stakeholder outreach strategies, meeting summaries, and consistent topics of feedback are presented.

Section 6 | Recommendations: The key findings from Section 3 through Section 5 are utilized to develop a list of specific projects to be considered as part of future programming efforts. A TIP Project Page including the location, cost, and scope of each project is provided for future reference.

Though the outcomes of this study may be used to justify the programming of future TIP projects, conditions on the SR 307 corridor should be monitored over time, and future traffic analysis and design efforts should be refined based on then current data.

## 3 Existing Conditions Assessment

### 3.1 Study Area, Corridor Characteristics, \& Field Observations

The study area for this project is summarized in Figure 5 and includes the entirety of the SR 307 corridor, from SR 25/US 17/Ogeechee Road to the south to SR 25/Coastal Highway at GPA's GCT Gate 4 to the north. Across this 8.5 -mile-long stretch, a total of 27 intersections were included in traffic analyses, 13 of which are currently signalized. The SR 307 corridor segments bisect the heart of Chatham County and include the major intersecting roadways that serve downtown historic Savannah and the surrounding area. Consequently, a diverse set of context areas exist along the corridor-from the residential communities south of I-16, to the industrial activity hub that surrounds SR 26/US 80/Louisville Road, to the truck-centered port gateway near the GCT. Six distinct context areas were identified and independently assessed as part of this existing conditions assessment. Key characteristics of each segment identified through data collection and field observations are described on the following pages and in Figure 6. For reporting purposes, SR 307 is assumed to have a north-south orientation from SR 25/US 17/Ogeechee Road to Robert B. Miller Road and an east-west orientation from Robert B. Miller Road to SR 25/Coastal Highway.

### 3.1.1 Segment 1 - Community Gateway

Segment 1 constitutes a 2.4-mile-long section of SR 307 between SR 25/US 17/Ogeechee Road and l-16. Truck volumes are notably lower on this segment relative to the rest of the corridor as surrounding land uses are predominantly residential and municipal, including the Southbridge community, Garden City's City Hall, and Chatham Emergency Services Station 12. Key characteristics of this segment are summarized in Table 5, and existing geometry, traffic volume by time of day, and field-collected photographs are provided in Figure 6. Environmental features along this segment are summarized in Figure 7.

## Traffic Characteristics

Daily traffic volumes on this segment of SR 307 are significantly less than the theoretical capacity of a typical four-lane divided roadway, with 2021 AADT estimates ranging from 11,000 to 15,000 VPD and truck percentages ranging between $2 \%$ and $4 \%$ from 6:00AM to 6:00PM. Field conditions are reflective of this finding, as little to no congestion was observed during the AM and PM peak hours of travel, and only minor queues were observed at the segment's major traffic generators (i.e., Southbridge Boulevard/Town Center Drive) and the primary intersecting arterial (SR 25/US 17/Ogeechee Road). As shown in Table 5, approximately 54 driveways exist along Segment 1; however, the 2015 widening of SR 307 from two to four lanes introduced a raised median and turn bays, leaving only eight median openings and providing for efficient corridor operations.

## Non-Motorist Facilities

A sidewalk is present along both sides of SR 307 between Southbridge Boulevard and Landfill Road. Approximately 1,500 feet south of Landfill Road, the sidewalk transitions to a bike shoulder (6-foot to 10foot outside shoulder) and continues south to the intersection with SR 25/US 17/Ogeechee Road. At this intersection, pedestrian accommodations (e.g., pedestrian signal heads and marked crosswalks) are
provided without a supporting sidewalk or shared use path as shown in Figure 6. Field observations confirmed little pedestrian activity at this location. In contrast to the available facilities, the CORE MPO Non-Motorized Transportation Plan highlights the segment of SR 307 near Southbridge Boulevard as a Pedestrian Focus Area and recommends a shared use path along the entire length of the SR 307 corridor.

## Environmental Features

The Hardin Canal, which serves a drainage area of approximately 18 square miles, runs parallel to SR 307 from just south of Landfill Road to SR 25/US 17/Ogeechee Road. This resource feeds the Little Ogeechee River and abuts an estuarine and marine wetland. These features provide critical flood control but leave limited developable land along Segment 1 south of Landfill Road.

Table 5: Segment 1 - Community Gateway Corridor Characteristics

| Geometric and Functional Characteristics |  |
| :---: | :---: |
| Extents | SR 25/US 17/Ogeechee Road to I-16 Interchange (2.4 Miles) |
| Typical Cross Section | Typical Section: Four-Lane Divided with a Raised Median and Sidewalk/Bike Shoulders Typical Lane Widths: $12^{\prime}$ Travel Lanes, Curb and Gutter/6'-10' Outside Shoulder |
| Speed Limit | 45 MPH ( 35 MPH within $1 / 8$ mile of SR 25/US 17/Ogeechee Road) |
| Number of Driveways | 54 (23 Driveways/Mile) |
| Number of Median Openings | 8 |
| Number of Signalized Intersections | 2 |
| Major Intersecting Roadways |  |
| SR 25/US 17/Ogeechee Road | Cross Section: Five-Lane with Flush Median and Bike Shoulders <br> Speed Limit: 45 MPH <br> 2021 AADT ${ }^{1}$ : 30,500 VPD west of SR 307 and 25,500 VPD east of SR 307 |
| Traffic Characteristics |  |
| Existing Traffic Volume Data ${ }^{1}$ | 2021 AADT ${ }^{1}$ : 11,100 VPD south to 14,500 VPD north <br> Bi-Directional Peak Hour Volume: 950 VPH south to 1,250 VPH north <br> K Factor: 8.6\% <br> Daily Truck Percentage: 3.9\% |
| Traffic Growth Projections ${ }^{2}$ | 10-Year Historic Growth Rate: 4.5\% <br> 30-Year Travel Demand Model Growth Rate: 0.5\% |

${ }^{1}$ Existing traffic volume data represents an average across the 48-hour classification counts collected along the study segment; seasonal and COVID-19 adjustment factors were applied to these AADTs
${ }^{2}$ Traffic growth projections were derived from GDOT historic AADT and CORE MPO Travel Demand Model Outputs (2015 Base Year - 1st Network vs. 2045 Financially Constrained - 6th Network)




### 3.1.2 Segment 2 - Industrial South

Segment 2 is approximately 1.8 miles in length, extending from I-16 to SR 26/US 80/Louisville Road. Land uses along this segment are commercial in nature near l-16 but predominantly heavy industrial elsewhere. Two mobile home parks, Savannah Pines and Nassau Woods, are located along the eastern frontage of SR 307 between Pine Meadow Road and Clyde Alexander Way. Key characteristics of this segment are summarized in Table 6, and existing geometry, traffic volume by time of day, and fieldcollected photographs are provided in Figure 8. Environmental features along this segment are summarized in Figure 9.

## Traffic Characteristics

Like Segment 1, daily traffic volumes on Segment 2 are less than the theoretical capacity of a typical fivelane/flush median roadway, with 2021 AADT estimates ranging from 17,000 VPD to 23,000 VPD and truck percentages ranging between 9\% and 18\% from 6:00 AM to 6:00 PM. However, the endpoints of the segment, I-16 and SR 26/US 80/Louisville Road, each function as bottlenecks during the AM and PM peak periods of travel. The bottleneck at I-16 is the most significant of these, with a maximum queue length of 0.25 miles and 0.60 miles observed on southbound SR 307 during the AM and PM peak periods, respectively. During the PM peak period, this queue was observed to extend from the I-16 westbound ramps to just beyond Prosperity Drive due to heavy demand for the southbound right-turn movement to westbound I-16.

Accompanying field travel time runs indicated an average travel speed of 26 MPH on Segment 2 between 4:30 PM and 5:30 PM, which is nearly 20 MPH below the posted speed limit. Congestion at the I-16 ramp terminals is partially attributable to constrained geometry on the existing bridge structure, which is only wide enough to accommodate a total of four travel lanes and a single left-turn lane in each direction over its 350 -foot length. Consequently, field observations indicated that left-turn queues frequently exceeded the existing turn bay storage length. GDOT PI No. 0013727 will widen the existing bridge and convert the $\mathrm{I}-16$ at SR 307 interchange to a diverging diamond configuration. This project is under construction with a substantial completion date of July 2023. Additionally, GDOT PI No. 0012758 is currently under construction and will widen I-16 to a six-lane Interstate facility between I-95 and I-516, with a collectordistributor roadway in the northbound direction that should benefit travel to and from the study corridor via l-16.

At SR 26/US 80/Louisville Road, northbound right-turn movements on SR 307 share one of two northbound through lanes, and heavy trucks often inhibit through progression while making wide turns onto SR 26/US 80/Louisville Road. Additionally, a Georgia Central Railway (Genesee \& Wyoming) highway-rail at-grade crossing is located approximately 900 feet south of the intersection. According to data from FRA, only four trains cross SR 307 at this location daily, and none were noted during the field observations conducted as part of this study. As such, it is expected that this at-grade crossing has minimal impact on peak hour traffic operations.

## Roadway Geometry/Access Management

As shown in Table 6, approximately 45 full-movement driveways are present along the Segment 2 corridor, which is equivalent to a spacing of 25 driveways per mile. According to AAHSTO's A Policy on Geometric Design of Highways and Streets, $7^{\text {th }}$ Edition - or "Green Book" - and research conducted as
part of National Cooperative Highway Research Program (NCHRP) Report 420: Impacts of Access Management Techniques, each additional access point per mile increases the expected crash rate per million vehicle miles of travel by $3 \%$. As such, the Segment 2 corridor may provide opportunities to enhance safety and facilitate smoother operations through driveway consolidation or other access management strategies. Multiple offset T-intersections and examples of atypical intersection approach geometry also exist along the corridor, as depicted in the photos in Figure 8.

## Non-Motorist Facilities

There are currently no pedestrian or bicycle facilities along the Segment 2 corridor, which exhibits a pedestrian/bicycle level of service (LOS) of F according to the CORE MPO Non-Motorized Transportation Plan. This plan also identified the section near SR 26/US 80/Louisville Road as a Pedestrian Focus Area.

Table 6: Segment 2 - Industrial South Corridor Characteristics

| Geometric and Functional Characteristics |  |
| :---: | :---: |
| Extents | I-16 Interchange to SR 26/US 80/Louisville Road (1.8 Miles) |
| Typical Cross Section | Typical Section: Five-Lane with Flush Median/Two-Way Left-Turn Lane (TWLTL) Typical Lane Widths: 12’ Travel Lanes, 14’ TWLTL, Curb and Gutter |
| Speed Limit | 45 MPH |
| Number of Driveways | 45 (25 Driveways/Mile) |
| Number of Median Openings | N/A - Two-Way Left-Turn Lane (TWLTL) |
| Number of Signalized Intersections | 3 |
| Major Intersecting Roadways |  |
| I-16 Eastbound/Westbound Ramps | 2021 AADT¹: <br> - I-16 Eastbound Off-Ramp: 7,500 VPD <br> - I-16 Eastbound On-Ramp: 6,500 VPD <br> - I-16 Westbound Off-Ramp: 7,000 VPD ${ }^{2}$ <br> - I-16 Westbound On-Ramp: 7,200 VPD |
| Traffic Characteristics |  |
| Existing Traffic Volume Data ${ }^{1}$ | 2021 AADT ${ }^{1}$ : 17,000 VPD north to 23,500 VPD south <br> Bi-Directional Peak Hour Volume: 1,200 VPH north to 1,650 VPH south K Factor: = 7.0\% <br> Daily Truck Percentage: 15.1\% |
| Traffic Growth Projections ${ }^{3}$ | 10-Year Historic Growth Rate: -1.0\% <br> 30-Year Travel Demand Model Growth Rate: 0.1\% |

${ }^{1}$ Existing traffic volume data represents an average across the 48-hour classification counts collected along the study segment; seasonal and COVID-19 adjustment factors were applied to these AADTs
${ }^{2}$ Ongoing construction on l-16 may have influenced traffic counts at this location
${ }^{3}$ Traffic growth projections were derived from GDOT historic AADT and CORE MPO Travel Demand Model Outputs (2015 Base Year - 1st Network vs. 2045 Financially Constrained - 6th Network)



### 3.1.3 Segment 3 - Industrial Central

Segment 3 is a 1.3-mile-long segment that runs between SR 26/US 80/Louisville Road and Product Support Road. The CenterPoint Intermodal Center and Norfolk Southern Savannah Yard are accessible from Sonny Perdue Drive and Old Louisville Road, with additional heavy industrial centers located adjacent to SR 26/US 80/Louisville Road to the east and west. Key characteristics of this segment are summarized in Table 7, and existing geometry, traffic volume by time of day, and field-collected photographs are provided in Figure 10. Environmental features along this segment are summarized in Figure 11.

## Traffic Operations

Along Segment 3, 2021 AADT estimates range between 17,500 VPD and 20,000 VPD, and truck percentages range between 12\% and $30 \%$ from 6:00 AM to 6:00 PM. As shown in Figure 10, approximately one in every five vehicles on SR 307 is a heavy truck during the peak periods. A similar proportion is observed on SR 26/US 80/Louisville Road at the segment's southern terminus. The combination of heavy truck traffic and peak hour commuting passenger car traffic leads to significant queueing on SR 26/US 80/Louisville Road during both peak periods and on southbound SR 307 during the PM Peak period. Field observations indicated that queues on eastbound SR 26/US 80/Louisville Road extend as far as Triplett Park Drive (approximately 0.9 miles west of SR 307) during the AM peak period and through the Florida Rock and Tank Lines commercial driveway (approximately 0.4 miles east of SR 307) during the PM peak period.

While congestion was observed at its maximum after 5:00 PM on SR 26/US 80/Louisville Road, field observations indicated that queues form and dissipate sooner on southbound SR 307. By 4:15 PM, queueing was observed through the intersection with Distribution Drive on SR 307 (approximately 0.5 miles north of SR 26/US 80/Louisville Road). These queues seemed to align with high passenger car volumes exiting the CenterPoint Intermodal facility on Sonny Perdue Drive and with increased heavy truck activity at the Port of Savannah. Field travel time runs conducted during the same period yielded an average travel speed of 14 MPH between Jimmy DeLoach Parkway and SR 26/US 80/Louisville Road, with most of the delay occurring as part of congestion observed on this segment. Based on field observations, congestion on southbound SR 307 begins to dissipate just after 5:00PM, coinciding with a moderate decrease in truck traffic along the corridor.

Heavy truck traffic plays a prominent role in existing operational issues along Segment 3. The photos in Figure 10 highlight the significant truck presence on both SR 307 and SR 26/US 80/Louisville Road during the peak periods of travel, which is commensurate with the surrounding land use and overall corridor context. A survey of 887 truck trips to/from the GCT, including 411 accessing Gate 3 and 476 accessing Gate 4 (located at the northern terminus of SR 307), was conducted as part of the most recent Georgia State Freight and Logistics Plan (GDOT, 2018). This survey concluded that 63\% of the sample originated in or were destined for locations within Chatham County, with most within a few miles of the Port of Savannah. Approximately $80 \%$ of all truck trips to/from the GCT access via Gate 3 and Gate 4. The heavy industrial centers located along SR 26/US 80/Louisville Road, Old Louisville Road, Sonny Perdue Drive, and SR 307 represent a significant portion of the warehousing origins and destinations in Chatham County and are most accessible via the SR 307 corridor. As a result, high truck turning movement volumes are observed along Segment 3 throughout the day. At SR 26/US 80/Louisville Road,
field observations indicated that wide, southbound right-turn movements made by heavy trucks in the shared through/right-turn lane on SR 307 are a major contributor to congestion. Where queue storage is available, each tractor-trailer utilizes the same amount of turn bay storage as approximately three passenger cars, which increases the likelihood of queue spillback issues. The presence of a center twoway left-turn lane (TWLTL) reduces impacts of these queues to the major street traffic streams.

Table 7: Segment 3 - Industrial Central Corridor Characteristics

| Geometric and Functional Characteristics |  |
| :---: | :---: |
| Extents | SR 26/US 80/Louisville Road to Product Support Road (1.3 Miles) |
| Typical Cross Section | Typical Section: Five-Lane with Flush Median/Two-Way Left-Turn Lane (TWLTL) Typical Lane Widths: $12^{\prime}$ Travel Lanes, $14^{\prime}$ TWLTL, Curb and Gutter |
| Speed Limit | 45 MPH |
| Number of Driveways | 22 (17 Driveways/Mile) |
| Number of Median Openings | N/A - TWLTL |
| Number of Signalized Intersections | 2 |
| Major Intersecting Roadways |  |
| SR 26/US 80/Louisville Road | Cross Section: Five-Lane with Flush Median/Two-Way Left-Turn Lane (TWLTL) Speed Limit: 45 MPH <br> 2021 AADT': 24,000 VPD west of SR 307 to 19,000 VPD east of SR 307 |
| Old Louisville Road | Cross Section: Two-Lane Undivided <br> Speed Limit: 25 MPH west of SR 307 and 35 MPH east of SR 307 <br> 2021 AADT ${ }^{1}$ : 1,500 VPD west of SR 307 to 3,500 VPD east of SR 307 |
| Traffic Characteristics |  |
| Existing Traffic Volume Data ${ }^{1}$ | 2021 AADT¹: 17,500 VPD north to 20,000 VPD south <br> Bi-Directional Peak Hour Volume: 1,240 VPH north to 1,450 VPH south <br> K Factor: = 7.3\% <br> Daily Truck Percentage: 22.0\% |
| Traffic Growth Projections ${ }^{2}$ | 10-Year Historic Growth Rate: 1.7\% <br> 30-Year Travel Demand Model Growth Rate: 0.5\% |

${ }^{1}$ Existing traffic volume data represents an average across the 48-hour classification counts collected along the study segment; seasonal and COVID-19 adjustment factors were applied to these AADTs
${ }^{2}$ Traffic growth projections were derived from GDOT historic AADT and CORE MPO Travel Demand Model Outputs (2015 Base Year - 1st Network vs. 2045 Financially Constrained - 6th Network)

## Roadway Geometry/Access Management

Like Segment 2, Segment 3 exhibits a relatively high driveway density, with approximately 17 driveways per mile. Segment 3 also includes a continuous, center TWLTL. Though the access characteristics of this segment offer opportunities for safety and operational improvements through various access management strategies, geometry constraints for heavy truck traffic present greater challenges under existing conditions. The operational issues discussed previously along with photos presented in Figure 10 provide a few examples of locations where existing roadway laneage and/or turning radii are not appropriate given the heavy truck volumes observed at the major and minor street approaches along the corridor. As such, intersection-level improvements may also be warranted along this segment.

## Non-Motorist Facilities

There are no existing pedestrian or bicycle facilities along the Segment 3 corridor, which exhibits a pedestrian/bicycle level of service (LOS) of F according to the CORE MPO Non-Motorized Transportation Plan. This plan also identified the section near SR 26/US 80/Louisville Road as a Pedestrian Focus Area.

## Environmental Features

As shown in Figure 11, Pipemakers Canal crosses the SR 307 corridor between Sonny Perdue Drive and Product Support Road. The original Pipemakers Creek was converted to a canal in 1930, and a multi-phase improvement project, including bridge crossing improvements and canal widening, is nearly complete for the entirety of the canal's length between SR 26/US 80/Louisville Road in Pooler to the Savannah River in Garden City. This canal is a vital component of the Savannah area's drainage infrastructure and is surrounded by freshwater forested/shrub wetland spanning east-to-west between the Savannah/Hilton Head International Airport and SR 21/Augusta Road.



Kimley»»Horn

## Figure 11

Segment 3 - Industrial Central Environmental Features Map

### 3.1.4 Segment 4 - Airport

Segment 4 includes the entirety of the Savannah/Hilton Head International Airport and Georgia Air National Guard frontage on SR 307. This 1-mile-long segment is comprised of largely vacant land opposite the airport and extends through Robert B. Miller Road, which provides connectivity to Gulfstream Road, Pooler Parkway, and I-95. Key characteristics of this segment are summarized in Table 8, and existing geometry, traffic volume by time of day, and field-collected photographs are provided in Figure 12. Environmental features along this segment are summarized in Figure 13.

Table 8: Segment 4 - Airport Corridor Characteristics

| Geometric and Functional Characteristics |  |
| :---: | :---: |
| Extents | Product Support Road to Robert B. Miller Road (1 Mile) |
| Typical Cross Section | Typical Section: Five-Lane with Flush Median/Two-Way Left-Turn Lane (TWLTL) Typical Lane Widths: $12^{\prime}$ Travel Lanes, $14^{\prime}$ TWLTL, Curb and Gutter |
| Speed Limit | 45 MPH |
| Number of Driveways | 8 (8 Driveways/Mile) |
| Number of Median Openings | N/A - TWLTL |
| Number of Signalized Intersections | 3 |
| Major Intersecting Roadways |  |
| Robert B. Miller Road | Cross Section: Four-Lane Undivided Speed Limit: 25 MPH <br> 2021 AADT ${ }^{1}$ : 6,000 VPD |
| Traffic Characteristics |  |
| Existing Traffic Volume Data ${ }^{1}$ | 2021 AADT ${ }^{1}$ : 17,000 VPD (Average) <br> Bi-Directional Peak Hour Volume: 1,300 VPH (Average) <br> K Factor: = 7.6\% <br> Daily Truck Percentage: 22.7\% |
| Traffic Growth Projections ${ }^{2}$ | 10-Year Historic Growth Rate: 0.6\% <br> 30-Year Travel Demand Model Growth Rate: 0.6\% |

${ }^{1}$ Existing traffic volume data represents an average across the 48-hour classification counts collected along the study segment; seasonal and COVID-19 adjustment factors were applied to these AADTs
${ }^{2}$ Traffic growth projections were derived from GDOT historic AADT and CORE MPO Travel Demand Model Outputs (2015 Base Year - 1st Network vs. 2045 Financially Constrained - 6th Network)

## Traffic Operations

Segment 4 AADT estimates for 2021 average approximately 17,000 VPD, and truck percentages range between 19\% and 32\% from 6:00 AM to 6:00 PM. Field observations indicated no major operational issues along this segment of SR 307 as the corridor's major intersecting roadway, Robert B. Miller Road, forms a T-intersection with SR 307 and functions efficiently under signal control. Moderate eastbound left- and right-turn volumes were observed on Product Support Road during the PM peak period but yielded only minor delay and queueing on each approach. Nonetheless, maintaining adequate traffic conditions on Segment 4 is critical to supporting business operations at the airport and surrounding facilities into the future.

## Non-Motorist Facilities

There are currently no pedestrian or bicycle facilities along the Segment 4 corridor. However, as shown in Figure 12, pedestrian accommodations (e.g., pedestrian signal heads and marked crosswalks) are provided at multiple intersections without a supporting sidewalk or shared use path. The CORE MPO Non-Motorized Transportation Plan recommends a shared use path along the entire length of the SR 307 corridor.

## Environmental Features

As shown in Figure 13, a freshwater forested/shrub wetland spans the length of Segment 4 along the eastern frontage of SR 307 limits development potential throughout the 1-mile-long stretch beyond that which already exists. Nevertheless, the study team has learned of plans for a new industrial development with access to SR 307 via Davidson Road.



Figure 13
Segment 4 - Airport Environmental Features Map

### 3.1.5 Segment 5 - Industrial North

Segment 5 includes the 0.9-mile-long segment of SR 307 from Robert B. Miller Road to SR 21/ Augusta Road. Despite this relatively short length, this segment exhibits unique characteristics relative to the rest of the SR 307 corridor, including three highway-rail at-grade crossings and dense industrial development along its frontage. Key characteristics of this segment are summarized in Table 9, and existing geometry, traffic volume by time of day, and field-collected photographs are provided in Figure 14. Environmental features along this segment are summarized in Figure 15. For reporting purposes, SR 307 is assumed to have an east-west orientation along Segment 5 and Segment 6.

## Traffic Operations

Segment 5 AADT estimates for 2021 range between 14,000 VPD and 17,000 VPD with truck percentages between 12\% and 47\% from 6:00 AM to 6:00 PM. Field observations confirm that truck volumes and traffic operations along this segment of the SR 307 corridor are heavily influenced by activity at the GCT. As evidenced in the photos in Figure 14, the initial spike in early-morning port activity coincides with heavy commuting traffic on southbound SR 21/Augusta Road, which leads to significant queueing on the southbound approach to the intersection with SR 307. By 7:50 AM, field-observed queues extended beyond Grange Road (approximately 0.6 miles north of SR 307) on southbound SR 21/Augusta Road. On eastbound SR 307, queues consistently spilled back to the crossbuck pavement markings (approximately 700 feet west of SR 21/Augusta Road) due to the large volume of heavy truck traffic and available green time provided during the signal cycle.

Nearly 75 feet of vehicle storage is lost on all lanes of the eastbound approach on SR 307 due to the proximity of a CSXT highway-rail at-grade crossing located just under 150 feet west of the intersection with SR 21/Augusta Road. As a result, there is only enough space for two tractor-trailers to store at the stop line of the main intersection, and the saturation flow rate (i.e., maximum number of vehicles that can be processed on this approach when operating at capacity) is reduced due to the slowing of vehicles as they traverse the at-grade railroad crossing. Furthermore, from a passenger car's perspective, the signal heads at the main intersection are difficult to see when stopped behind a tractor trailer, creating a tendency to accelerate across the railroad tracks and through the intersection with SR 21/Augusta Road more cautiously.

As demonstrated through field observations, capacity analysis, and existing crash history, the intersection of SR 21/Augusta Road with SR 307 is likely the most critical node within the study network. A few noteworthy considerations include:

- SR 21/Augusta Road serves as a major hurricane evacuation route and commuting corridor.
- SR 307 serves as a gateway to the Port of Savannah, servicing GPA Gate 4 - one of the two busiest truck access points by volume - and connects to heavy industrial land uses near SR 26/US 80/Louisville Road.
- Daily truck percentages exceed $55 \%$ on this segment of SR 307, while SR 21/Augusta Road exhibits a daily truck percentage of only 9\% based on data from GDOT count station 051-0118.
- Between 2015 and 2019, three of the nine fatal crashes along the SR 307 study corridor occurred at or near the intersection with SR 21/Augusta Road. Of these, two involved a collision between a tractor-trailer and a passenger car.

Each of these bullet points underscores a primary need and opportunity along this segment of the SR 307 corridor: separation of passenger car and heavy truck traffic. Existing data shows that the interaction between the passenger car and truck traffic streams during the peak periods is a hindrance to both operations and safety. Minimizing this interaction and otherwise improving the efficiency of the corridor's bottleneck at SR 21/Augusta Road are integral to supporting continued growth at the Port of Savannah while maintaining the utility of SR 307 as a vital connecting route and SR 21/Augusta Road as a key regional arterial.

## Roadway Geometry/Access Management

As noted for Segment 3, heavy truck origin-destination patterns drive much of the operational characteristics of the SR 307 corridor between SR 26/US 80/Louisville Road and the GCT. Within the past five years, Jimmy DeLoach Parkway was extended to SR 307, and it provides access to I-95 via a limited access facility (completed in 2016). Interestingly, the dual southbound left-turn lanes on SR 21/Augusta Road do not appear necessary based on field observations, as trucks now have a more advantageous route for accessing GCT Gate 4 from I-95 and other origins north of the corridor. A reduction from two to one southbound left-turn lane would provide additional right-of-way for future widening of SR 21/Augusta Road to tie into the existing six-lane section that begins at Smith Avenue to the south. Roadway widening, grade separation, or alternative intersection designs at the intersection with SR 307 could improve operational efficiency and reduce vehicular conflict points.

Three highway-rail at-grade crossings traverse SR 307 within a 0.7 -mile-long section, and two of these railways are highly trafficked during the heart of an average workday:

- USDOT Crossing ID 855067U (approximately 0.12 miles east of Robert B. Miller Road)
- Operated by Norfolk Southern
- 13 Day Through Trains (6AM - 6PM)
- 3 Night Through Trains (6PM - 6AM)
- 12 Switching Trains
- USDOT Crossing ID 635113 L (approximately 0.4 miles east of Robert B. Miller Road)
- Operated by CSX Transportation with joint Amtrak service
- 2 Day Through Trains (6AM - 6PM)
- 4 Night Through Trains (6PM - 6AM)
- 3 Switching Trains
- USDOT Crossing ID 632473Y (approximately 150 feet west of SR 21/Augusta Road)
- Operated by CSX Transportation with joint Amtrak service
- 8 Day Through Trains (6AM - 6PM)
- 9 Night Through Trains (6PM - 6AM)
- 1 Switching Train

The crossing nearest Robert B. Miller Road, USDOT Crossing ID 855067U, averages one train per hour, between 6AM and 6PM, while the crossing nearest SR 21/Augusta Road, USDOT Crossing ID 632473Y, serves approximately one train every 1.5 hours during the same period. The USDOT Crossing Inventory Form for the latter also notes that the average speed of trains crossing SR 307 is between 60 MPH and 80 MPH . Though only one through train was observed in the field, at USDOT Crossing ID 855067U, these frequent interruptions to through traffic during peak periods of the day likely exacerbate existing operational deficiencies along this segment of the SR 307 corridor. Additionally, the limited spacing between USDOT Crossing ID 632473Y and SR 21/Augusta Road has the potential to present safety concerns, especially in the context of substantial heavy truck traffic.

Table 9: Segment 5 - Industrial North Corridor Characteristics

| Geometric and Functional Characteristics |  |
| :---: | :---: |
| Extents | Robert B. Miller Road to SR 21/Augusta Road (0.9 Miles) |
| Typical Cross Section | Typical Section: Four-Lane Divided with a Raised Median Typical Lane Widths: 12' Travel Lanes, Curb and Gutter |
| Speed Limit | 45 MPH |
| Number of Driveways | 7 (8 Driveways/Mile) |
| Number of Median Openings | 5 |
| Number of Signalized Intersections | 2 |
| Major Intersecting Roadways |  |
| SR 21/Augusta Road | Cross Section: Four-Lane Divided with Depressed Median <br> Speed Limit: 45 MPH <br> 2021 AADT ${ }^{1}$ : 31,000 VPD north of SR 307 to 37,000 VPD south of SR 307 |
| Traffic Characteristics |  |
| Existing Traffic Volume Data ${ }^{1}$ | 2021 AADT ${ }^{1}$ : 14,000 VPD south to 17,000 VPD north <br> Bi-Directional Peak Hour Volume: 1,000 VPH south to 1,200 VPH north K Factor: = 7.1\% <br> Daily Truck Percentage: 31.4\% |
| Traffic Growth Projections ${ }^{2}$ | 10-Year Historic Growth Rate: N/A <br> 30-Year Travel Demand Model Growth Rate: 0.0\% |

${ }^{1}$ Existing traffic volume data represents an average across the 48-hour classification counts collected along the study segment; seasonal and COVID-19 adjustment factors were applied to these AADTs
${ }^{2}$ Traffic growth projections were derived from GDOT historic AADT and CORE MPO Travel Demand Model Outputs (2015 Base Year - 1st Network vs. 2045 Financially Constrained - 6th Network)

## Non-Motorist Facilities

There are currently no pedestrian or bicycle facilities parallel to the Segment 5 corridor. However, as is commonplace across the entire SR 307 study corridor, pedestrian accommodations (e.g., pedestrian signal heads and marked crosswalks) are provided at the intersections of SR 307 with Export Boulevard/ Commerce Boulevard and with SR 21/Augusta Road without a supporting sidewalk or shared use path. The CORE MPO Non-Motorized Transportation Plan recommends a shared use path along the entire length of the SR 307 corridor.

## Environmental Features

As shown in Figure 15, a freshwater forested/shrub wetland exists along the south frontage of the Segment 5 corridor beginning just west of the highway-rail at-grade crossing adjacent to the Westport development. Pipemakers Canal crosses SR 21/Augusta Road just south of SR 307 before terminating at the Savannah River.



### 3.1.6 Segment 6 - Port Gateway

Segment 6 is approximately 1.1 miles in length, and it serves as the "last mile" for thousands of freight trips originating from or bound for the Port of Savannah's Garden City Terminal each day. East of SR 21/Augusta Road, this segment intersects Jimmy DeLoach Parkway, a freight-focused facility recently extended (2016) to provide a direct, limited access connection between I-95 and the Port of Savannah. Key characteristics of Segment 6 are summarized in Table 10, and existing geometry, traffic volume by time of day, and field-collected photographs are provided in Figure 16. Environmental features along this segment are summarized in Figure 17.

## Traffic Operations

Segment 6 AADT estimates for 2021 range between 6,000 VPD entering/exiting GCT Gate 4 and 13,000 VPD east of SR 21/Augusta Road, with significant heavy truck traffic along the segment between 6:00 AM and 6:00 PM. Based on count data collected as part of this study, the portion of trucks in the traffic stream on this segment plateaus at 80\% between 7:00 AM and 5:00 PM before rapidly decreasing to an average of $15 \%$ outside this time period. As noted for Segment 5, surges of truck traffic to and from the GCT coincide with elevated commuting traffic volumes on SR 21/Augusta Road and at nearby commercial activity centers (e.g., Circle K gas station and convenience store). Consequently, delay to freight and passenger car traffic on Segment 6 is focused at the intersection with SR 21/Augusta Road particularly during the PM peak period - where field observations indicated that queues on the westbound approach of SR 307 occasionally extended upwards of 1,000 feet. During this same period, through traffic on westbound SR 307 sometimes requires more than one signal cycle to proceed through the intersection with SR 21/Augusta Road.

Similar operations were observed mid-afternoon between 1:00 PM and 3:00 PM, as indicated by the sharp initial "spike" in traffic volumes on Segment 6 beginning around 2:00 PM illustrated in Figure 16. At 2:30 PM, field-observed queues nearly extended from SR 21/Augusta Road to Jimmy DeLoach Parkway on westbound SR 307. Farther east, moderate congestion was observed at GCT Gate 4 during the AM peak period, during which queues briefly extended beyond the SR 307 grade-separated crossing over the Mason Mega-Rail at 7:45AM. This grade separation is located approximately 1,700 feet west of the signalized intersection with SR 25/Coastal Highway. These queues quickly dissipated by 8:00 AM, and minimal operational issues were observed elsewhere on Segment 6.

## Roadway Geometry/Access Management

A raised, concrete median is present along Segment 6 between SR 21/Augusta Road and the GCT. Both commercial driveways serving the fast-food and hotel land uses in the southeast quadrant of the intersection of SR 307 with SR 21/Augusta Road are restricted to right-in/right-out only. Accordingly, all associated traffic bound for southbound SR 21/Augusta Road must make a U-turn on either SR 21/Augusta Road (to the north) or SR 307 (to the east). On SR 307, an unsignalized median opening exists approximately 800 feet east of SR 21/Augusta Road, but field observations indicate that queues on westbound SR 307 may often extend beyond this location. Alternatively, signalized U-turns may occur at the intersection with Jimmy DeLoach Parkway. In general, existing retail land uses near the western terminus of Segment 6 and potential for future infill development west of the grade-separated Mason Mega-Rail are limited by access constraints.

Table 10: Segment 6 - Port Gateway Corridor Characteristics

| Geometric and Functional Characteristics |  |
| :---: | :---: |
| Extents | SR 21/Augusta Road to SR 25/Coastal Highway (1.1 Miles) |
| Typical Cross Section | Typical Section: Four-Lane Divided with a Raised Median Typical Lane Widths: 12' Travel Lanes, 6'-10' Outside Shoulder |
| Speed Limit | 45 MPH |
| Number of Driveways | 8 (8 Driveways/Mile) |
| Number of Median Openings | 4 |
| Number of Signalized Intersections | 2 |
| Major Intersecting Roadways |  |
| Jimmy DeLoach Parkway | Cross Section: Four-Lane Divided with Depressed Median Speed Limit: 55 MPH <br> 2021 AADT ${ }^{1}$ : 11,000 VPD near SR 307 |
| SR 25/Coastal Highway | Cross Section: Two-Lane Undivided <br> Speed Limit: 35 MPH south of SR 307 and 45 MPH north of SR 307 <br> 2021 AADT ${ }^{1}$ : 8,000 VPD north of SR 307 and 7,000 VPD ${ }^{2}$ south of SR 307 |
| Traffic Characteristics |  |
| Existing Traffic Volume Data ${ }^{1}$ | 2021 AADT $^{1}$ : 6,000 VPD at GCT Gate 4 to 13,000 VPD east of SR <br> 21/Augusta Road <br> Bi-Directional Peak Hour Volume: 500 VPH GCT Gate 4 to 1,250 VPH west <br> K Factor: = 9.7\% <br> Daily Truck Percentage: 57.6\% |
| Traffic Growth Projections ${ }^{3}$ | 10-Year Historic Growth Rate: 3.0\% <br> 30-Year Travel Demand Model Growth Rate: 0.1\% |

${ }^{1}$ Existing traffic volume data represents an average across the 48-hour classification counts collected along the study segment; seasonal and COVID-19 adjustment factors were applied to these AADTs
${ }^{2}$ Ongoing construction on I-16 influenced traffic counts at this location
${ }^{3}$ Traffic growth projections were derived from GDOT historic AADT and CORE MPO Travel Demand Model Outputs (2015 Base Year $-1^{\text {st }}$ Network vs. 2045 Financially Constrained $-6^{\text {th }}$ Network)

## Non-Motorist Facilities

No pedestrian and bicycle facilities are present along Segment 6. As shown in Figure 16, pedestrian accommodations (e.g., pedestrian signal heads and marked crosswalks) are provided at the intersection with Jimmy DeLoach Parkway without a supporting sidewalk or shared use path.

## Environmental Features

Most of the undeveloped land along Segment 6 is characterized by freshwater forested/shrub wetland that drains to the Pipemakers Canal located approximately 0.25 miles south of the corridor. The majority of the 1.1-mile-long segment lies within the AE flood zone (i.e., $1 \%$ annual risk for flooding).



Figure 17
Segment 6 - Port Gateway Environmental Features Map

### 3.2 Capacity Analysis

The segment characteristics and field observations summarized previously were supplemented with existing traffic data to develop a model of the 8.5 -mile-long SR 307 corridor in Synchro Version 11 software. This model was utilized to assess existing traffic operations at the intersection- and segmentlevel throughout the study area based on measures of effectiveness (MOEs) such as speed, travel time, control delay, and queue length. Though the goal of this study is to identify and prioritize future improvement projects in support of the CORE MPO MTP process, the existing capacity analyses described in this section are critical for establishing a baseline for horizon year alternatives evaluation. Combined with field observations, these analyses provide an estimate of typical traffic conditions throughout the corridor (i.e., those likely to be observed on an average weekday while school is in session). The subsections that follow detail the analysis methodology, existing traffic volume development, intersection-level capacity analysis results, segment-level capacity analysis results, and key findings from these efforts.

### 3.2.1 Analysis Methodology

The evaluations presented throughout the remainder of this section make frequent reference to the level of service (LOS) of a given segment or intersection approach. As defined by the Highway Capacity Manual, $6^{\text {th }}$ Edition (HCM6), LOS is used to convert numeric performance measures into a letter gradebased system representative of the average traveler's perception of the operating efficiency of a transportation facility or intersection. HCM6 defines six letter grades, LOS A through LOS F, where LOS A represents the best operating conditions from the traveler's perspective, and LOS F represents the worst. However, it should be noted that the underlying complexity of traffic flow cannot be reduced to a single letter grade, and comparative analysis involves a variety of other variables, such as control delay, travel speeds, and queue length. Furthermore, roadways are not typically designed to provide operations commensurate with LOS A throughout the entirety of the day. Rather, roadways are designed, constructed, and operated such that some decline in LOS is to be expected during the peak periods of travel. In urbanized areas, LOS D is a typical target utilized by agencies.

## Intersection-Level Analysis

Intersection-level traffic analyses were performed in Synchro Version 11 software, which applies methodologies prescribed by HCM6 to evaluate the operating characteristics of an intersection under given geometric, traffic control, and traffic demand scenarios. The LOS for two-way stop-controlled (TWSC) intersections is determined based on control delay on the minor street approaches and for the major street left-turn movements during the AM and PM peak hours of travel. It should be noted that it is typical for the minor street approaches of a TWSC intersection-particularly left-turn movements onto the major street-to experience long delays during the peak hours of travel. However, most of the traffic moving through the intersection (i.e., major street through movements) experiences minimal delay. The HCM6 methodology considers the possibility of two-stage turning movements via storage of up to two vehicles within a TWLTL, when present.

Table 11 lists the control delay-based LOS thresholds published in HCM6 for unsignalized intersections, along with the nomenclature used to describe each LOS grouping herein.

Table 11: Vehicular LOS Control Delay Thresholds for Unsignalized Intersections

| Level of Service | Average Control Delay per Vehicle <br> [sec/veh] |  |
| :---: | :---: | :---: |
| A | $\leq 10$ |  |
| B | $>10-15$ | Short Delays |
| C | $>15-25$ |  |
| D | $>25-35$ | Moderate Delays |
| E | $>35-50$ |  |
| F | $>50$ | Long Delays |

At signalized intersections, all movements and approaches are likely to experience some delay during the peak hours of travel, and drivers are more likely to accept longer delays as they await their "turn" to proceed through the intersection. As a result, the control delay threshold bins are larger for signalized intersections, and LOS is typically reported by approach and for the overall intersection. During the peak hours of travel, one or more movements may operate poorly even while the overall intersection operates at a satisfactory LOS. Table 12 summarizes the control delay-based LOS thresholds published in HCM6 for signalized intersections.

Table 12: Vehicular LOS Control Delay Thresholds for Signalized Intersections

| Level of Service | Average Control Delay per <br> Vehicle [sec/veh] |
| :---: | :---: |
| A | $\leq 10$ |
| B | $>10-20$ |
| C | $>20-35$ |
| D | $>35-55$ |
| F | $>55-80$ |

## Segment-Level Analysis

Segment-level capacity analysis was performed by applying the methodology described in Chapter 16/Urban Street Facilities of HCM6 to SimTraffic simulation outputs and field travel time data. The LOS of an urban street facility is defined based on a comparison of average travel speed (ATS) to the base free flow speed (BFFS) of each subsegment, where segments are typically delineated by major boundary intersections and changes in corridor context. The ATS is calculated from the segment length, running time (i.e., time to traverse the distance between boundary intersections without considering control delay), and control delay experienced at each boundary intersection. Running time and control delay may be determined through field observations or traffic simulation software such as SimTraffic Version 11. The BFFS of a given segment is estimated based on Equation 18-3 and Exhibit 18-11 in HCM6, each calibrated to nationwide data that relates free flow speed to median type, cross section, access point density, presence of on-street parking, and traffic signal spacing.

The LOS thresholds published in HCM6 Exhibit 16-3 for urban street segments are provided in Table 13. The LOS for an urban street facility composed of multiple subsegments is estimated based on a lengthweighted average of the ATS and BFFS of each segment. As noted in the table, and not unlike the conditions described for unsignalized intersections, urban street segments operating at LOS C or better typically exhibit short delays at the boundary intersections and stable conditions overall. At LOS D or

LOS E, an urban street segment operates with less stability and may be susceptible to large increases in delay under even slight fluctuations in traffic demand. At LOS F, an urban street segment is operating over capacity, likely due to bottleneck conditions and long delays experienced at one of its boundary intersections.

Table 13: Vehicular LOS Thresholds for Urban Street Segments

| Level of Service | ATS as \% of BFFS |  |
| :---: | :---: | :---: |
| A | $\geq 80 \%$ |  |
| B | $67 \%-80 \%$ | Stable Flow |
| C | $50 \%-67 \%$ |  |
| D | $40 \%-50 \%$ | Unstable Flow |
| F | $30 \%-40 \%$ |  |

### 3.2.2 Traffic Volume Development

Existing turning movement counts (TMCs) were collected at each of the 27 study intersections listed in Section 3.1 during the AM (6:00 AM to 9:00 AM) and PM (3:00 PM to 6:00 PM) peak periods of travel on Tuesday, March 23, 2021. In accordance with guidelines set forth in the GDOT Design Traffic Forecasting Manual, 48-hour classification counts were also collected at 127 locations, including 26 locations outside of the core project study area, on Tuesday, March 23, 2021 and Wednesday, March 24, 2021 to facilitate the development of 2021 AADT estimates and establish an understanding of the distribution of traffic volumes and vehicle classes over the course of a typical day. To account for the continued influence of COVID-19 on travel patterns, these multi-day counts were adjusted using GDOT 2019 Traffic Factors and compared to historic, continuous count station data, where available. Based on comparison of the collected count data against pre-pandemic data sources provided by the GDOT Office of Planning, the adjustment factors listed in Table 14 were applied to the raw daily and peak hour traffic volumes.

Table 14: Existing Traffic Volume Adjustment Factors

| Roadway Segment | Adjustment Factors |  |  |
| :---: | :---: | :---: | :---: |
|  | Daily | AM | PM |
| SR 307 south of I-16 | 1.03 | 1.04 | 1.01 |
| I-16 Eastbound Off-Ramp | 1.33 | 1.00 | 1.03 |
| I-16 Eastbound On-Ramp | 1.12 | 1.20 | 1.00 |
| I-16 Westbound On-Ramp | 1.35 | 1.42 | 1.00 |
| I-16 Westbound Off-Ramp | 1.14 | 1.00 | 1.29 |
| SR 307 between I-16 and Old Dean Forest Road | 1.08 | 1.06 | 1.00 |
| SR 307 between Old Dean Forest Road and Mikkel Avenue | 1.13 | 1.13 | 1.00 |
| SR 307 between Mikkel Avenue and Robert B. Miller Road | 1.19 | 1.06 | 1.00 |
| SR 307 east of Robert B. Miller Road | 1.13 | 1.02 | 1.00 |
| SR 26/US 80/Louisville Road | 1.08 | 1.17 | 1.03 |
| SR 21/Augusta Road | 1.06 | 1.07 | 1.00 |
| SR 25/Coastal Highway north of SR 307 | 1.00 | 1.10 | 1.00 |
| SR 25/Coastal Highway south of SR 307 | 1.00 | 1.06 | 1.07 |
| Local Roadways | 1.00 | 1.10 | 1.10 |

Further detail regarding the development of 2021 Existing AADT and directional design hourly volume (DDHV) estimates is provided as part of the traffic forecasting documentation included in Section 4.2. Existing peak hour traffic volumes used as part of the subject capacity analyses are summarized in Figure 18 and Figure 19.



### 3.2.3 Intersection Analysis Results

Capacity analysis results for each of the 27 study intersections are summarized by contextual segment in Table 15 (AM Peak Hour) and Table 16 (PM Peak Hour). The methodologies prescribed by HCM6 consider each intersection in isolation and do not account for the potential for queues to persist and propagate between intersections across multiple periods under oversaturated conditions. As such, corridor operations were simulated in SimTraffic Version 11 software to identify existing deficiencies at the network level. Key findings are discussed below, with a focus on intersections exhibiting significant delay during one or both peak periods. All references to delay and LOS refer to calculated, not observed, values. For reporting purposes, SR 307 is assumed to have a north-south orientation from SR 25/US 17/Ogeechee Road to Robert B. Miller Road and an east-west orientation from Robert B. Miller Road to SR 25/Coastal Highway.

## Segment 1 - Community Gateway

Each of the intersections along Segment 1 operate at LOS C or better overall during the AM and PM peak hours of travel. As noted in Section 3.1.1, SR 307 was widened from a two-lane, undivided cross section to a four-lane, divided cross section with a raised median and turn bays in 2015. Based on existing traffic volume data, capacity analysis, and field observations, this segment currently operates under capacity. However, moderate delays and queueing were observed at the intersection of SR 307 with SR 25/US 17/Ogeechee Road. The southbound approach of this intersection operates at LOS F during the AM and PM peak hours of travel with a maximum queue length of just under 250 feet for the southbound right-turn lane as estimated in SimTraffic software. Field observations conducted during the PM peak hour indicate that queues in the southbound right-turn lane may reach up to 350 feet on occasion, which exceeds the available storage for the rightmost (yield-controlled) right-turn lane.

Likewise, the maximum simulated queue length for the eastbound left-turn lane on SR 25/US 17/ Ogeechee Road is greater than 200 feet, and field observations indicate that available storage for this turn bay is frequently exceeded during both peak periods. In each case, a long signal cycle length, 150 seconds during the AM peak period and 170 seconds during the PM peak period, is a potential contributor to existing operational deficiencies at the intersection.

## Segment 2 - Industrial South

Like Segment 1, most of the intersections along Segment 2 operate at LOS C or better overall during the AM and PM peak hours of travel based on capacity analysis results. Of the stop-controlled minor street intersection approaches in this segment, Airport Park Drive exhibits the highest peak hour delay, operating at LOS D during the AM peak hour with a maximum queue length of approximately 230 feet as estimated in SimTraffic software. This intersection provides direct access to industrial development on Airport Park Drive, and it currently serves as the only access to SR 307 for Savannah Pines Mobile Home Park via Old Dean Forest Road. Based on capacity analysis results, the northbound approach of Old Dean Forest Road is likely to be frequently blocked by queues on westbound Airport Park Drive during the AM peak hour. However, an active construction project will signalize the intersection of SR 307 and Pine Meadow Drive and extend a fourth leg from the intersection to the Savannah Pines Mobile Home Park. Also, Airport Park Drive will become a right-in/right-out intersection at SR 307 as part of the construction project.

Table 15: Existing Intersection Capacity Analysis Results (AM Peak Hour)

| $\begin{aligned} & \text { Int. } \\ & \text { No. } \end{aligned}$ | Intersection Name | Intersection Control Type | Approach LOS (Delay, sec/veh) ${ }^{1}$ |  |  |  | Intersection Delay $(\mathrm{sec} / \mathrm{veh})^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | $N B$ | SB | EB | WB |  |
| Segment 1 - Community Gateway |  |  |  |  |  |  |  |
| 1 | SR 307 at SR 25/US 17/Ogeechee Road | Signalized | - | F (80.8) | A (3.5) | A (6.7) | A (7.1) |
| 2 | SR 307 at Landfill Road | TWSC | A (8.0) | A (0.0) | B (11.6) | - | B (11.6) |
| 3 | SR 307 at Sunshine Avenue | TWSC | A (8.0) | A (8.6) | A (0.0) | B (12.3) | B (12.3) |
| 4 | SR 307 at Southbridge Boulevard | Signalized | C (28.4) | B (17.4) | C (30.4) | D (45.0) | C (26.2) |
| Segment 2 - Industrial South |  |  |  |  |  |  |  |
| 5 | SR 307 at l-16 EB Ramps | Signalized | B (19.1) | D (40.7) | D (45.7) | - | C (31.5) |
| 6 | SR 307 at I-16 WB Ramps | Signalized | B (17.9) | B (18.8) | - | B (17.8) | B (18.2) |
| 7 | SR 307 at Pine Meadow Drive | TWSC | A (9.0) | A (0.0) | C (22.2) | - | C (22.2) |
| 8 | SR 307 at Airport Park Drive | TWSC | A (0.0) | B (10.3) | - | D (26.4) | D (26.4) |
| 9 | SR 307 at Prosperity Drive | TWSC | A (0.0) | B (10.6) | - | C (16.2) | C (16.2) |
| 10 | SR 307 at Jamaica Run Road | TWSC | A (0.0) | B (10.3) | - | C (24.4) | C (24.4) |
| 11 | SR 307 at Clyde Alexander Way | TWSC | A (8.8) | A (0.0) | C (24.6) | A (0.0) | C (24.6) |
| 12 | SR 307 at Eason Drive | TWSC | A (8.7) | B (10.0) | C (21.4) | B (11.7) | C (21.4) |
| 13 | SR 307 at Old Dean Forest Road | TWSC | A (8.1) | A (0.0) | B (14.1) | - | B (14.1) |
| 14 | SR 307 at Morgan Industrial Boulevard | TWSC | A (0.0) | A (9.8) | - | B (13.8) | B (13.8) |

Segment 3 - Industrial Central

| 15 | SR 307 at SR 26/US 80/Louisville Road | Signalized | $\mathrm{D}(40.2)$ | $\mathrm{D}(43.7)$ | $\mathrm{D}(37.4)$ | $\mathrm{D}(38.4)$ | $\mathrm{D}(39.2)$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 16 | SR 307 at Old Louisville Road | Signalized | $\mathrm{A}(5.3)$ | $\mathrm{A}(4.9)$ | $\mathrm{C}(22.3)$ | $\mathrm{B}(19.6)$ | $\mathrm{A}(7.7)$ |
| 17 | SR 307 at Distribution Drive | TWSC | $\mathrm{A}(8.7)$ | $\mathrm{A}(9.6)$ | $\mathrm{F}(54.4)$ | $\mathrm{A}(0.0)$ | $\mathrm{F}(54.4)$ |
| 18 | SR 307 at Sonny Perdue Drive | TWSC | $\mathrm{A}(0.0)$ | $\mathrm{B}(10.8)$ | - | $\mathrm{C}(18.3)$ | $\mathrm{C}(18.3)$ |

Segment 4 - Airport

| 19 | SR 307 at Product Support Road | Signalized | $\mathrm{B}(10.1)$ | $\mathrm{A}(9.3)$ | $\mathrm{C}(27.6)$ | $\mathrm{C}(27.2)$ | $\mathrm{B}(10.7)$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 20 | SR 307 at Hangar Road | TWSC | $\mathrm{A}(8.6)$ | $\mathrm{A}(0.0)$ | $\mathrm{C}(16.2)$ | $\mathrm{A}(0.0)$ | $\mathrm{C}(16.2)$ |
| 21 | SR 307 at Billy B. Hair Drive | TWSC | $\mathrm{A}(8.7)$ | $\mathrm{A}(0.0)$ | $\mathrm{B}(12.6)$ | - | $\mathrm{B}(12.6)$ |
| 22 | SR 307 at Davidson Drive | Signalized | $\mathrm{A}(4.4)$ | $\mathrm{A}(9.2)$ | $\mathrm{C}(22.6)$ | $\mathrm{C}(22.1)$ | $\mathrm{A}(6.9)$ |
| 23 | SR 307 at Robert B. Miller Road | Signalized | - | $\mathrm{C}(27.3)$ | $\mathrm{A}(7.9)$ | $\mathrm{B}(15.7)$ | $\mathrm{B}(14.6)$ |
|  |  |  |  |  |  |  |  |
| 24 | SR 307 at Commerce Boulevard/Export Boulevard | Signalized | $\mathrm{D}(35.9)$ | $\mathrm{D}(37.6)$ | $\mathrm{A}(8.4)$ | $\mathrm{B}(16.4)$ | $\mathrm{B}(15.1)$ |
| 25 | SR 307 at SR 21/Augusta Road | Signalized | $\mathrm{D}(47.2)$ | $\mathrm{D}(45.4)$ | $\mathrm{F}(121.4)$ | $\mathrm{F}(89.5)$ | $\mathrm{E}(63.6)$ |

Segment 6 - Port Gateway

| 26 | SR 307 at Jimmy DeLoach Parkway | Signalized | - | $\mathrm{D}(40.8)$ | $\mathrm{B}(18.2)$ | $\mathrm{B}(11.3)$ | $\mathrm{C}(23.0)$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 27 | SR 307 at SR 25/Coastal Highway | Signalized | $\mathrm{C}(31.3)$ | $\mathrm{C}(33.3)$ | $\mathrm{B}(19.1)$ | $\mathrm{E}(57.6)$ | $\mathrm{C}(33.2)$ |

${ }^{1}$ Approach delay reported for left-turn movement only on the major street at unsignalized intersections
${ }^{2}$ Overall intersection delay reported as the worst minor street approach at unsignalized intersections

Table 16: Existing Intersection Capacity Analysis Results (PM Peak Hour)

|  | Intersection Name | Intersection Control Type | Approach LOS (Delay, sec/veh) ${ }^{1}$ |  |  |  | Intersection Delay $(\mathrm{sec} / \mathrm{veh})^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | $N B$ | SB | $E B$ | WB |  |
| Segment 1 - Community Gateway |  |  |  |  |  |  |  |
| 1 | SR 307 at SR 25/US 17/Ogeechee Road | Signalized | - | F (90.8) | A (4.2) | A (8.3) | B (10.3) |
| 2 | SR 307 at Landfill Road | TWSC | A (8.7) | A (0.0) | B (14.5) | - | B (14.5) |
| 3 | SR 307 at Sunshine Avenue | TWSC | A (8.7) | A (8.4) | A (0.0) | C (15.7) | C (15.7) |
| 4 | SR 307 at Southbridge Boulevard | Signalized | C (21.8) | B (15.1) | C (22.7) | C (30.2) | B (19.4) |


| Segment 2 - Industrial South |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 5 | SR 307 at l-16 EB Ramps | Signalized | B (17.7) | C (29.8) | C (24.2) | A (0.0) | C (24.9) |
| 6 | SR 307 at I-16 WB Ramps | Signalized | B (16.1) | C (20.0) | A (0.0) | C (25.0) | C (20.2) |
| 7 | SR 307 at Pine Meadow Drive | TWSC | B (10.8) | A (0.0) | C (24.5) | - | C (24.5) |
| 8 | SR 307 at Airport Park Drive | TWSC | A (0.0) | A (9.0) | - | C (15.2) | C (15.2) |
| 9 | SR 307 at Prosperity Drive | TWSC | A (0.0) | A (9.3) | - | C (15.3) | C (15.3) |
| 10 | SR 307 at Jamaica Run Road | TWSC | A (0.0) | A (9.0) | - | B (14.6) | B (14.6) |
| 11 | SR 307 at Clyde Alexander Way | TWSC | B (12.4) | A (0.0) | D (26.3) | A (0.0) | D (26.3) |
| 12 | SR 307 at Eason Drive | TWSC | B (10.3) | A (9.7) | C (19.6) | C (17.4) | A (0.0) |
| 13 | SR 307 at Old Dean Forest Road | TWSC | B (10.5) | A (0.0) | B (14.0) | - | B (14.0) |
| 14 | SR 307 at Morgan Industrial Boulevard | TWSC | A (0.0) | A (8.6) | - | B (14.8) | B (14.8) |
| Segment 3 - Industrial Central |  |  |  |  |  |  |  |
| 15 | SR 307 at SR 26/US 80/Louisville Road | Signalized | D (35.8) | D (45.9) | D (38.1) | D (40.8) | D (38.6) |
| 16 | SR 307 at Old Louisville Road | Signalized | A (3.6) | A (4.4) | C (21.1) | C (23.3) | A (5.9) |
| 17 | SR 307 at Distribution Drive | TWSC | B (13.4) | A (0.0) | F (70.6) | A (0.0) | F (70.6) |
| 18 | SR 307 at Sonny Perdue Drive | TWSC | A (0.0) | A (9.1) | - | C (21.2) | C (21.2) |

Segment 4 - Airport

| 19 | SR 307 at Product Support Road | Signalized | $\mathrm{B}(14.4)$ | $\mathrm{B}(18.2)$ | $\mathrm{D}(37.2)$ | $\mathrm{D}(39.1)$ | $\mathrm{C}(23.1)$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 20 | SR 307 at Hangar Road | TWSC | $\mathrm{A}(9.5)$ | $\mathrm{A}(0.0)$ | $\mathrm{D}(27.5)$ | $\mathrm{A}(0.0)$ | $\mathrm{D}(27.5)$ |
| 21 | SR 307 at Billy B. Hair Drive | TWSC | $\mathrm{A}(9.5)$ | $\mathrm{A}(0.0)$ | $\mathrm{C}(15.3)$ | - | $\mathrm{C}(15.3)$ |
| 22 | SR 307 at Davidson Drive | Signalized | $\mathrm{A}(5.2)$ | $\mathrm{A}(9.7)$ | $\mathrm{C}(23.9)$ | $\mathrm{A}(0.0)$ | $\mathrm{A}(8.9)$ |
| 23 | SR 307 at Robert B. Miller Road | Signalized | - | $\mathrm{C}(30.3)$ | $\mathrm{A}(8.6)$ | $\mathrm{B}(17.7)$ | $\mathrm{B}(16.0)$ |
|  |  |  |  |  |  |  |  |
| 24 | SR 307 at Commerce Boulevard/Export Boulevard | Signalized | $\mathrm{F}(81.9)$ | $\mathrm{F}(93.9)$ | $\mathrm{A}(5.5)$ | $\mathrm{A}(0.7)$ | $\mathrm{B}(16.7)$ |
| 25 | SR 307 at SR 21/Augusta Road | Signalized | $\mathrm{C}(32.7)$ | $\mathrm{C}(28.5)$ | $\mathrm{F}(89.0)$ | $\mathrm{F}(104.1)$ | $\mathrm{D}(50.5)$ |

Segment 6 - Port Gateway

| 26 | SR 307 at Jimmy DeLoach Parkway | Signalized | - | $D(36.3)$ | $C(29.4)$ | $B(14.1)$ | $C(26.2)$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 27 | SR 307 at SR 25/Coastal Highway | Signalized | $C(34.1)$ | $D(50.2)$ | $C(24.4)$ | $E(74.1)$ | $D(46.5)$ |

[^0]The l-16 interchange is an existing bottleneck constrained by a narrow bridge approximately 60 feet in width, which provides enough space to accommodate five total travel lanes on SR 307. Based on capacity analysis results derived from HCM6, the eastbound and westbound ramp terminals each operate at LOS C or better overall during the AM and PM peak hours of travel. However, simulation runs conducted in SimTraffic software indicate the following:

- SR 307 at I-16 Eastbound Ramps
- A maximum simulated queue length of approximately 170 feet and 200 feet for the southbound left-turn movement during the AM and PM peak hours, each of which exceeds available storage
- A maximum simulated queue length of approximately 320 feet for the southbound through movement during the PM peak hour, which spans nearly the entire length of the bridge
- SR 307 at I-16 Westbound Ramps
- A maximum simulated queue length of approximately 190 feet and 200 feet for the northbound left-turn movement during the AM and PM peak hours, each of which exceeds available storage
- A maximum simulated queue length of approximately 1,400 feet for the shared southbound through/right-turn lane, extending beyond the Parker's gas station driveway near Pine Meadow Drive

Though not reflected in HCM6 and SimTraffic results, queues on the eastbound off-ramp to SR 307 occasionally extended to mainline I-16 during the AM peak hour. GDOT PI No. 0013727 will widen the existing bridge and convert the $\mathrm{I}-16$ at SR 307 interchange to a diverging diamond configuration. This project is under construction with a substantial completion date of July 2023. Associated improvements are expected to improve operations on SR 307 and will be incorporated in analysis of future conditions.

## Segment 3 - Industrial Central

Along Segment 3, the intersection of SR 307 with SR 26/US 80/Louisville Road is a critical node connecting two major freight corridors. Given the heavy volume of turning truck traffic throughout the day, capacity analysis results suggest that each approach of this intersection operates at LOS D with moderate delay during the AM and PM peak hours. Maximum simulated queue lengths from SimTraffic exceed the striped left-turn storage on all approaches of the intersection during one or both peak periods, but a continuous TWLTL provides space for queues to spill back without hampering through traffic progression. As noted earlier in this report and discussed in the next section, field-observed congestion was worse than that reported in Table 15, Table 16, and SimTraffic outputs.

The stop-controlled eastbound approach of Distribution Drive operates with long delays during the AM and PM peak hours in Segment 3. However, maximum simulated queue lengths are less than 175 feet, which is equivalent to seven passenger car lengths or 2.5 tractor-trailer lengths.

## Segment 4 - Airport

On Segment 4, each intersection operates at LOS C or better overall during the AM peak hour of travel. While Product Support Road and Hangar Road exhibit elevated delays during the PM peak hour, each
with one or more approaches operating at LOS D, maximum simulated queue lengths do not exceed available turn bay storage on any individual approach, and field observations identified no major operational issues.

## Segment 5 - Industrial North

As mentioned previously, the intersection of SR 21/Augusta Road with SR 307 represents the most operationally critical node along the study corridor. This segment of SR 307 is essential to freight movement to and from the Port of Savannah's Garden City Terminal. However, as stated in Section 2, SR 21/Augusta Road also functions as a vital commuting corridor, hurricane evacuation route, and is a key component of Chatham Area Transit (CAT) Route 3. The capacity analysis results summarized in Table 15 and Table 16 indicate poor operations on both approaches of SR 307 during the AM and PM peak hours of travel with each approach operating at LOS F and exhibiting long delays. SimTraffic outputs indicate that queues consistently exceed the distance between the stop line and adjacent highway-rail at-grade crossing on eastbound SR 307 and approach the extents of available storage for the eastbound left-turn movement. Based on field observations, and considering that SimTraffic does not adequately capture the influence of the adjacent highway-rail at-grade crossing on queue length and the saturation flow rate, queues are likely to exceed available storage for the eastbound left-turn movement during the peak hours of travel. Additionally, the maximum simulated queue length exceeds 290 feet during the PM peak hour for the westbound left-turn movement on SR 307, which is greater than the available turn bay storage. As a result, queue spillback issues were observed at the upstream Circle $K$ driveway in the field.

On SR 21/Augusta Road, capacity analysis results indicate only moderate delay and queueing on the northbound and southbound approaches of the intersection. However, as noted earlier in this report and discussed in the next section, field-observed congestion was worse than that reported in Table 15, Table 16, and SimTraffic outputs.

## Segment 6 - Port Gateway

Capacity analysis results on Segment 6 show short to moderate delay and queues at the intersections of SR 307 with Jimmy DeLoach Parkway and SR 25/Coastal Highway. The worst conditions occur at GCT Gate 4, where the westbound approach exiting the GCT operates at LOS E during the AM and PM peak hours with queues extending approximately four tractor-trailer lengths east of the intersection. These operations are primarily attributable to the sheer volume of truck activity at the port as the aggregate truck percentage at the intersection with SR 307 is $73 \%$. On the eastbound approach of SR 307, SimTraffic outputs and field observations suggest that queues are likely to block passenger vehicle access to the right-turn lane to southbound SR 25/Coastal Highway.

As noted earlier in this report and discussed in the next section, field-observed congestion along Segment 6 was worse than that reported in Table 15, Table 16, and SimTraffic outputs.

### 3.2.4 Segment Analysis Results

The existing traffic volumes and capacity analysis results presented in this report are intended to be representative of typical conditions along the SR 307 corridor during an average weekday while school is in session. Because travel patterns differ from day-to-day and month-to-month throughout the year and produce a range of traffic conditions, typical conditions are difficult to capture with a single set of model
inputs. Furthermore, local conditions, such as location-specific geometry constraints and driving behavior, are likely to yield slightly different results than those attainable through HCM6 methodology, which is calibrated to nationwide data. Finally, intersection capacity analysis results alone are not adequate for describing corridor operations holistically. Accordingly, this section describes segment-level capacity analysis conducted using SimTraffic Version 11 simulation software and field-collected travel time data.

Corridor travel time outputs from SimTraffic are aggregated by contextual segment in Table 17 and Table 18 for the AM and PM Peak hours, respectively. These travel time outputs were converted to average travel speed (ATS) and compared to the theoretical base free flow speed (BFFS), which is the 45 MPH posted speed limit in most cases, to calculate the vehicular LOS as defined by the HCM6 Urban Street Facilities methodology.

Table 17: SimTraffic Corridor Travel Time and LOS by Segment (AM Peak Hour)

| Segment | Length (mi) | $\qquad$ | $\qquad$ | $\qquad$ | $\begin{gathered} \text { Average } \\ \text { Travel Speed } \\ \text { (MPH) } \end{gathered}$ | LOS |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Northbound |  |  |  |  |  |  |
| 1 | 2.4 | 03:56 | 04:17 | 04:07 | 35.0 | B |
| 2 | 1.8 | 03:06 | 03:26 | 03:16 | 33.1 | B |
| 3 | 1.3 | 02:05 | 02:13 | 02:08 | 36.5 | A |
| 4 | 1 | 01:33 | 01:38 | 01:36 | 37.5 | A |
| 5 | 0.9 | 02:34 | 03:47 | 02:57 | 18.3 | D |
| 6 | 1.1 | 01:48 | 02:16 | 01:57 | 33.7 | B |
| Total | 8.5 | 15:01 | 17:37 | 16:01 | 31.8 | B |
| Southbound |  |  |  |  |  |  |
| 1 | 2.4 | 04:31 | 04:59 | 04:44 | 30.4 | B |
| 2 | 1.8 | 02:52 | 03:11 | 03:02 | 35.7 | B |
| 3 | 1.3 | 02:30 | 02:50 | 02:40 | 29.2 | C |
| 4 | 1 | 01:42 | 01:51 | 01:46 | 34.0 | B |
| 5 | 0.9 | 01:36 | 02:13 | 01:47 | 30.3 | B |
| 6 | 1.1 | 02:46 | 03:16 | 02:59 | 22.1 | D |
| Total | 8.5 | 15:58 | 18:20 | 16:58 | 30.1 | B |

The results shown in Table 17 and Table 18 generally mirror the capacity analysis results presented previously, which indicates that most of the study corridor operates at LOS C or better during both peak periods. Only Segments 5 and 6 operate at LOS D or worse based on SimTraffic outputs, with northbound (port-bound) and southbound travel speed averaging 18 to 22 MPH across the segments.

Table 18: SimTraffic Corridor Travel Time and LOS by Segment (PM Peak Hour)

| Segment | Length (mi) | Minimum Travel Time (mm:ss) | Maximum Travel Time (mm:ss) | Average Travel Time (mm:ss) | Average Travel Speed (MPH) | LOS |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Northbound |  |  |  |  |  |  |
| 1 | 2.4 | 03:44 | 03:57 | 03:51 | 37.4 | A |
| 2 | 1.8 | 02:59 | 03:13 | 03:07 | 34.6 | B |
| 3 | 1.3 | 01:59 | 02:09 | 02:03 | 37.9 | A |
| 4 | 1 | 01:38 | 01:42 | 01:40 | 36.1 | A |
| 5 | 0.9 | 02:18 | 02:46 | 02:26 | 22.2 | D |
| 6 | 1.1 | 01:36 | 01:56 | 01:46 | 37.2 | A |
| Total | 8.5 | 14:13 | 15:43 | 14:54 | 34.2 | B |
| Southbound |  |  |  |  |  |  |
| 1 | 2.4 | 04:32 | 05:06 | 04:52 | 29.6 | C |
| 2 | 1.8 | 03:30 | 05:14 | 04:09 | 26.1 | C |
| 3 | 1.3 | 02:33 | 02:50 | 02:42 | 28.9 | C |
| 4 | 1 | 01:46 | 01:55 | 01:50 | 32.7 | B |
| 5 | 0.9 | 01:33 | 02:02 | 01:43 | 31.4 | B |
| 6 | 1.1 | 02:54 | 03:11 | 03:02 | 21.8 | D |
| Total | 8.5 | 16:48 | 20:19 | 18:18 | 27.9 | C |

Given the disparity between field-observed traffic conditions and those modeled in SimTraffic, field travel time runs conducted during the PM peak period on Tuesday, May 25, 2021 between Jimmy DeLoach Parkway and I-16 were compiled and post-processed to determine the HCM-based vehicular LOS. Raw travel time data is presented in Table 19, and LOS estimates are provided in Table 20.

As shown in Table 20, field travel time runs and associated LOS estimates are indicative of substantially more congestion than that predicted by the SimTraffic model. Based on the field runs, SR 307 between I-16 and Jimmy DeLoach Parkway operated at LOS D or worse in both directions between approximately 4:30 PM and 5:30 PM. In fact, southbound SR 307 between Jimmy DeLoach Parkway and SR 26/US 80/Louisville Road operated at LOS F, with a maximum travel time of 15 minutes and minimum speed of 9 MPH . The results are also reflective of the dependency of corridor operations on activity at the GCT, as speeds increase sharply on southbound SR 307 between Jimmy DeLoach Parkway and SR 26/US 80/Louisville Road between 5:30 PM and 5:45 PM after truck traffic exiting the GCT diminishes.

Table 19: Raw Field Travel Time Data - May 25, 2021 (PM Peak Period)

| Segment | Travel Time Run ID | Timestamp | Travel Time (mm:ss) |
| :---: | :---: | :---: | :---: |
| I-16 to <br> SR 26/US 80/Louisville Road (Northbound) | 1 | 4:29 PM | 3:39 |
|  | 2 | 5:00 PM | 3:39 |
|  | 3 | 5:27 PM | 4:25 |
|  | Average Travel Time: 3:54 |  |  |
| SR 26/US 80/Louisville Road to Jimmy DeLoach Parkway (Northbound) | 1 | 4:35 PM | 9:35 |
|  | 2 | 5:01 PM | 8:20 |
|  | 3 | 5:34 PM | 6:36 |
|  | 4 | 5:59 PM | 6:47 |
|  | Average Travel Time: 7:49 |  |  |
| Jimmy DeLoach Parkway to SR 26/US 80/Louisville Road (Southbound) | 1 | 4:23 PM | 14:57 |
|  | 2 | 4:50 PM | 14:58 |
|  | 3 | 5:24 PM | 11:44 |
|  | 4 | 5:47 PM | 6:18 |
|  | Average Travel Time: 11:59 |  |  |
| SR 26/US 80/Louisville Road to I-16 (Southbound) | 1 | 4:22 PM | 2:06 |
|  | 2 | 4:47 PM | 3:57 |
|  | 3 | 5:09 PM | 4:08 |
|  | 4 | 5:37 PM | 3:36 |
|  | Average Travel Time: 3:26 |  |  |

Table 20: Average Field Travel Time and LOS - May 25, 2021 (PM Peak Period)

| Segment | Length (mi) | $\begin{aligned} & \text { BFFS } \\ & \text { (MPH) } \end{aligned}$ | Average Travel Time (mm:ss) | Average Travel Speed (MPH) | LOS |
| :---: | :---: | :---: | :---: | :---: | :---: |
| I-16 to SR 26/US 80/Louisville Road (Northbound) | 1.6 | 45.3 | 3:54 | 20.0 | D |
| SR 26/US 80/Louisville Road to Jimmy DeLoach Parkway (Northbound) | 3.6 | 45.0 | 7:49 | 17.7 | E |
| Overall: | 5.2 | 45.1 | 11:43 | 18.5 | D |
| Jimmy DeLoach Parkway to SR 26/US 80/Louisville Road (Southbound) | 3.6 | 45.3 | 11:59 | 11.5 | F |
| SR 26/US 80/Louisville Road to I-16 (Southbound) | 1.6 | 45.0 | 3:26 | 22.7 | D |
| Overall: | 5.2 | 45.2 | 15:26 | 15.6 | E |

The segment summaries in Section 3.1 highlighted the key sources of congestion along this stretch of SR 307, which are:

- Excessive delay and queue spillback on the eastern approach of SR 307 at SR 21/Augusta Road, with a maximum field-observed queue length of approximately 900 feet during the $P M$ peak period
- Significant delays on SR 307 northbound at SR 21/Augusta Road, with left-turn queues frequently exceeding available storage length during the PM peak period
- Queueing on SR 307 southbound at SR 26/US 80/Louisville Road that extends approximately $1 / 2$ mile north of the intersection during the PM peak through the intersection with Old Louisville Road
- Stop-and-go conditions on northbound SR 307 north of the I-16 westbound ramps with queues extending beyond Pine Meadow Drive during the PM peak period

In considering whether field observations were typical of an "average" weekday over the course of the year, comparisons of anecdotal observations with supplemental data available from GDOT and Google typical traffic conditions suggest that traffic operations are variable along the corridor. Likewise, the segment analysis results presented here demonstrate that various segments of SR 307 operate near the LOS D/LOS E threshold that defines "unstable flow" and are therefore susceptible to substantial variability in traffic conditions under even minor changes in demand. These findings are critical to understanding existing and potential operational deficiencies along the study corridor and informing future alternatives development.

### 3.2.5 Capacity Analysis Summary

The intersection- and segment-level results presented in this section demonstrate that the majority of the SR 307 corridor operates acceptably under existing conditions. However, existing bottlenecks at three major nodes - I-16, SR 26/US 80/Louisville Road, and SR 21/Augusta Road - lead to significant delays for freight and passenger car trips traversing the segments between the GCT and Southbridge community to the south of I-16. Ongoing projects such as the I-16 at SR 307 Interchange Reconstruction and SR 21 Access Management Study aim to improve conditions at two of these locations, but further improvements will be needed to ensure that the corridor continues to operate at an acceptable level of service over the next 20 years. The maps shown in Figure 20 and Figure $\mathbf{2 1}$ graphically summarize existing operations along the study corridor as defined by capacity analysis, SimTraffic outputs, and field observations.

## Key Field Observations:

1. Demand for the eastbound left-turn movement on SR 25/US 17/Ogeechee Road frequently exceeded the available turn bay storage
2. Queueing on southbound SR 307 extended up to 0.3 miles north of I-16
3. Queueing on the I-16 eastbound off-ramp to SR 307 occasionally spilled back to the freeway mainline
4. Queueing on eastbound SR 26/ US 80/Louisville Road extended approximately 0.9 miles upstream of the intersection
5. Long delays were observed on both approaches of SR 307 at SR 21/Augusta Road
6. Queueing on southbound SR 21/Augusta Road extended up to 1 mile upstream of the intersection with SR 307
7. Brief spikes in demand at GCT Gate 4 led to queuing extending across the Mason Mega-Rail grade-separated crossing


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SR 21/Augusta Road


Hangar Road
$\longrightarrow$ Product Support Road



I-16 Eastbound Ramps


## Legend

Intersection LOS A-CIntersection LOS D-EIntersection LOS F

- Field-Observed Queue LengthKey Observation


## Key Field Observations:

1. Queueing on southbound SR 307 frequently exceeded the available storage length for the southbound right-turn movement due to heavy demand and poor lane utilization
2. Constrained geometry at the I-16 interchange led to queueing that extended up to 0.5 miles upstream of the westbound ramp terminal on southbound SR 307
3. Geometric constraints and heavy truck turning movement volumes on southbound SR 307 led to queues that extended up to 0.75 miles north of the intersection with SR 26/US 80/Louisville Road
4. Moderate to long delays were observed on all approaches of the intersection of SR 307 with SR 21/Augusta Road, with congestion beginning well before the PM peak hour


Savannah/Hilton Head
International Airport d


### 3.3 Safety Analysis

### 3.3.1 Introduction \& Corridor Descriptive Statistics

Although the primary objective of this study is to identify and prioritize short- and long-term improvement projects needed for the SR 307 corridor to operate at an acceptable level of service, both operations and safety are critical to achieving this goal. This section is focused on evaluating trends in crash history along each contextual segment of the study corridor based on the most recent five years of data (20152019) from the Georgia Electronic Accident Reporting System (GEARS). Based on these trends, potential mitigation measures and their associated benefits are identified for consideration as part of future alternatives analysis.
As shown in Table 21, nearly 1,500 total crashes occurred on the SR 307 corridor from 2015 to 2019, including nine fatal crashes and 330 non-fatal injury crashes. At 8.5 miles long, the study corridor exhibited just under 175 crashes per mile over this period at a state-adjusted comprehensive crash cost of $\$ 144$ million, or $\$ 28.8$ million per year (FHWA, 2018). When compared to the statewide average crash rate per hundred million vehicle miles traveled (HMVMT) on similarly classified facilities, the SR 307 corridor exhibited an aggregate crash rate up to $176 \%$ higher. Accordingly, the need for safety-focused investment along the corridor is evident. The results summarized in Table 21 are described by the KABCO scale, which assigns each crash a severity level as follows:

```
- K = Fatal
- A = Incapacitating Injury
- B = Non-Incapacitating Injury
- C = Possible Injury
- O = Property Damage Only
```

Table 21: Corridor Crash Data Summary (2015 to 2019)

| Segment | Crash Frequency by Severity |  |  |  |  |  | Crash Rate Per HMVMT (Comparison to Statewide Average) |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | K | A | B | C | 0 | Total | 2015 | 2016 | 2017 | 2018 | 2019 |
| 1 | 2 | 4 | 14 | 74 | 321 | 415 | $\begin{gathered} 483.3 \\ (+30 \%) \end{gathered}$ | $\begin{gathered} 571.2 \\ (+50 \%) \end{gathered}$ | $\begin{gathered} 817.3 \\ (+120 \%) \end{gathered}$ | $\begin{gathered} 940.3 \\ (+224 \%) \end{gathered}$ | $\begin{gathered} 834.9 \\ (+208 \%) \end{gathered}$ |
| 2 | 1 | 11 | 21 | 60 | 260 | 353 | $\begin{gathered} 635.2 \\ (+70 \%) \end{gathered}$ | $\begin{gathered} 635.2 \\ (+66 \%) \end{gathered}$ | $\begin{gathered} 692.0 \\ (+86 \%) \end{gathered}$ | $\begin{gathered} 682.6 \\ (+135 \%) \end{gathered}$ | $\begin{gathered} 701.5 \\ (+159 \%) \end{gathered}$ |
| 3 | 0 | 1 | 5 | 24 | 87 | 117 | $\begin{gathered} 217.1 \\ (-42 \%) \end{gathered}$ | $\begin{gathered} 268.2 \\ (-30 \%) \end{gathered}$ | $\begin{gathered} 332.1 \\ (-11 \%) \end{gathered}$ | $\begin{aligned} & 268.2 \\ & (-8 \%) \end{aligned}$ | $\begin{gathered} 408.7 \\ (+51 \%) \end{gathered}$ |
| 4 | 0 | 0 | 7 | 8 | 68 | 83 | $\begin{aligned} & 342.5 \\ & (-8 \%) \end{aligned}$ | $\begin{gathered} 342.5 \\ (-10 \%) \end{gathered}$ | $\begin{gathered} 222.6 \\ (-40 \%) \end{gathered}$ | $\begin{gathered} 325.3 \\ (+12 \%) \end{gathered}$ | $\begin{gathered} 188.4 \\ (-30 \%) \end{gathered}$ |
| 5 | 3 | 0 | 5 | 72 | 278 | 358 | $\begin{aligned} & 1218.3 \\ & (227 \%) \end{aligned}$ | $\begin{aligned} & 1334.4 \\ & (249 \%) \end{aligned}$ | $\begin{gathered} 1508.4 \\ (+305 \%) \end{gathered}$ | $\begin{gathered} 1392.4 \\ (+380 \%) \end{gathered}$ | $\begin{gathered} 1469.7 \\ (+442 \%) \end{gathered}$ |
| 6 | 3 | 2 | 7 | 15 | 113 | 140 | $\begin{gathered} 334.5 \\ (-10 \%) \end{gathered}$ | $\begin{gathered} 334.5 \\ (-12 \%) \end{gathered}$ | $\begin{gathered} 621.2 \\ (+67 \%) \end{gathered}$ | $\begin{gathered} 907.9 \\ (+213 \%) \end{gathered}$ | $\begin{gathered} 1146.8 \\ (+332 \%) \end{gathered}$ |
| Total | 9 | 18 | 59 | 253 | 1,127 | 1,466 | $\begin{gathered} 525.0 \\ (+41 \%) \end{gathered}$ | $\begin{gathered} 569.5 \\ (+49 \%) \end{gathered}$ | $\begin{gathered} 687.4 \\ (+85 \%) \end{gathered}$ | $\begin{gathered} 731.9 \\ (+152 \%) \end{gathered}$ | $\begin{gathered} 747.4 \\ (+176 \%) \\ \hline \end{gathered}$ |

The heat map presented in Figure 18 summarizes crash frequency along the SR 307 corridor over the five-year study period and highlights the location of the nine fatal crashes that occurred during this time period. Five of the fatal crashes (56\%) involved at least one heavy vehicle, and most of these occurred near the intersection of SR 307 with SR 21/Augusta Road. Crash frequency is otherwise highest at the four major intersections along the corridor, which include SR 307 at SR 25/US 17 Ogeechee Road, I-16, SR 26/US 80/Louisville Road, and SR 21/Augusta Road. The overall corridor crash frequency is summarized by manner of collision, truck involvement, and non-motorist involvement in Figure 22.


## SR 307

(manos
Kimley»)Horn
Figure 22
Crash Frequency Heat Map
(2015 to 2019)

Figure 23: SR 307 Crash Frequency by Manner of Collision and Vehicle Involvement (2015 to 2019)


As indicated in the summary data presented in Figure 23, 762 (52\%) of all crashes occurring over the five-year study period along the SR 307 corridor were rear-end crashes. While such crashes are typically less likely to lead to injuries and fatalities, the overrepresentation of truck-involved crashes, which comprise $23 \%$ of the entire database, may lead to an increase in the baseline severity of a given crash, particularly when involving a tractor-trailer and passenger car. Approximately one in three crashes occurring along the corridor were angle or sideswipe collisions which are symptomatic of the flush median/TWLTL configuration combined with high driveway density throughout the corridor. Finally, the database includes few head-on collisions and crashes involving non-motorists, each of which are more likely to lead to injuries and fatalities than other crash types. One pedestrian/bicycle crash was recorded during the five-year study period. Considering the low non-motorist demand observed along the corridor, this fatality may be directly related to a lack of pedestrian/bicycle facilities.
The remainder of this section summarizes crash frequency by severity and manner of collision along each of the six contextual segments. Each of the major intersections noted previously are also highlighted, as applicable.

### 3.3.2 Segment 1 Crash History

Segment 1 crash frequency over the five-year period from 2015 to 2019 is summarized by severity and manner of collision in Figure 20.

Figure 24: Segment 1 Crash Frequency by Severity and Manner of Collision (2015 to 2019)


As shown in Figure 24, rear-end crashes are the predominant type on Segment 1, and all other crash type frequencies are underrepresented in comparison. Considering the 2015 SR 307 corridor improvements in Segment 1, it is unsurprising that $77 \%$ of all crashes reported in the study database were property damage only (PDO) crashes, with the vast majority of these occurring at the intersection of SR 307 with SR 25/US 17/Ogeechee Road. Only two of the 415 crashes occurring along Segment 1 were fatal, including the following:

- One single-vehicle crash at Bryce Industrial Drive involving a vehicle striking a utility pole during the mid-afternoon period
- One nighttime angle collision at the intersection of SR 307 with Southbridge Boulevard, with the at-fault driver under the influence

Based on these trends and evidenced by the heat map in Figure 22, few correctible safety constraints were identified along the Segment 1 corridor. The intersection of SR 307 with SR 25/US 17/Ogeechee Road accounts for 217 (52\%) of all crashes and 177 (71\%) of all rear-end crashes occurring on Segment 1 in the study database. Given the existing queue spillback issues on the eastbound and southbound approaches of the intersection discussed in Section 3.2, mitigation measures that alleviate existing operational deficiencies may also reduce the likelihood of frequent rear-end crashes occurring at this intersection.

### 3.3.3 Segment 2 Crash History

Segment 2 crash frequency over the five-year period from 2015 to 2019 is summarized by severity and manner of collision in Figure 25.

Figure 25: Segment 2 Crash Frequency by Severity and Manner of Collision (2015 to 2019)


As shown in Figure 25, angle crashes are significantly overrepresented on Segment 2, with a lower proportion of rear-end crashes than Segment 1. Approximately $40 \%$ of all angle crashes and $40 \%$ of all fatal and serious injury crashes in the entire study database occurred on Segment 2. Furthermore, 21\% of all crashes occurring on this segment involved at least one tractor-trailer, which is more than double the rate for Segment 1. These trends align with the high density of unsignalized driveways ( 25 driveways per mile) and heavy industrial land uses found on the Segment 2 corridor. Other key factors to note include:

- The number of crashes reported at the I-16 interchange is equivalent to $33 \%$ of the total for Segment 2, including $27 \%$ of the total number of angle crashes occurring on the segment
- One fatality was recorded at the intersection of SR 307 with SR 26/US 80/Louisville Road, and it involved an elderly driver who failed to yield while making a left-turn during mid-afternoon

Based on these trends, and the swath of crashes shown in the heat map in Figure 22, access management strategies should be explored along the Segment 2 corridor. GDOT PI No. 0013727 will convert the I-16 interchange to a diverging diamond configuration. This project is under construction with a substantial completion date of July 2023. Associated improvements are expected to improve safety on SR 307 and will be incorporated into the analysis of future conditions.

### 3.3.4 Segment 3 Crash History

Segment 3 crash frequency over the five-year period from 2015 to 2019 is summarized by severity and manner of collision in Figure 26.

Figure 26: Segment 3 Crash Frequency by Severity and Manner of Collision (2015 to 2019)


The moderate density of unsignalized driveways found on Segment 3 (17 driveways per mile) leads to similar trends as those found for Segment 2. Notably, angle crashes are the predominant crash type, and the rear-end crash frequency is lower than that of other segments. However, as shown in Figure 26, the total number of crashes occurring on Segment 3 and the corresponding crash rate are the second lowest among the six contextual segments. In fact, the crash rate on this segment is just $3 \%$ higher than that of the statewide average for collector facilities.

Accordingly, few correctible safety constraints were identified along the Segment 3 corridor. Much of the crash history along this segment is centered at the intersection of SR 307 with SR 26/US 80/ Louisville Road, which exhibited the same number of crashes (117) over the five-year study period as the entirety of Segment 3. It should be noted that the total number of crashes occurring at this intersection (117) is reflective of those assigned to either Segment 2 or Segment 3. Despite the modest existing crash history along this segment, approximately $32 \%$ of all collisions involved at least one tractor-trailer, which is the highest rate among the six contextual segments.

### 3.3.5 Segment 4 Crash History

Segment 4 crash frequency over the five-year period from 2015 to 2019 is summarized by severity and manner of collision in Figure 27.

Figure 27: Segment 4 Crash Frequency by Severity and Manner of Collision (2015 to 2019)


As shown in Figure 27, the relative proportion of each crash type occurring on Segment 4 is nearly equivalent to that for the entire study database. Furthermore, the total number of crashes occurring on this segment is the lowest of the six contextual segments, and the corresponding crash rate is $2 \%$ less than the statewide average for collector facilities. Lastly, no fatal or serious injury crashes were recorded along Segment 4 over the five-year study period.

These findings are intuitive given the sparse driveway density ( 8 driveways per mile) and limited activity centers adjacent to this segment. As such, no apparent safety constraints were identified along Segment 4.

### 3.3.6 Segment 5 Crash History

Segment 5 crash frequency over the five-year period from 2015 to 2019 is summarized by severity and manner of collision in Figure 28.

Figure 28: Segment 5 Crash Frequency by Severity and Manner of Collision (2015 to 2019)


The summary shown in Figure 28 emphasizes that rear-end crashes, particularly those involving heavy trucks, are overrepresented on Segment 5. Based on the heat map in Figure 22, most of the crashes recorded on this 0.7 -mile-long segment over the five-year study period were centered at the intersection of SR 307 with SR 21/Augusta Road. In fact, crashes occurring at this intersection comprise $25 \%$ (363) of all 1,466 crashes along SR 307 in the study database. It should be noted that the total number of crashes occurring at this intersection (363) is reflective of those assigned to either Segment 5 (eastbound approach) or Segment 6 (westbound approach).

Although $72 \%$ of the crashes occurring at the intersection of SR 307 with SR 21/Augusta Road were rearend collisions that typically lead to fewer injuries than other crash types, two fatalities occurred at this intersection, and three fatalities were observed on Segment 5 in total. These fatal crashes included:

- Two rear-end collisions at the intersection with SR 21/Augusta Road, one of which involved a collision between a tractor-trailer and passenger car, occurring between 9:00 PM and 6:00AM
- One sideswipe collision occurring near the intersection with Export Boulevard involving a tractortrailer and a piece of farm equipment

These trends suggest that the passenger car- and tractor-trailer-dominated traffic streams found on SR 21/Augusta Road and SR 307, respectively, should be separated to the extent possible. As noted previously, the SR 21 Access Management Study aims to improve safety along the corridor from Grange Road to l-516. The outcomes of this effort will be incorporated into the current study, where applicable, but this SR 307 Corridor Study will govern the improvement recommendations at the SR 21/ Augusta Road intersection.

### 3.3.7 Segment 6 Crash History

Segment 6 crash frequency over the five-year period from 2015 to 2019 is summarized by severity and manner of collision in Figure 29.

Figure 29: Segment 6 Crash Frequency by Severity and Manner of Collision (2015 to 2019)


Like Segment 5, rear-end and truck-involved crashes are overrepresented on Segment 6 relative to the rest of the study database, while angle crashes are underrepresented on this segment. Each of these findings are unsurprising given the proximity of Segment 6 to the GCT and that each of the three study intersections along this corridor are signalized. As expected for a segment with truck percentages that approach $80 \%$ throughout the day, approximately $43 \%$ of all crashes occurring on this segment involved at least one tractor-trailer. This increased truck involvement presents elevated safety risks, particularly for occupants of passenger cars. Three fatal crashes were observed on this segment over the five-year study period, including:

- One rear-end collision between two passenger cars occurring at the intersection with Jimmy DeLoach Parkway during the mid-afternoon hours
- Two collisions between a tractor-trailer and passenger car, including one rear-end crash and one sideswipe crash, each occurring during the mid-morning hours

Though excessive speed was cited as a contributing factor in one of the three fatal crashes, these trends again underscore the challenges of combining large volumes of heavy trucks and passenger cars within the same traffic stream. Future improvement alternatives that mitigate congestion near the intersection with SR 21/Augusta Road may reduce the likelihood of additional injury crashes.

### 3.3.8 Safety Analysis Summary

The corridor- and intersection-level safety analyses presented in the previous subsections illustrate that trends in existing crash history follow the primary characteristics of the SR 307 corridor, specifically:

- Nearly $\mathbf{6 0 \%}$ of the SR 307 corridor consists of a five-lane, flush median/TWLTL section. The overall, 8.5 -mile-long corridor includes approximately 150 driveways, most of which are fullmovement, unsignalized access points to heavy industrial land uses. Expectedly, 34\% of all crashes occurring on the study corridor over the five-year period from 2015 to 2019 were angle or sideswipe collisions.
- Truck percentages along some segments of the SR 307 corridor approach $80 \%$ during the peak periods of the day. Due to the large volumes of heavy truck traffic on the study corridor, which intersects with four corridors exhibiting large volumes of commuting passenger car traffic, nearly one in four crashes occurring over the five-year period from 2015 to 2019 involved at least one tractor-trailer. On the six contextual segments presented in this study, truck-involved crashes represented as many as $43 \%$ of all crashes occurring on a given segment.
- Congested conditions at major intersections along the SR 307 corridor contribute to a high frequency of rear-end crashes. More than $50 \%$ of all crashes in the study database were rearend collisions. In fact, rear-end collisions occurring at the intersections of SR 307 with SR 25/US 17/Ogeechee Road and SR 21/Augusta Road comprise 30\% of all crashes in the study database.

Given these findings, future improvement alternatives should consider existing crash history while harmonizing operations and safety along the SR 307 corridor. As noted previously, these efforts are likely to be focused at four major intersections - SR 25/US 17/Ogeechee Road, I-16, SR 26/US 80/ Louisville Road, and SR 21/Augusta Road - each of which exhibits peak hour congestion. Recent studies have confirmed the positive correlation between congestion and crash rates, and the Highway Safety Manual states the same: safety is enhanced as congestion is reduced.

Potential alternatives should also consider corridor-level access management strategies along undivided segments. Studies of access management strategies (e.g., implementation of a raised median in place of a TWLTL) suggest that such solutions may decrease the frequency of crashes by as much as $30 \%$. Finally, separating heavy truck and passenger car traffic to the extent possible will likely reduce the frequency and severity of crashes occurring along the SR 307 corridor.

## 4 Future Conditions Assessment

### 4.1 Introduction

The Existing Conditions Assessment detailed in Section 3 summarized a comprehensive data collection effort, capacity analysis, and safety analysis conducted to assess existing conditions along the SR 307 corridor and identify transportation challenges, needs, and opportunities to be considered throughout the remainder of the study. As a Georgia Statewide Designated Freight Corridor that serves as a primary artery to the GPA's GCT with approximately one mile of frontage with the Savannah/Hilton Head International Airport, SR 307 is a critical component of Georgia's economy and the national freight network. To satisfy the goals and objectives of the Mobility 2045 MTP while maintaining safe, efficient passage for well over 100,000 motorists and non-motorists per day, the findings of Section 3 suggest the following:

- Non-motorist facilities should be incorporated in future improvement projects. The SR 307 corridor includes less than one mile of sidewalk along its 8.5 -mile length and no dedicated bicycle facilities. Numerous signalized intersections are equipped with pedestrian signal heads, crosswalks, and signage despite a lack of connecting facilities or adjacent activity centers. As such, existing infrastructure is disjointed and incomplete. Though only three non-motorist collisions were observed from 2015 to 2019, providing new pedestrian and bicycle facilities would satisfy the CORE MPO Non-Motorized Transportation Plan recommendations and provide opportunities for latent non-motorist demand to be realized in a safe manner.
- Existing geometry should be improved for consistency with corridor passenger car and heavy truck volumes. Field observations indicated that many existing intersections currently lack the geometry needed to support slow, wide turning movements made by heavy trucks. Where these turning movements are made with greater frequency, existing geometry creates bottlenecks that produce congestion during the peak periods of the day.
- Future improvement alternatives should seek to minimize the interaction of the passenger car, rail, and heavy truck traffic streams. Near the intersection with SR 21/Augusta Road, SR 307 traverses three at-grade railroad crossings in a 0.7 -mile-long stretch. Collectively, these at-grade crossings carry 55 trains per day, which presents challenges for safety and operations, contributing to a peak hour bottleneck at the intersection with SR 21/Augusta Road. At this intersection, more than 5,000 tractor-trailers per day on SR 307 conflict with approximately 30,000 passenger cars per day on SR 21/Augusta Road. Over the five-year crash reporting period, this conflict has contributed to 363 crashes, including 262 rear-end collisions, 66 collisions between tractor-trailers and passenger cars, and two fatalities. Improvement alternatives that separate these hazards are needed.
- Access management strategies should be explored throughout the SR $\mathbf{3 0 7}$ corridor. As mentioned in Section 3.3.8, the study corridor includes a total of nearly 150 access points and five miles of five-lane section with a flush median/TWLTL across its 8.5 -mile length. Existing crash history and examples of successful implementation along the southern portion of the SR 307 corridor indicate that driveway consolidation and the construction of a raised median should be considered along the balance of the corridor.

The outcomes of the Existing Conditions Assessment were used to inform the development of comprehensive improvement concepts for the SR 307 corridor. The remainder of this section summarizes future conditions along the study corridor in the context of these conceptual alternatives, known improvement projects, approved developments, and growth at the Georgia Ports Authority's Garden City Terminal. Conceptual alternatives for the study corridor were evaluated against baseline "No-Build" traffic conditions under short- (0-5 Years) and long-term (5+ Years) time horizons, and a shortlist of projects was compiled for consideration as part of the CORE MPO MTP process.

### 4.2 Background Growth \& Future Traffic Volume Development

### 4.2.1 Horizon Year No-Build Traffic Volume Development

The methodology and projected traffic volumes presented in this section were drawn from the Design Traffic Forecasts for the SR 307 Corridor Study technical memorandum dated October 15, 2021. This memorandum is attached in Appendix $\mathbf{G}$ for reference.

Baseline 2021 Existing traffic volumes were developed as discussed in Section 3.2.2. Growth along the study corridor was then estimated based on historical traffic data from the GDOT Traffic Analysis and Data Application (TADA), population projections for Chatham County, and CORE MPO Travel Demand Model outputs. Baseline growth rates along the SR 307 corridor are summarized in Table 22.

Table 22: Proposed No-Build/Build Baseline Annual Growth Rates

| Roadway | Build/No-Build Growth Rates |  |
| :---: | :---: | :---: |
|  | 2021-2025 | 2025-2045 |
| SR 307/Dean Forest Road South of I-16 | 0.70\% | 0.70\% |
| SR 307/Dean Forest Road North of I-16 | 1.00\% | 1.00\% |
| Arterial Side Roads | 1.00\% | 1.00\% |
| Side Roads | 1.00\% | 1.00\% |
| I-16 Ramps | 0.70\% | 0.70\% |

Extensive development is planned in and around the project study area. Several active or planned GDOT projects were considered in forecasting future traffic volumes within the study area. These projects are listed below:

- PI No. 0013727, I-16 at SR 307/Dean Forest Road
- PI No. 0006328, Brampton Road Connector from SR 21/SR 25 to SR 21 Spur
- PI No. 0012757 , I-16 from I-95 to I-516
- PI No. 0012758, I-16 @ I-95 Interchange Reconstruction
- PI No. 522970, Jimmy DeLoach Parkway Extension

In addition, the GPA is expanding the GCT with an expected output of 6.5 million Twenty-Foot Equivalent Units (TEUs) per year by 2025 between the three main gates and rail usage. Additional GCT developments are planned and expected to be fully operational prior to 2025, and several new logistics facilities and travel center fuel stations related to the increased port output are planned. The following projects were considered when forecasting future traffic volumes:

- GCT West Phase 1 - located on SR 21/Augusta Road south of Grange Road and expected to bring additional capacity of 280,000 TEUs
- GCT West Phase 2 - located on SR 307/Bourne Avenue east of Jimmy DeLoach Parkway and expected to bring additional capacity of 620,000 TEUs
- Crossgate Industrial - a 1.0 million square-foot (SF) warehouse facility located east of Jimmy DeLoach Parkway between Crossgate Road and Grange Road
- Port City Logistics - a 1.2 million SF warehouse facility located between SR 21/Augusta Road and Jimmy DeLoach Parkway north of Grange Road
- Monteith - a 1.3 million SF warehouse facility located west of SR 21/Augusta Road south of I-95 near Hendley Road
- Varnedoe Wiggins - an 8.3 million SF warehouse complex located on the west side of SR 21/Augusta Road between Jeffers Road and Rice Mill Road
- Georgia International Trade Center - a 4.5 million SF warehouse complex located on the west side of SR 21/Augusta Road between Trade Center Parkway and Trade Center Boulevard
- Georgia Export - a 5.6 million SF warehouse complex consisting located along the Goshen Road Extension east of Commercial Court
- CenterPoint Logistics Park - a 580,000 SF warehouse facility located on the east side of SR 307/Dean Forest Road across from Davidson Road
- CenterPoint at Norfolk Southern - a 1.3 million SF industrial facility located between Sonny Perdue Drive and Product Support Road/Mikell Avenue on the east side of SR 307/ Dean Forest Road
- JCB Property 1 - a 2.0 million SF warehouse facility located on Coleman Boulevard north of SR 26/US 80/Louisville Road
- JCB Property 2 - a 1.1 million SF warehouse facility located on Coleman Boulevard north of SR 26/US 80/Louisville Road
- Old Louisville Road Warehouses - 630,000 SF warehouse facilities on Old Louisville Road east of SR 307/Dean Forest Road
- Strategic Partners Facility - a 166,500 SF warehouse facility located along Sonny Perdue Drive east of SR 307/Dean Forest Road
- Main Gate - a 1.3 million SF warehouse facility located along Prosperity Drive east of SR 307/Dean Forest Road

Finally, multiple planned or active private developments unrelated to port improvements were also identified and considered in the forecast, including:

- Project Live Oak - development along Pine Meadow Drive west of SR 307/Dean Forest Road consisting of a 634,500 SF fulfillment center and 3.57 million SF warehouse expected to be fully complete in 2027
- Coastal Commerce Center - proposed 62-acre development including 22,500 SF of commercial space and 795,000 SF of warehouse space that will add a fourth leg to the intersection of Pine Meadow Drive with SR 307/Dean Forest Road
- Loves Travel Center - a Fuel Center/Travel Station with a truck fueling area consisting of 93 truck parks and nine fueling stations along with a convenience store located at the southeast quadrant of SR 307/Dean Forest Road and Sonny Perdue Drive; this development will be serviced by new traffic signal at Sonny Perdue Drive
- QuikTrip - a Fuel Center/Travel Station with a separate truck fueling area and convenience store located in the northwest quadrant of the intersection of SR 307/Dean Forest Road with SR 26/ US 80/Louisville Road
- RaceTrac - a Fuel Center/Travel Station with a separate truck fueling area and convenience store located in the southeast quadrant of the intersection of SR 307/Dean Forest Road with SR 26/US 80/Louisville Road
- Gulfstream Expansion and Airport Redevelopment - the current 300-employee Research and Development facility will expand to accommodate 1,100 employees through access located near the intersection of SR 307/Bourne Avenue with Davidson Road
- Constantine Mixed-Use Residential - proposed development consisting of 20 Acres of Assisted Living and 520 single family homes located north of Town Center Drive and east of SR 307/ Dean Forest Road
- Tapestry Apartment Complex and Grocery Store - development consisting of 232 apartment units and a 1,000 SF grocery store between Town Center Drive and Sunshine Road

Resultant 2025 No-Build and 2045 No-Build (where "No-Build" refers to volumes on the corridor absent the improvements recommended by this study) traffic volumes are presented in Figure 30 through Figure 33.





### 4.3 Horizon Year No-Build Traffic Analysis

### 4.3.1 Analysis Methodology \& Assumptions

As described in Section 3.2, a model of the 8.5-mile-long SR 307 corridor was developed in Synchro Version 11 software based on project research and field observations conducted in May 2021. This model was initially coded to reflect existing geometry, traffic control, and travel patterns throughout the study area. Model inputs were then adjusted based on the traffic volume estimates and the known improvement projects summarized in Section 4.2. The No-Build scenarios described herein assumed that each of these projects will be complete and fully open to traffic by the year 2025, with all other model inputs held constant relative to 2021 Existing conditions.

Throughout the remainder of this section, MOEs such as speed, travel time, control delay, and queue length post-processed from Synchro and SimTraffic software are compared across scenarios to assess traffic operations under baseline "No-Build" conditions and identify future operational constraints along the study corridor. Numeric results are converted to a letter grade-based LOS as defined by HCM6 Chapter 19/Signalized Intersections, Chapter 20/Two-Way Stop-Controlled Intersections, and Chapter 16/Urban Street Facilities. The thresholds used to make these LOS determinations are detailed further in Section 3.2 along with key concepts that should be considered when interpreting the results presented in the sections that follow.

Where applicable, traffic signal warrant analyses and GDOT Intersection Control Evaluations (ICE) were performed based on guidance within the GDOT Design Policy Manual, Part 4 of the Manual on Uniform Traffic Control Devices (MUTCD), and GDOT Policy 4A-5. Synchro and SimTraffic inputs were refined to account for the predominance of tractor-trailers within the corridor traffic stream and to consider peak hour delay associated with highway-rail grade crossings based on data from GDOT's Traffic Analysis and Data Application and FRA's Highway-Rail Crossing Inventory.

### 4.3.2 Intersection Analysis Results

Capacity analysis results for each of the study intersections are summarized by contextual segment in Table 23 (2025 No-Build), and Table 24 (2045 No-Build). Key findings are discussed below, with a focus on trends in operations between 2025 and 2045 at intersections exhibiting significant delay during one or both peak periods. All references to delay and LOS refer to calculated, not observed, values. For reporting purposes, SR 307 is assumed to have a north-south orientation from SR 25/US 17/Ogeechee Road to Robert B. Miller Road and an east-west orientation from Robert B. Miller Road to SR 25/ Coastal Highway.

| $\begin{aligned} & \text { Int. } \\ & \text { No. } \end{aligned}$ | Intersection Name | Intersection Traffic Control | Approach LOS (Delay, s/veh) - AM Peak Hour |  |  |  | Intersection Delay (s/veh) ${ }^{2}$ AM Peak Hour | Approach LOS (Delay, s/veh) ${ }^{1}$ - PM Peak Hour |  |  |  | Intersection Delay (s/veh) ${ }^{2}$ PM Peak Hour |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | $N B$ | SB | $E B$ | WB |  | $N B$ | SB | $E B$ | WB |  |
| Segment 1 - Community Gateway |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | SR 307 at SR 25/US 17/Ogeechee Road | Signalized | - | C (31.8) | A (7.0) | B (12.8) | B (11.1) | - | C (21.3) | B (17.4) | B (17.3) | B (18.2) |
| 2 | SR 307 at Landfill Road | TwSC | A (8.3) | A (0.0) | B (14.5) | - | B (14.5) | A (9.1) | A (0.0) | C (18.8) | - | C (18.8) |
| 3 | SR 307 at Sunshine Road | TWSC | A (9.5) | A (9.3) | C (18.2) | C (18.0) | C (18.2) | B (11.3) | A (8.9) | C (24.8) | C (23.2) | C (24.8) |
| 4 | SR 307 at Southbridge Boulevard | Signalized | D (42.8) | C (22.3) | C (28.3) | C (27.1) | C (32.3) | C (29.6) | B (16.8) | C (23.4) | C (23.2) | C (22.7) |
| Segment 2 - Industrial South |  |  |  |  |  |  |  |  |  |  |  |  |
| 5-A | SR 307 at l-16 EB Ramps (SBT/EBR) | Signalized | - | D (45.2) | B (15.4) | - | C (27.9) | - | B (13.5) | B (15.8) | - | B (15.2) |
| 5-B | SR 307 at l-16 EB Ramps (NBT/EBL) | Signalized | A (7.2) | - | D (44.4) | - |  | B (16.5) | - | B (16.7) | - |  |
| 6-A | SR 307 at l-16 WB Ramps (NBT/WBR) | Signalized | A (8.7) | - | - | C (28.7) | C (25.1) | C (21.7) | - | - | B (16.7) | B (18.0) |
| 6-B | SR 307 at l-16 WB Ramps (SBT/WBL) | Signalized | - | D (50.6) | - | B (18.7) |  | - | B (17.3) | - | B (14.0) |  |
| 7 | SR 307 at Pine Meadow Drive | Signalized | B (10.6) | B (10.3) | D (36.2) | E (67.2) | B (17.7) | B (10.9) | B (14.8) | C (23.9) | D (52.1) | B (18.4) |
| 8 | SR 307 at Airport Park Drive | Twsc | A (0.0) | A (0.0) | - | C (16.7) | C (16.7) | A (0.0) | A (0.0) | - | B (11.6) | B (11.6) |
| 9 | SR 307 at Prosperity Drive | Signalized | A (5.6) | A (8.8) | C (30.4) | C (33.1) | A (7.8) | A (8.2) | B (15.7) | C (20.5) | C (33.6) | B (14.5) |
| 10 | SR 307 at Jamaica Run Road | TWSC | A (0.0) | B (14.0) | - | E (38.1) | E (38.1) | A (0.0) | B (11.4) | - | C (16.5) | C (16.5) |
| 11 | SR 307 at Clyde Alexander Way | TWSC | B (10.3) | B (13.5) | F (70.7) | F (102.0) | F (102.0) | B (12.6) | B (10.9) | F (83.1) | F (112.5) | F (112.5) |
| 12 | SR 307 at Eason Drive | TWSC | B (10.6) | B (13.4) | F (65.3) | F (119.7) | F (119.7) | $\mathrm{B}(12.8)$ | B (11.0) | F (61.3) | F (85.4) | F (85.4) |
| 13 | SR 307 at Old Dean Forest Road | TWSC | A (9.6) | A (0.0) | C (21.6) | - | C (21.6) | B (13.1) | A (0.0) | C (18.6) | - | C (18.6) |
| 14 | SR 307 at Morgan Industrial Boulevard | TwSC | A (0.0) | D (28.1) | - | C (20.4) | C (20.4) | A (0.0) | C (16.6) | - | D (25.4) | D (25.4) |
| Segment 3-Industrial Central |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 | SR 307 at SR 26/US 80/Louisville Road | Signalized | E (63.5) | $\mathrm{D}(54.6)$ | E (60.8) | D (49.7) | E (58.9) | D (41.7) | D (51.3) | $\mathrm{D}(45.8)$ | D (50.1) | D (47.6) |
| 16 | SR 307 at Old Louisville Road | Signalized | A (8.9) | A (7.1) | C (29.3) | $\mathrm{C}(23.8)$ | B (10.9) | A (4.5) | A (5.9) | B (19.0) | C (21.2) | A (6.6) |
| 17 | SR 307 at Distribution Drive | Twsc | B (10.0) | B (12.7) | F (277.5) | F (76.9) | F (277.5) | C (18.0) | A (9.6) | F (\$) | F (210.1) | F (\$) |
| 18 | SR 307 at Sonny Perdue Drive | Signalized | B (17.2) | A (8.1) | - | E (68.6) | B (19.0) | B (17.2) | B (10.7) | - | E (55.6) | B (19.0) |
| Segment 4-Ailport |  |  |  |  |  |  |  |  |  |  |  |  |
| 19 | SR 307 at Product Support Road | Signalized | B (11.8) | A (9.2) | C (33.7) | C (31.8) | B (11.9) | B (18.3) | C (25.5) | D (43.0) | D (38.9) | C (27.8) |
| 20 | SR 307 at Hangar Road | TWSC | B (10.0) | $\mathrm{B}(12.5)$ | $\mathrm{E}(38.0)$ | F (54.1) | F (54.1) | B (11.5) | B (11.4) | F (116.6) | F (233.0) | F (233.0) |
| 21 | SR 307 at Billy B. Hair Drive | TWSC | B (10.2) | A (0.0) | B (14.5) | - | B (14.5) | B (11.6) | A (0.0) | C (18.8) | - | C (18.8) |
| 22 | SR 307 at Davidson Drive | Signalized | A (5.9) | B (13.6) | C (28.1) | C (26.9) | A (9.9) | A (9.5) | B (15.5) | $\mathrm{C}(31.0)$ | C (20.7) | B (15.3) |
| 23 | SR 307 at Robert B. Miller Road | Signalized | - | D (36.4) | A (8.3) | B (16.1) | B (16.1) | - | D (35.5) | B (10.1) | B (19.6) | B (17.2) |
| Segment 5-Industrial North |  |  |  |  |  |  |  |  |  |  |  |  |
| 24 | SR 307 at Commerce Boulevard/Export Boulevard | Signalized | D (36.6) | D (39.4) | A (9.0) | A (9.1) | B (10.9) | D (37.6) | D (43.8) | B (11.0) | A (6.8) | B (13.3) |
| 25 | SR 307 at SR 21/Augusta Road | Signalized | E (64.0) | E (61.2) | F (98.0) | F (107.8) | E (76.3) | D (37.5) | C (34.2) | F (137.7) | F (81.5) | E (61.7) |
| Segment 6 - Port Gateway |  |  |  |  |  |  |  |  |  |  |  |  |
| 26 | SR 307 at Jimmy DeLoach Parkway | Signalized | - | B (14.2) | C (24.3) | B (11.0) | B (17.0) | - | B (10.8) | C (27.8) | B (12.3) | B (18.6) |
| 27 | SR 307 at SR 25/Coastal Highway | Signalized | C (31.4) | D (35.9) | B (17.4) | D (51.9) | C (31.9) | C (30.6) | D (46.1) | C (25.2) | E (66.6) | D (41.2) |

${ }^{1}$ Approach delay reported for left-turn movement only on the major street at unsignalized intersections
2 Overall intersection delay reported as the worst $m$
$\$$ Control delay exceeds 300 seconds per vehicle

| $\begin{aligned} & \text { Int. } \\ & \text { No. } \end{aligned}$ | Intersection Name | Intersection Traffic Control | Approach LOS (Delay, s/veh)' - AM Peak Hour |  |  |  | Intersection Delay (s/veh) ${ }^{2}$ AM Peak Hour | Approach LOS (Delay, s/veh)' - PM Peak Hour |  |  |  | Intersection Delay (s/veh) ${ }^{2}$ PM Peak Hour |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | NB | SB | EB | WB |  | NB | SB | EB | wB |  |
| Segment 1 - Community Gateway |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | SR 307 at SR 25/US 17/Ogeechee Road | Signalized | - | D (37.7) | B (13.9) | B (14.8) | B (17.0) | - | C (29.4) | F (88.0) | C (27.2) | D (45.5) |
| 2 | SR 307 at Landfill Road | Twsc | A (8.7) | A (1.1) | C (23.4) | - | C (23.4) | A (9.7) | $\mathrm{A}(0.0)$ | D (28.3) | - | D (28.3) |
| 3 | SR 307 at Sunshine Road | Twsc | A (9.9) | B (10.1) | D (26.1) | C (24.7) | D (26.1) | B (12.9) | A (9.4) | E (37.0) | E (38.4) | E (38.4) |
| 4 | SR 307 at Southbridge Boulevard | Signalized | $\mathrm{D}(48.8)$ | C (29.0) | D (43.2) | C (30.4) | D (39.8) | C (34.9) | B (18.9) | C (33.5) | C (24.5) | C (26.2) |
| Segment 2 - Industrial South |  |  |  |  |  |  |  |  |  |  |  |  |
| 5-A | SR 307 at l-16 EB Ramps (SBT/EBR) | Signalized | - | E (65.4) | B (17.3) | - | C (31.1) | - | C (21.4) | B (18.8) | - | C (20.6) |
| 5-B | SR 307 at l-16 EB Ramps (NBT/EBL) | Signalized | B (11.9) | - | D (38.3) | - |  | C (22.5) | - | B (16.6) | - |  |
| 6-A | SR 307 at l-16 WB Ramps (NBT/WBR) | Signalized | $\mathrm{D}(35.8)$ | - | - | C (28.5) | C (31.5) | C (29.8) |  | - | B (18.1) | C (23.1) |
| 6-B | SR 307 at l-16 WB Ramps (SBT/WBL) | Signalized | - | C (31.0) | - | B (17.6) |  | - | C (23.4) | - | B (14.3) |  |
| 7 | SR 307 at Pine Meadow Drive | Signalized | B (17.9) | B (17.8) | D (41.4) | F (93.5) | C (25.5) | B (18.1) | C (24.4) | E (59.1) | E (73.5) | C (30.2) |
| 8 | SR 307 at Airport Park Drive | Twsc | A (0.0) | A (0.0) | - | D (29.2) | D (29.2) | A (0.0) | A (0.0) | - | B (13.2) | B (13.2) |
| 9 | SR 307 at Prosperity Drive | Signalized | $\mathrm{B}(10.7)$ | B (16.1) | D (37.8) | C (30.0) | B (14.1) | B (12.0) | C (22.9) | E (61.5) | C (34.8) | C (23.9) |
| 10 | SR 307 at Jamaica Run Road | Twsc | A (0.0) | C (19.5) | - | F (198.1) | F (198.1) | A (0.0) | B (14.3) | - | C (23.8) | C (23.8) |
| 11 | SR 307 at Clyde Alexander Way | Twsc | $\mathrm{B}(12.8)$ | C (18.2) | F (\$) | F (\$) | F (\$) | C (16.0) | B (13.2) | F (\$) | F (\$) | F (\$) |
| 12 | SR 307 at Eason Drive | Twsc | B (13.2) | B (14.8) | F (\$) | F (\$) | F (\$) | C (16.2) | B (13.3) | F (\$) | F (\$) | F (\$) |
| 13 | SR 307 at Old Dean Forest Road | Twsc | B (11.5) | A (0.0) | F (80.7) | - | F (80.7) | C (18.4) | $\mathrm{A}(0.0)$ | E (35.1) | - | E (35.1) |
| 14 | SR 307 at Morgan Industrial Boulevard | Twsc | A (0.0) | F (87.9) | - | E (37.3) | E (37.3) | A (0.0) | D (29.7) | - | F (62.1) | F (62.1) |
| Segment 3 - Industrial Central |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 | SR 307 at SR 26/US 80/Louisville Road | Signalized | F (137.8) | E (67.3) | F (182.2) | E (64.2) | F (130.4) | E (64.2) | F (97.5) | E (63.4) | F (100.0) | $F(83.2)$ |
| 16 | SR 307 at Old Louisville Road | Signalized | B (12.3) | A (8.6) | C (31.4) | C (26.5) | B (13.3) | A (5.0) | A (7.3) | C (24.4) | C (27.8) | A (8.1) |
| 17 | SR 307 at Distribution Drive | TWSC | B (12.1) | C (15.9) | F (\$) | F (\$) | F (\$) | D (30.7) | B (10.7) | F (\$) | $F(\$)$ | F (\$) |
| 18 | SR 307 at Sonny Perdue Drive | Signalized | C (28.6) | B (16.9) | - | F (113.8) | C (31.1) | B (17.7) | B (12.9) | - | F (149.3) | C (33.3) |
| Segment 4 - Airport |  |  |  |  |  |  |  |  |  |  |  |  |
| 19 | SR 307 at Product Support Road | Signalized | B (17.9) | B (11.3) | D (36.6) | C (33.9) | B (16.3) | C (24.8) | D (51.2) | E (65.6) | D (45.2) | D (46.2) |
| 20 | SR 307 at Hangar Road | Twsc | $\mathrm{B}(11.7)$ | C (15.7) | F (110.5) | F (189.7) | F (189.7) | B (13.3) | B (13.6) | F (\$) | F (\$) | F (\$) |
| 21 | SR 307 at Billy B. Hair Drive | Twsc | B (12.2) | A (0.0) | C (18.5) | - | C (18.5) | B (13.6) | A (0.0) | D (26.1) | - | D (26.1) |
| 22 | SR 307 at Davidson Drive | Signalized | A (7.6) | B (16.0) | C (34.6) | C (32.6) | B (12.2) | B (10.0) | B (16.3) | E (65.8) | C (23.9) | C (21.3) |
| 23 | SR 307 at Robert B. Miller Road | Signalized | - | D (52.5) | B (12.2) | C (22.5) | C (22.6) | - | D (50.6) | B (18.6) | C (25.8) | C (26.0) |
| Segment 5-Industrial Norith |  |  |  |  |  |  |  |  |  |  |  |  |
| 24 | SR 307 at Commerce Boulevard/Export Boulevard | Signalized | D (36.6) | D (40.2) | B (10.9) | B (11.6) | B (12.8) | D (36.9) | D (44.2) | B (15.1) | A (8.1) | B (15.8) |
| 25 | SR 307 at SR 21/Augusta Road | Signalized | F(107.5) | F (152.9) | F (150.4) | F (144.5) | F (137.4) | D (49.4) | D (48.8) | F (205.7) | E (79.8) | F (85.1) |
| Segment 6-Port Gateway |  |  |  |  |  |  |  |  |  |  |  |  |
| 26 | SR 307 at Jimmy DeLoach Parkway | Signalized | - | B (14.2) | C (27.0) | B (13.8) | B (18.4) | - | B (10.7) | C (30.5) | B (16.4) | C (21.0) |
| 27 | SR 307 at SR 25/Coastal Highway | Signalized | $\mathrm{C}(31.0)$ | D (42.0) | C (23.2) | E (58.4) | D (36.0) | D (41.0) | E (59.3) | D (38.5) | F (100.5) | E (57.1) |

${ }^{1}$ Approach delay reported for left-turn movement only on the major street at unsignalized intersections 2 ${ }^{2}$ verall intersection delay reported as the worst $m$
$\$$ Control delay exceeds 300 seconds per vehicle

## Segment 1 - Community Gateway

As shown in Table 23, each of the intersections along Segment 1 operate at LOS C or better overall during the AM and PM peak hours of travel under 2025 No-Build conditions. However, as noted in Section 3, storage for the eastbound left-turn movement at the intersection of SR 307 with SR 25/ US 17/Ogeechee Road is exceeded by field-observed and modeled queues under 2021 Existing conditions. As traffic volumes increase over time, restriping the hatched median space to accommodate longer queue lengths may be sufficient for a period, but additional improvements are likely to be warranted before the 2045 horizon year. Under 2045 No-Build conditions, the eastbound left-turn movement operates at LOS F, and the Synchro $95^{\text {th }}$ percentile queue length exceeds 700 feet during the PM peak hour.

At the intersection of SR 307 with Southbridge Boulevard, operations on the minor eastbound and westbound intersection approaches are likely to worsen upon the build-out of proposed residential development to the east of the corridor. Storage for the eastbound left-turn movement on Southbridge Boulevard is exceeded under 2045 No-Build conditions during the AM peak period, but delay is expected to remain manageable. Operations at other intersections on Segment 1 are unremarkable otherwise.

To best facilitate operations on the SR 307 corridor through the 2045 horizon year, the phased improvements listed in Table 27 and Table 28 at the conclusion of Section 4.3 .4 were advanced for further consideration as part of the GDOT ICE process. On Segment 1, these improvements include geometric improvements at the intersection of SR 307 with SR 25/US 17/Ogeechee Road.

## Segment 2 - Industrial South

Between I-16 and Prosperity Drive, each study intersection is expected to operate acceptably through the 2045 horizon year. Based on Synchro and SimTraffic outputs, the diverging diamond interchange proposed as part of GDOT PI 0013727 alleviates existing operational constraints at and upstream of I-16 on SR 307, and each signalized crossover is anticipated to operate at LOS C or better under all analyzed scenarios. Improvements at Pine Meadow Drive and Prosperity Drive proposed as part of Project Live Oak are also expected to yield acceptable operations under 2025 No-Build and 2045 NoBuild conditions. Though the westbound approach at Pine Meadow Drive is anticipated to operate at LOS E or LOS F by 2045 due to heavy westbound left-turn demand, geometric and right-of-way constraints at the intersection limit opportunities for additional improvements beyond those currently planned. Nonetheless, delay and queueing are expected to remain manageable and have minimal impacts on SR 307 corridor operations overall.

Conversely, the minor stop-controlled approaches of each study intersection between Jamaica Run Road and Morgan Industrial Boulevard are expected to operate with moderate to long delays and queues as traffic volumes on the SR 307 corridor increase over time. Based on the findings of the Existing Conditions Assessment in Section 3, SimTraffic observations, and traffic signal warrant analyses conducted using projected 2025 and 2045 traffic volumes, the improvements listed in Table 27 and Table 28 at the conclusion of Section 4.3 .4 were advanced for further consideration as part of the GDOT ICE process. On Segment 2, these improvements include installation of new traffic signals at Jamaica Run Road and Morgan Industrial Boulevard along with access management through the construction of a raised median.

Based on GDOT Design Policy Manual guidance for estimating the eighth highest hourly volume as $5.6 \%$ of the daily volume, Signal Warrant 1 - Eight Hour Vehicular Volume is met at Jamaica Run Road under 2025 and 2045 conditions. Though signal warrants are not met at Morgan Industrial Boulevard under these same conditions ( 2045 traffic volumes are equivalent to approximately $80 \%$ of the MUTCD volume thresholds), SimTraffic outputs suggest that southbound left-turn/U-turn queues at this intersection may occasionally spill beyond the Georgia Central Railway highway-rail grade crossing to the north. Given the disproportionate number of heavy trucks in the traffic stream relative to a typical arterial roadway, these findings are intuitive. Therefore, a traffic signal with protected-permissive southbound left-turn phasing was considered at this intersection to promote arterial progression and mitigate potential conflicts between through traffic, left-turning traffic, and intersecting rail traffic.

## Segment 3 - Industrial Central

The intersections of SR 307 with Old Louisville Road and Sonny Perdue Drive are each expected to operate at LOS C or better overall under all analyzed scenarios with the improvements noted in Section 4.2 in place. However, the intersections of SR 307 with SR 26/US 80/Louisville Road and Distribution Drive are expected to operate at LOS E or LOS F on one or more approaches under 2025 No-Build and 2045 No-Build conditions, with increasingly long delays and queues over time. Based on SimTraffic outputs, queues on the eastbound, northbound, and southbound approaches of the intersection with SR 26/US 80/Louisville Road are likely to spill through adjacent upstream intersections, despite auxiliary lane improvements (i.e., new southbound and northbound right-turn lanes) proposed as part of adjacent development activity. As a result, HCM-based analysis results at adjacent intersections in both directions mask the potential for additional delay associated with blocked intersection approaches during the AM and PM peak periods. Corridor-level operations are detailed further in Section 4.3.3 and highlight this potential further.

Additionally, as noted in the Existing Conditions Assessment in Section 3, the signalized intersections between SR 26/US 80/Louisville Road and Robert B. Miller Road on Segment 4 each operate uncoordinated during the peak periods of the day, hindering arterial progression. To promote corridor operations on SR 307 and SR 26/US 80/Louisville Road, the phased improvements listed in Table 27 and Table 28 at the conclusion of Section 4.3 .4 were advanced for further consideration as part of the GDOT ICE process. On Segment 3, these improvements include signal upgrades, corridor retiming, access management through the construction of a raised median, and major intersection improvements at SR 26/US 80/Louisville Road.

Based on GDOT Design Policy Manual guidance for estimating the eighth highest hourly volume as $5.6 \%$ of the daily volume, Signal Warrant 1 - Eight Hour Vehicular Volume is met at Distribution Drive under 2025 and 2045 conditions. As discussed later in Section 4.4, auxiliary lane improvements at SR 26/ US 80/Louisville Road will extend the life of its conventional at-grade configuration, but significant operational constraints are expected to resurface prior to the 2045 horizon year without complete intersection reconstruction.

## Segment 4 - Airport

Most intersections along Segment 4 are expected to operate acceptably through the 2045 horizon year under their existing configurations. However, the minor stop-controlled approaches of the intersection of

SR 307 with Hangar Road are expected to exhibit long delays during the peak periods of the day under all analyzed scenarios. Based on the findings of the Existing Conditions Assessment in Section 3, the long-term improvements listed in Table 27 and Table 28 at the conclusion of Section 4.3.4 were advanced for further consideration as part of the GDOT ICE process. On Segment 4, these improvements primarily include signal upgrades and access management through the construction of a raised median.

## Segment 5 - Industrial North

Though Segment 5 includes only two existing study intersections, the bottleneck at SR 21/Augusta Road is expected to contribute to an increasingly significant proportion of the total corridor delay on SR 307 as traffic volumes increase through the 2045 horizon year. Intersection delay and queueing mirror that captured in the Existing Conditions Assessment in Section 3 under 2025 No-Build conditions, but all approaches are expected to operate at LOS F with long delays and queues during one or both peak periods under 2045 No-Build conditions.

Like for the intersection of SR 307 with SR 26/US 80/Louisville Road, queues on the southbound, eastbound, and westbound approaches of the intersection with SR 21/Augusta Road are expected to spill through adjacent upstream intersections in each direction, inflating delay beyond that shown in Table 24. Corridor-level operations are detailed further in Section 4.3.3 and underscore this potential. To mitigate existing conflicts between the heavy truck, passenger car, and rail traffic streams, the long-term improvements listed in Table 27 and Table 28 at the conclusion of Section 4.3 .4 were advanced for further consideration as part of the GDOT ICE process. On Segment 5, these improvements include grade separation of SR 307, SR 21/Augusta Road, and adjacent Norfolk Southern/CSX highway-rail grade crossings.

## Segment 6 - Port Gateway

Capacity analyses suggest that the intersections of SR 307 with Jimmy DeLoach Parkway and SR 25/Coastal Highway/GCT Gate 4 are both likely to operate with moderate to long delays on one or more approaches under 2025 No-Build and 2045 No-Build conditions during the PM peak hour. These operations are driven by high volumes of tractor-trailers exiting GCT Gate 4 and heavy eastbound leftturn volumes to Jimmy DeLoach Parkway towards I-95. However, despite the MOEs shown in Table 23 and Table 24, SimTraffic outputs suggest that both intersections on Segment 6 will operate acceptably under No-Build conditions, though the intersection with Jimmy DeLoach Parkway may experience indirect delay associated with queue spillback from the intersection with SR 21/Augusta Road. Corridor-level operations are detailed further in Section 4.3.3 and allude to this potential.

The long-term improvements detailed in Table 27 and Table 28 at the conclusion of Section 4.3 .4 were advanced for further consideration as part of the GDOT ICE process. On Segment 6, these improvements include reconfiguration of the southbound intersection approach at Jimmy DeLoach Parkway to accommodate larger-scale improvements at the intersection with SR 21/Augusta Road.

### 4.3.3 Segment Analysis Results

The projected No-Build traffic volumes and capacity analysis results presented in this section are intended to be representative of future conditions along the SR 307 corridor during an average weekday
while school is in session. As noted within the Existing Conditions Assessment in Section 3, intersection capacity analysis results alone are not adequate for describing corridor operations holistically, particularly under oversaturated conditions. Accordingly, this section provides a clearer depiction of trends in overall corridor level of service on SR 307 based on segment-level capacity analyses conducted using travel time outputs from SimTraffic Version 11 simulation software.
Corridor travel time outputs from SimTraffic are summarized in Table 25 and Table 26 for the AM and PM peak hours of travel, respectively. These travel time outputs were converted to a corresponding average travel speed and compared to the theoretical base free flow speed, which was assumed equivalent to the 45 MPH posted speed limit on SR 307, to calculate the vehicular LOS as defined by the HCM6 Urban Street Facilities methodology.

Table 25: No-Build Corridor LOS Comparisons (AM Peak Hour)

| Measure | 2021 Existing | $\mathbf{2 0 2 5}$ No-Build | $\mathbf{2 0 4 5}$ No-Build |
| :--- | :---: | :---: | :---: |
| Northbound SR 307 |  |  |  |
| Minimum Travel Time (mm:ss) | $\mathbf{1 5 : 0 1}$ | $16: 49$ | $24: 38$ |
| Maximum Travel Time (mm:ss) | $17: 37$ | $20: 50$ | $33: 21$ |
| Average Travel Speed (mph) | 31.8 | 28.3 | 18.1 |
| Overall Corridor LOS | B | C | D |
| Segment 1 LOS | B | B | B |
| Segment 2 LOS | B | D | F |
| Segment 3 LOS | A | C | C |
| Segment 4 LOS | A | B | B |
| Segment 5 LOS | D | D | F |
| Segment 6 LOS | B | A | A |
| Southbound SR 307 |  |  |  |
| Minimum Travel Time (mm:ss) | $15: 58$ | $16: 36$ | $20: 09$ |
| Maximum Travel Time (mm:ss) | $18: 20$ | $20: 27$ | $29: 42$ |
| Average Travel Speed (mph) | 30.1 | 27.4 | 22.9 |
| Overall Corridor LOS | B | C | D |
| Segment 1 LOS | B | C | C |
| Segment 2 LOS | B | C | D |
| Segment 3 LOS | C | C | D |
| Segment 4 LOS | B | B | C |
| Segment 5 LOS | B | B | C |
| Segment 6 LOS | D | C | E |

Table 26: No-Build Corridor LOS Comparisons (PM Peak Hour)

| Measure | 2021 Existing | 2025 No-Build | $\mathbf{2 0 4 5}$ No-Build |
| :--- | :---: | :---: | :---: |
| Northbound SR 307 |  |  |  |
| Minimum Travel Time (mm:ss) | $14: 13$ | $16: 07$ | $21: 58$ |
| Maximum Travel Time (mm:ss) | $15: 43$ | $18: 03$ | $34: 53$ |
| Average Travel Speed (mph) | 34.2 | 30.1 | 19.6 |
| Overall Corridor LOS | B | B | D |
| Segment 1 LOS | A | B | B |
| Segment 2 LOS | B | C | C |
| Segment 3 LOS | A | B | C |
| Segment 4 LOS | A | B | C |
| Segment 5 LOS | D | E | F |
| Segment 6 LOS | A | A | A |
| Southbound SR 307 | $16: 48$ | $17: 09$ | $19: 43$ |
| Minimum Travel Time (mm:ss) | $20: 19$ | $19: 26$ | $27: 58$ |
| Maximum Travel Time (mm:ss) | 27.9 | 28.1 | 22.0 |
| Average Travel Speed (mph) | C | C | D |
| Overall Corridor LOS | C | C | C |
| Segment 1 LOS | C | C | C |
| Segment 2 LOS | C | C | F |
| Segment 3 LOS | B | B | C |
| Segment 4 LOS | D | C |  |
| Segment 5 LOS | Cegment 6 LOS |  | C |

Based on the results in Table 25 and Table 26, the SR 307 corridor is expected to operate at nearly the same level of service under 2021 Existing and 2025 No-Build conditions. These findings are indicative of the potential operational benefits associated with the proposed I-16 at SR 307 diverging diamond interchange; signalization of Pine Meadow Drive, Prosperity Drive, and Sonny Perdue Drive; and auxiliary lane improvements at SR 26/US 80/Louisville Road. These improvements are expected to offset increases in traffic volume along the study corridor, as the segments of SR 307 between I-16 and Sonny Perdue Drive are among those most congested under existing conditions.
SimTraffic outputs suggest that average travel speed will decrease by less than 5 MPH overall throughout the corridor, and all segments will operate at LOS D or better with the exception of Segment 5 under 2025 No-Build conditions. On the contrary, a substantial decline in corridor operations is expected under 2045 No-Build conditions-despite the planned improvements noted above. Simulation runs yielded corridor speeds commensurate with LOS F on Segment 2 (AM Peak Hour), Segment 3 (PM Peak Hour), and Segment 5 (AM/PM Peak Hour), and the maximum corridor travel time exceeded 30 minutes in the
northbound direction during both peak periods. Moreover, the difference between the minimum and maximum travel time modeled for the corridor was more than 14 minutes in the northbound direction during the PM peak period. Given that each random seed run conducted utilized the same traffic volume inputs, such a spread in traffic conditions across model runs is reflective of significantly over-capacity conditions at critical bottlenecks along the study corridor.

### 4.3.4 Capacity Analysis Summary \& Stage 1 Intersection Control Evaluation

The intersection- and corridor-level operations summarized in Section 4.3.2 and Section 4.3.3 are captured graphically in Figure 34 and Figure 35 for 2045 No-Build conditions. At the surface, the drastic differences in delay and level of service noted between the 2025 and 2045 horizon years across the study corridor suggest that excessive delay and queueing are less likely in the near term than in the long term. However, as stated in the Existing Conditions Assessment (Section 3), the projected traffic volumes used as part of this study are intended to reflect an "average" condition. Consequently, fluctuations in traffic patterns from day-to-day and week-to-week throughout the course of the year may yield better or worse operations than those depicted here. For the purposes of interpreting the results of this study, it should therefore be assumed that the conditions represented in the figures that follow may be experienced by road users sooner than the 2045 horizon year.

Critical simulation observations noted in Figure 34 and Figure 35 include:

- Queueing on northbound SR 307 originating at the intersection with SR 26/US 80/Louisville Road propagate as far upstream as the $\mathrm{I}-16$ interchange during the AM peak hour.
- I-16 ramp traffic is occasionally blocked by these queues, creating the potential for spillback to mainline I-16.
- Average travel speed between I-16 and SR 26/US 80/Louisville Road is less than 10 mph over the simulation period under AM peak hour conditions.
- Queueing on eastbound SR 26/US 80/Louisville Road originating at the intersection with SR 307 extends through the intersection with Pine Barren Road during the AM peak hour.
- Average delay exceeds 10 minutes per vehicle on the eastbound approach of the intersection with SR 307.
- The intersection of SR 307/Bourne Avenue with SR 21/Augusta Road is heavily congested on the southbound approach during the AM peak hour and on the eastbound approach during the PM peak hour.
- Average travel speed between Robert B. Miller Road and SR 21/Augusta Road is less than 10 mph during the simulation period under PM peak hour conditions.
- Queues consistently extend through the CSX Railroad highway-rail crossing in all travel lanes during both peak periods.

Findings from the Existing Conditions Assessment in Section 3 and those noted throughout this section were used to develop the short- and long-term improvements listed in Table 27 and Table 28. These improvements were advanced for further consideration as part of the GDOT ICE process and corridor alternatives development and analysis.

## Key Simulation Observations:

1. Queues on the eastbound I-16 off-ramp extend approximately 725 feet due to congestion on northbound SR 307
2. Queues on the westbound I-16 off-ramp extend approximately 1,050 feet due to congestion on northbound SR 307
3. The westbound approach on Jamaica Run Road experiences excessive delay due to heavy demand and congestion on northbound SR 307
4. The eastbound approach on Old Dean Forest Road experiences excessive delay due to heavy demand and congestion on northbound SR 307
5. The intersection of SR 26/US 80 with SR 307 operates at LOS $F$, with excessive delays and long queues on the eastbound and northbound approaches that impact adjacent intersections
6. The intersection of SR 21/Augusta Road with SR 307 operates at LOS F on all approaches, with excessive delay and long queues that impact adjacent intersections

Eastbound SR 26/US 80 at SR 307 95 ${ }^{\text {th }}$ Percentile Queue Length: 1.5 miles Average Delay: 11.7 minutes/vehicle


## Legend

Intersection LOS A-CIntersection LOS D-EIntersection LOS F- Model-Observed Queue LengthKey Observation


## Key Simulation Observations:

1. The intersection of SR 26/US 80 with SR 307 operates at LOS F, with excessive delays and long queues on the westbound and southbound approaches that impact adjacent intersections
2. The eastbound approach on Distribution Drive experiences excessive delay due to heavy demand and congestion on southbound SR 307
3. The westbound approach on Sonny Perdue Drive experiences excessive delay due to inadequate approach geometry and congestion on southbound SR 307
4. The intersection of SR 21/Augusta Road with SR 307 operates at LOS F, with excessive delay and long queues on the eastbound approach that impact adjacent intersections



Savannah/Hilton Head International Airport


Westbound SR 26/US 80 at SR 307
$95^{\text {th }}$ Percentile Queue Length: $\mathbf{0 . 6 5}$ miles Average Delay: 4.9 minutes/vehicle


- Sunshine Road

$\bigcirc$ Landfill Road


## Legend

Intersection LOS A-CIntersection LOS D-EIntersection LOS F

- Model-Observed Queue LengthKey Observation


## SR 307



## Table 27: Corridor-Level Improvements Summary

| Corridor-Level Improvements |  |
| :---: | :---: |
| Extents | Description of Improvements |
| SR 307 from Pine Meadow Drive to Robert B. Miller Road (Segment $2 /$ Segment $3 /$ Segment 4) | - Long-Term (5+ Years) <br> - Construct a raised median, consolidate driveways where feasible, and convert all unsignalized intersections not found elsewhere in this list to right-in/right-out access only. |
| SR 307 from SR 26/US 80/Louisville Road to Robert B. Miller Road (Segment $3 /$ Segment 4) | - Short-Term (0-5 Years) <br> - Upgrade all signalized intersections to include flashing yellow arrow signal heads, where applicable, and develop time-of-day coordination plans at each intersection. |

Table 28: Intersection-Level Improvements Summary

| Intersection-Level Improvements |  |  |
| :---: | :---: | :---: |
| Intersection No. | Location | Description of Improvements |
| 1 | SR 307 at <br> SR 25/US 17/ Ogeechee Road | - Short-Term (0-5 Years) <br> - Restripe the eastbound left-turn bay to include approximately 350 feet of full-width storage and an appropriate taper length. <br> - Long-Term (5+ Years) <br> - Reconfigure the eastbound approach of the intersection to include dual left-turn lanes with approximately 300 feet of full-width storage and an appropriate taper length. Modify signal phasing to accommodate protected-only operation. <br> - Remove free-flow channelization for the westbound right-turn movement and modify signal phasing to accommodate permitted-overlap operation. <br> - Optimize signal cycle length and splits in the context of the above improvements. |
| 10 | SR 307 at Jamaica Run Road | - Long-Term ( $5+$ Years) <br> - Install a fully actuated traffic signal to include flashing yellow arrow signal heads, as applicable, protected-permissive phasing for the southbound left-turn movement, and permissive phasing for the northbound U -turn movement. <br> - Restripe the westbound approach of the intersection to include one exclusive right-turn lane and one exclusive left-turn lane. <br> - Construct additional pavement width on the west side of the intersection per GDOT Construction Detail $\mathrm{M}-3 \mathrm{~A}$ to accommodate northbound U -turn movements. |
| 11 | SR 307 at Clyde Alexander Way | - Long-Term ( $5+$ Years) $\circ$ Convert intersection access to right-in/right-out only. |
| 12 | SR 307 at Eason Drive | - Long-Term (5+ Years) <br> - Convert intersection access to right-in/right-out only. |
| 13 | $\underset{\text { Road }}{\text { SR } 307 \text { at Old Dean Forest }}$ | - Long-Term (5+ Years) <br> - Convert the intersection to a restricted crossing U-turn (RCUT) configuration with right-in/right-out and major street left-turn access only. |
| 14 | SR 307 at Morgan Industrial Boulevard | - Long-Term (5+ Years) <br> - Install a fully actuated traffic signal to include flashing yellow arrow signal heads, as applicable, and protected-permissive phasing for the southbound left-turn/U-turn movements and northbound U-turn movement. |


| Intersection-Level Improvements |  |  |
| :---: | :---: | :---: |
| Intersection No. | Location | Description of Improvements |
| 15 | SR 307 at <br> SR 26/US 80/Louisville Road | - Short-Term (0-5 Years) <br> - Construct one additional eastbound left-turn lane to form dual left-turn lanes with approximately 500 feet of full-width storage. <br> - Construct one additional westbound left-turn lane to form dual left-turn lanes with approximately 400 feet of full-width storage. <br> - Construct one additional northbound left-turn lane to form dual left-turn lanes with approximately 400 feet of full-width storage. <br> - Construct one additional southbound left-turn lane to form dual left-turn lanes with approximately 250 feet of full-width storage. <br> - Modify signal phasing to include protected left-turn phasing and permitted-overlap right-turn phasing on all approaches. Optimize signal cycle length, splits, and offsets to run in coordination with adjacent signalized intersections on the SR 307 corridor. <br> - Long-Term ( $5+$ Years) <br> - Reconstruct the intersection as a single-point urban interchange (SPUI) or displaced left-turn intersection (see Section 4.4). |
| 17 | SR 307 at Distribution Drive | - Short-Term (0-5 Years) <br> - Install a fully actuated traffic signal with flashing yellow arrow signal heads, where applicable, protected-permissive signal phasing for the northbound left-turn movement, permissive phasing for the southbound left-turn movement, and permitted-overlap phasing for the eastbound right-turn movement. |
| 20 | SR 307 at Hangar Road | - Long-Term (5+ Years) <br> - Convert the intersection to an RCUT configuration with right-in/right-out and major street left-turn access only. |
| 21 | SR 307 at Billy B. Hair Drive | - Long-Term (5+ Years) <br> - Convert the intersection to an RCUT configuration with right-in/right-out and major street left-turn access only. |
| 24 | SR 307 at Commerce Blvd/ Export Boulevard Export Boulevard | - Long-Term ( $5+$ Years) <br> - Upgrade the existing traffic signal to include flashing yellow arrow signal heads for the protected-permissive left-turn phases on SR 307 and permitted-overlap phasing for the northbound rightturn movement on Export Blva. <br> - Reconfigure the southbound approach of the intersection to include one shared through/right-turn lane and one exclusive left-turn lane with approximately 175 feet of full-width storage. |
| 25 | SR 307 at SR 21/Augusta Road | - Long-Term (5+ Years) <br> - Reconstruct the intersection as a quadrant roadway interchange to provide grade separation of SR 307 from the adjacent CSX highway-rail grade crossing and SR 21/Augusta Road (see Section 4.4). |
| 26 | $\begin{gathered} \text { SR } 307 \text { at } \\ \text { Jimmy DeLoach Parkway } \end{gathered}$ | - Long-Term (5+ Years) <br> - Reconfigure the southbound approach of the intersection to include dual right-turn lanes operating under protected-overlap phasing with approximately 525 feet of full-width storage. |

### 4.4 Alternatives Development \& Analysis

### 4.4.1 Stage 2 Intersection Control Evaluation

### 4.4.1.1 Access Management Strategies

The improvement alternatives listed in Table 27 and Table 28 largely consist of geometric modifications needed to support access management throughout the study corridor. Per the GDOT Intersection Control Evaluation Waiver Form, an ICE waiver request may be considered when "The intersection consists of a public roadway intersecting a divided, multilane roadway where the access will be limited to a closed median with only right-in/right-out access that will operate acceptably." The improvements recommended at the intersections of SR 307 with Clyde Alexander Way, Eason Drive, Old Dean Forest Road, Hangar Road, and Billy B. Hair Drive all satisfy this condition. Therefore, ICE Waiver forms were completed for each of these intersections and are included in Appendix D.

Through guidance provided within the GDOT Regulations for Driveway and Encroachment Control, project team workshopping sessions, and engineering judgement, driveways were consolidated, closed, or restricted to partial access as appropriate along the existing four-lane undivided segments of SR 307 between Pine Meadow Drive and Robert B. Miller Road. These recommended access control measures are depicted in the conceptual layouts in Appendix F. For the study intersections along this stretch of the SR 307 corridor, the decision to close the median at certain intersections while providing partial or full access at others was determined based on projected traffic volumes and traffic operations, environmental and right-of-way constraints, and implementation costs. The Savannah Area Geographic Information System (SAGIS) database and other available resources were leveraged, as applicable.

### 4.4.1.2 Signal Upgrades \& Other Minor Intersection Improvements

The GDOT Intersection Control Evaluation Waiver Form also states that a waiver request may be considered if "Proposed improvements do not substantially alter the character of the intersections...such as extending existing turn lane(s) or modifying signal phasing at an existing traffic signal". The improvements recommended at the intersections of SR 307 with SR 25/US 17/Ogeechee Road, Commerce Boulevard/Export Boulevard, and Jimmy DeLoach Parkway each fall into this category.

New traffic signals are recommended at the intersections of SR 307 with Jamaica Run Road, Morgan Industrial Boulevard, and Distribution Drive based on MUTCD signal warrants or the need to accommodate diverted traffic volumes after construction of a raised median along the corridor. In each case, LOS F conditions are expected under No-Build conditions, and multi-lane roundabout alternatives were deemed infeasible based on traffic volumes and the desire to maintain continuity in traffic control along the study corridor. Therefore, an ICE waiver form was also completed in each of these instances. These ICE waiver forms are included in Appendix D.

### 4.4.1.3 Grade Separation \& Major Intersection Improvements

Finally, a Stage 2 ICE analysis was performed at the intersections of SR 307 with SR 26/US 80/ Louisville Road and SR 21/Augusta Road, where multiple improvement alternatives were considered. In each case, projected traffic volumes and location-specific right-of-way and environmental constraints were first identified to eliminate infeasible alternatives. At SR 26/US 80/Louisville Road, planning-level
junction screening tools were then utilized to estimate the volume-to-capacity ( $\mathrm{V} / \mathrm{C}$ ) ratio under candidate concepts and determine which are likely to operate best. Based on the results of these screening efforts, the following alternatives were advanced from Stage 1 to Stage 2:

- Conventional Signalized Intersection with Turn Lane Improvements (Alternative A), which includes a "Baseline" condition with dual left-turn lanes and exclusive right-turn lanes on all intersection approaches
- Full Displaced Left-Turn (DLT) Intersection (Alternative B), which includes Displaced left-turn movements on all four intersection approaches
- Single-Point Urban Interchange (SPUI) (Alternative C)
- SR 26/US 80/Louisville Road elevated over SR 307/Dean Forest Road
- At-grade signalized intersection on SR 307/Dean Forest Road to accommodate ramp traffic

At SR 21/Augusta Road, the proximity of a CSX Railroad highway-rail grade crossing to the west of the intersection limits the feasibility of most candidate concepts. Based on location context and the objectives of improvements at this intersection, the following alternatives were advanced from Stage 1 to Stage 2:

- Single-Quadrant Interchange (Alternative A)
- Single quadrant roadway in the northeast quadrant of the interchange with a signalized intersection on SR 21/Augusta Road and a signalized intersection on SR 307/Bourne Avenue
- SR 307/Bourne Avenue elevated over SR 21/Augusta Road
- Two-Quadrant Interchange (Alternative B)
- Quadrant roadways in the northeast and southeast quadrants of the interchange with two signalized intersections on SR 21/Augusta Road and a signalized intersection on SR 307/Bourne Avenue
- SR 307/Bourne Avenue elevated over SR 21/Augusta Road
- Hybrid Two-Quadrant Interchange (Alternative C)
- Quadrant roadways in the northeast and southeast quadrants of the interchange with two signalized intersections on SR 21/Augusta Road and free-flowing ramps on SR 307/ Bourne Avenue
- SR 307/Bourne Avenue elevated over SR 21/Augusta Road

As part of the ICE Stage 2 analysis, traffic operations were analyzed in Synchro and SimTraffic software under the three alternatives listed for each intersection. In each case, simulation runs were conducted with access management strategies, signal upgrades, and minor intersection improvements recommended at other intersections along the corridor in place so that the independent utility of each concept could be evaluated. The results of these analyses are summarized in Figure 36 and Figure 37 along with the lane configuration assumptions associated with each scenario. Full GDOT ICE worksheets are included in Appendix D.


Proposed Alternative A: Conventional Intersection With Turn Lane Improvements


## Proposed Alternative B: Full Displaced Left-

Turn Intersection


Proposed Alternative C: Single-Point Urban Interchange


SR 307 at SR 26/US 80/Louisville Road Alternative Comparisons (LOS, Delay, V/C Ratio, and Corridor Travel Time)

| Conceptual Alternative | Measure of Effectiveness | SR 307 at SR 26/US 80/Louisville Road Weighted Average Measures of Effectiveness* |  |  |  |  | SR 307 Average Corridor Travel Time (mm:ss) |  | Through Traffic Delay (Peak Direction) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | EB | WB | NB | SB | Overall |  |  |  |  |
| AM Peak Hour |  |  |  |  |  |  |  |  | Eastbound SR 26/US 80 |  |
| 2045 No-Build <br> Existing Geometry | LOS (Delay, s/veh) | F (182.2) | E (64.2) | F (137.8) | E (67.3) | F(130.4) | Northbound | 28:07 | Average (s/veh) | 701.2 |
|  | Maximum V/C Ratio | 1.31 | 0.91 | 1.23 | 0.85 | 1.31 | Southbound | 22:18 | Total (veh-hr) | 231.8 |
| 2045 Build <br> Alternative A | LOS (Delay, s/veh) | F (91.1) | E (68.6) | F (92.3) | F (82.6) | F (86.4) | Northbound | 22:16 | Average (s/veh) | 203.2 |
|  | Maximum V/C Ratio | 1.10 | 1.06 | 1.07 | 0.88 | 1.10 | Southbound | 20:55 | Total (veh-hr) | 74.9 |
| 2045 Build Alternative B** | LOS (Delay, s/veh) | D (42.8) | D (37.0) | D (54.2) | C (33.7) | D (43.9) | Northbound | 16:51 | Average (s/veh) | 52.2 |
|  | Maximum V/C Ratio | - | - | - | - | - | Southbound | 16:29 | Total (veh-hr) | 19.7 |
| 2045 Build Alternative C | LOS (Delay, s/veh) | D (41.5) | C (28.9) | C (21.2) | C (28.0) | B (19.8) | Northbound | 16:59 | Average (s/veh) | 0.0 |
|  | Maximum V/C Ratio | 0.81 | 0.42 | 0.87 | 0.57 | 0.87 | Southbound | 17:05 | Total (veh-hr) | 0.0 |
| PM Peak Hour |  |  |  |  |  |  |  |  | Westbound SR 26/US 80 |  |
| 2045 No-Build Existing Geometry | LOS (Delay, s/veh) | E (63.4) | F (100.0) | E (64.2) | F (97.5) | F (83.2) | Northbound | 26:00 | Average (s/veh) | 291.3 |
|  | Maximum V/C Ratio | 0.88 | 1.06 | 1.02 | 1.07 | 1.07 | Southbound | 23:09 | Total (veh-hr) | 96.0 |
| 2045 Build <br> Alternative A | LOS (Delay, s/veh) | D (35.3) | E (57.7) | E (75.7) | E (57.5) | E (56.2) | Northbound | 23:26 | Average (s/veh) | 99.5 |
|  | Maximum V/C Ratio | 0.66 | 0.98 | 1.08 | 1.02 | 1.08 | Southbound | 20:48 | Total (veh-hr) | 32.1 |
| 2045 Build <br> Alternative B** | LOS (Delay, s/veh) | C (26.0) | D (35.5) | D (38.3) | C (26.6) | C (31.8) | Northbound | 16:11 | Average (s/veh) | 37.1 |
|  | Maximum V/C Ratio | - | - | - | - | - | Southbound | 17:01 | Total (veh-hr) | 12.2 |
| 2045 Build <br> Alternative C | LOS (Delay, s/veh) | C (30.3) | D (47.0) | C (28.8) | B (13.6) | B (17.2) | Northbound | 16:33 | Average (s/veh) | 0.0 |
|  | Maximum V/C Ratio | 0.45 | 0.67 | 0.84 | 0.60 | 0.84 | Southbound | 18:03 | Total (veh-hr) | 0.0 |

*Weighted average delay and $\mathrm{V} / \mathrm{C}$ ratio calculated for equivalent comparison with conventional intersection configuration
$* W e i g h t e d ~ a v e r a g e ~ d e l a y ~ a n d ~ V / C ~ r a t i o ~ c a l c u l a t e d ~ f o r ~ e q u i v a l e n t ~ c o m p a r i s o n ~ w i t h ~ c o n v e n t i o n a l ~$
${ }^{* *} \mathrm{~V} / \mathrm{C}$ ratio varies across the five intersections comprising the displaced left-turn configuration

Figure 36 - Conceptual Alternative Comparisons - SR 307 at SR 26/US 80/Louisville Road


Proposed Alternative A: Single-Quadrant Interchange (Signalized Access on SR 307)


SR 307 at SR 21/Augusta Road Alternative Comparisons (LOS, Delay, V/C Ratio, and Corridor Travel Time)

| Conceptual Alternative | Measure of Effectiveness | SR 307 at SR 21/Augusta Road* |  |  |  |  | SR 307 Average Corridor Travel Time (mm:ss) |  | Through Traffic Delay <br> (Peak Direction) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | EB | WB | NB | SB | Overall |  |  |  |  |
| AM Peak Hour |  |  |  |  |  |  |  |  | Southbound SR 21 |  |
| 2045 No-Build Existing Geometry | LOS (Delay, s/veh) | F (150.4) | F (144.5) | F (107.5) | F (152.9) | F (137.4) | Northbound | 28:07 | Average (s/veh) | 327.1 |
|  | Maximum V/C Ratio | 1.19 | 1.22 | 1.36 | 1.21 | 1.36 | Southbound | 22:18 | Total (veh-hr) | 132.3 |
| 2045 Build Alternative A | LOS (Delay, s/veh) | C (28.6) | C (22.4) | - | C (24.7) | C (25.1) | Northbound | 16:30 | Average (s/veh) | 24.2 |
|  | Maximum V/C Ratio | 0.82 | 0.75 | - | 0.68 | 0.82 | Southbound | 17:02 | Total (veh-hr) | 10.6 |
| 2045 Build <br> Alternative B | LOS (Delay, s/veh) | B (17.2) | C (24.9) | - | B (16.4) | B (19.4) | Northbound | 16:59 | Average (s/veh) | 31.4 |
|  | Maximum V/C Ratio | 0.54 | 0.64 | - | 0.73 | 0.73 | Southbound | 17:05 | Total (veh-hr) | 14.8 |
| 2045 Build <br> Alternative C | LOS (Delay, s/veh) | - | - | C (17.5) | - | C (17.5) | Northbound | 16:42 | Average (s/veh) | 30.6 |
|  | Maximum V/C Ratio | 0.23 | 0.24 | 0.58 | 0.65 | 0.65 | Southbound | 16:58 | Total (veh-hr) | 14.6 |
| PM Peak Hour |  |  |  |  |  |  |  |  | Northbound SR 21 |  |
| 2045 No-Build <br> Existing Geometry | LOS (Delay, s/veh) | F (205.7) | E (79.8) | D (49.4) | D (48.8) | F (85.1) | Northbound | 26:00 | Average (s/veh) | 47.1 |
|  | Maximum V/C Ratio | 1.51 | 0.89 | 0.82 | 0.83 | 1.51 | Southbound | 23:09 | Total (veh-hr) | 17.9 |
| 2045 Build Alternative A | LOS (Delay, s/veh) | C (20.8) | C (28.0) | - | B (19.8) | C (22.1) | Northbound | 16:28 | Average (s/veh) | 44.3 |
|  | Maximum V/C Ratio | 0.77 | 0.59 | - | 0.70 | 0.77 | Southbound | 18:07 | Total (veh-hr) | 16.8 |
| 2045 Build Alternative B | LOS (Delay, s/veh) | B (17.2) | C (24.9) | - | B (16.4) | B (19.4) | Northbound | 16:33 | Average (s/veh) | 45.7 |
|  | Maximum V/C Ratio | 0.54 | 0.64 | - | 0.73 | 0.73 | Southbound | 18:03 | Total (veh-hr) | 23.3 |
| 2045 Build <br> Alternative C | LOS (Delay, s/veh) | - | - | C (19.0) | - | C (19.0) | Northbound | 16:00 | Average (s/veh) | 36.4 |
|  | Maximum V/C Ratio | 0.35 | 0.15 | 0.63 | 0.38 | 0.63 | Southbound | 17:53 | Total (veh-hr) | 15.0 |

Figure 37 - Conceptual Alternative Comparisons - SR 307 at SR 21/Augusta Road

### 4.4.1.4 ICE Stage 2 Results - SR 307 at SR 26/US 80/Louisville Road

## Capacity Analysis

As shown in Figure 36 and discussed in Section 4.3.2, conventional intersection improvements (i.e., new/modified turn lanes) are likely to extend the serviceable life of the intersection with SR 26/ US 80/Louisville Road under its existing at-grade configuration. However, corridor operations on both SR 307 and SR 26/US 80/Louisville Road are expected to deteriorate significantly by the 2045 horizon year without intersection reconstruction. Under 2045 No-Build conditions, all intersection approaches operate at LOS F during one or both peak periods, and simulated through traffic delay on SR 26/ US 80/Louisville Road in the peak direction of travel (i.e., eastbound during the AM peak hour, and westbound during the PM peak hour) ranges from 5 to 11 minutes per vehicle. Though conventional intersection improvements (2045 Build Alternative A) offer significant decreases in peak hour delay relative to the No-Build condition, the intersection still operates at LOS F overall during the AM peak period when simulated delay on eastbound SR 26/US 80/Louisville Road exceeds 200 seconds per vehicle.

Comparatively, both the DLT (2045 Build Alternative B) and SPUI (2045 Build Alternative C) concepts are expected to operate acceptably under 2045 Build conditions. In each case, noteworthy improvements in corridor travel time on SR 307 within the project extents are anticipated. Relative to 2045 No-Build conditions, corridor travel time decreases by 5 to 10 minutes per vehicle in each direction on SR 307, while decreases of 3 to 5 minutes per vehicle are noted relative to 2045 Build Alternative A conditions under Alternative B or Alternative C. When comparing Alternative B and Alternative C, the intersection operates slightly more efficiently (LOS B versus LOS C or LOS D) as a SPUI, since the DLT alternative introduces one new traffic signal in each direction. However, despite this finding, peak hour corridor travel time on SR 307 under the SPUI alternative is generally the same as that observed under the DLT alternative.

Considering the SR 307 corridor in isolation, Alternative B and Alternative C are expected to operate similarly. However, given that SR 26/US 80/Louisville Road is elevated over SR 307 under the SPUI alternative (i.e., operates with no control delay through the intersection), benefits to the SR 26/ US 80/Louisville Road corridor are far greater under this scenario than under the DLT alternative. As such, a weighted average delay and V/C calculation was used to allow for a fair comparison across alternatives. Nonetheless, potential benefits on the SR 26/US 80/Louisville Road corridor and implications to regional travel patterns would be realized beyond the limits of this study.

## Other Considerations

The potential for crash reduction under each alternative was not captured as part of the Stage 2 evaluation, as crash modification factors are currently not defined for the conversion of an existing signalized, at-grade intersection to a SPUI. Since the "Safety" category comprises 33\% of the total ICE score for each alternative, final scores would have otherwise been skewed towards Alternative A and Alternative B. Second, project costs were first estimated using GDOT's Cost Estimating Tool included within the Excel-based ICE tool but are unlikely to capture the full cost of right-of-way acquisition, as existing or proposed development in all four quadrants of the intersection are likely to be impacted to
varying degrees. Finally, environmental impacts and stakeholder support were assumed comparable across all three concepts.

## ICE Stage 2 Results

The caveats noted for the "Safety" and "Cost Estimates" evaluation criteria previously compromise the validity of $53 \%$ of the total ICE Stage 2 scoring. Therefore, the raw score and rank produced within the Excel-based tool were not used to select alternatives for advancement. Instead, quantitative capacity analysis results were weighed against a qualitative assessment of other factors such as safety and cost.

The Existing Conditions Assessment in Section 3 identified contextual Segment 3, which includes the intersection with SR 26/US 80/Louisville Road, as the segment with the highest rate of tractor-trailerinvolved crashes. Along this segment, approximately one out of three crashes involved at least one tractor-trailer, which highlights the need to separate the freight-focused traffic stream on SR 307 from that on SR 26/US 80/Louisville Road. Additionally, Alternative C (SPUI) is expected to minimize right-ofway acquisition relative to Alternative $B$ (DLT) by compressing the overall footprint of the intersection. Lastly, higher costs associated with the bridge structure required to elevate SR 26/US 80/Louisville Road over SR 307 are offset by improvements in operations. On SR 26/US 80/Louisville Road alone, a delay savings of approximately 32 vehicle-hours is expected during the peak hours of travel on an average day under Alternative C (SPUI) relative to Alternative B (DLT). For these reasons, Alternative C (SPUI) was selected for advancement.

### 4.4.1.5 ICE Stage 2 Results - SR 307 at SR 21/Augusta Road

## Capacity Analysis

As shown in Figure 37 and discussed in Section 4.4.1.3, the proximity of a CSX Railroad highway-rail grade crossing to the west of the intersection limits the feasibility of most candidate concepts. Based on location context and the objectives of improvements at this intersection, three variations of a quadrant interchange were considered, each elevating SR 307 over SR 21/Augusta Road and the at-grade railroad crossing to the west. All three alternatives are expected to reduce peak hour delay at the intersection significantly and improve corridor operations on both SR 307 and SR 21/Augusta Road under 2045 Build conditions. In each case, corridor travel time on SR 307 decreases by 5 to 10 minutes per vehicle, while delay to through traffic in the peak direction on SR 21/Augusta Road (i.e., southbound during the AM peak, northbound during the PM peak) is reduced by approximately 120 vehicle-hours.

Examining further, directional peak hour traffic volumes on the quadrant roadway exceed 1,200 vehicles per hour under Alternative A (Single-Quadrant Interchange), and left-turn movements from SR 307 to the quadrant roadway and from the quadrant roadway to southbound SR 21 both exceed 800 vehicles per hour during the PM peak hour. Given the magnitude of these volumes, the recommended signalized intersection of the quadrant roadway with SR 21/Augusta Road is expected to operate at a maximum V/C ratio greater than 1.0 during the AM and PM peak hour. Both signalized intersections with SR 21/Augusta Road are expected to operate at a maximum V/C ratio less than 1.0 under Alternative $B$ (Two-Quadrant Interchange (Signalized Access on SR 307)) and Under Alternative C (Two-Quadrant Interchange (Unsignalized Access on SR 307)).

## Other Considerations

Given the similarities in operations and safety benefits among the three alternatives considered, the determination of a selected alternative for advancement was made in large part based on other factors such as cost and access for adjacent businesses. Under Alternative C (Two-Quadrant Interchange (Unsignalized Access on SR 307)), the junction of the quadrant roadway system with SR 307 effectively functions as a partial cloverleaf interchange with free-flowing loop ramps. Routing through the interchange under this scenario yields peak hour volumes of up to 900 vehicles per hour on each loop ramp, necessitating extended auxiliary lanes in both directions on SR 307 to the west and a bridge structure wide enough to carry six travel lanes. Conversely, both Alternative A (Single-Quadrant Interchange) and Alternative B (Two-Quadrant Interchange (Signalized Access on SR 307)) are expected to operate sufficiently with a four-lane cross-section on SR 307, thereby significantly reducing total construction costs.

Regarding access for adjacent development, Alternative A (Single-Quadrant Interchange) produces the most constrained condition, as projected traffic volumes on the quadrant roadway are too high to accommodate any commercial driveways in the northeast quadrant of the intersection. Therefore, access to southbound SR 21/Augusta Road from these businesses would likely occur via northbound U-turn movements at the recommended signalized intersection with the quadrant roadway. Under Alternative C (Two-Quadrant Interchange (Unsignalized Access on SR 307)), access to and from development in the northeast quadrant remains constrained due to the restriction of minor street through and left-turn movements at the intersection with SR 307. However, under Alternative B (Two-Quadrant Interchange (Signalized Access on SR 307)), signalization of the quadrant roadway system's intersection with SR 307 allows for minor street through and left-turn movements, thereby simplifying trips to and from development surrounding the intersection.

## ICE Stage 2 Results

Similar to the intersection of SR 307 with SR 26/US 80/Louisville Road, the "Safety" and "Cost Estimates" evaluation criteria could not be adequately assessed within the Excel-based ICE tool. Since these criteria comprise $53 \%$ of the total ICE Stage 2 scoring, a score-based ranking of the alternatives was not used to determine a selected alternative. Instead, quantitative capacity analysis results were weighed against a qualitative assessment of other factors such as cost and access for adjacent businesses. Based on the considerations presented within this section, Alternative B (Two-Quadrant Interchange (Signalized Access on SR 307)) was selected for advancement.

### 4.4.2 Horizon Year Build Traffic Volume Development

The same traffic volumes depicted in Figure 30 through Figure 33 were applied to the 2025 Build scenario, as the nature of recommended improvements was not such that diversion of traffic volumes is expected. However, under the 2045 Build scenario, access management strategies will close median access at numerous study intersections, requiring that minor street left-turn movements divert to adjacent intersections as U-turn movements. The 2025 and 2045 Build peak hour traffic volumes are presented in Figure 38 through Figure 41.





### 4.4.3 Intersection Analysis Results

Capacity analysis results for each of the study intersections are summarized by contextual segment in Table 29 (2025 Build), and Table 30 (2045 Build). Key findings are discussed below, with a focus on trends in operations between the 2025 and 2045 horizon years for intersections exhibiting the greatest control delay. The improvements modeled in Synchro software correspond with those presented in Table 27 and Table 28 (refer to Section 4.3.4) and detailed further in Section 4.4.1. For reporting purposes, SR 307 is assumed to have a north-south orientation from SR 25/US 17/Ogeechee Road to Robert B. Miller Road and an east-west orientation from Robert B. Miller Road to SR 25/Coastal Highway.

### 4.4.3.1 2025 (Short-Term) Build

Critical improvements considered under the 2025 horizon year include:

- Intersection improvements at SR 25/US 17/Ogeechee Road
- Intersection improvements at SR 26/US 80/Louisville Road
- Signalization of the intersection of SR 307 with Distribution Drive
- Corridor retiming between SR 26/US 80/Louisville Road and Robert B. Miller Road
- Signal upgrades, as applicable, across the full study corridor

With these improvements in place, operations are expected to improve most significantly on Segment 3 (between SR 26/US 80/Louisville Road and Sonny Perdue Drive). At Distribution Drive, LOS F conditions observed during both peak periods under 2025 No-Build conditions are expected to be mitigated upon the installation of a traffic signal, with LOS D or better observed on all approaches during the AM and PM peak hour under 2025 Build conditions. When this signal and others along Segment 3 are upgraded to include flashing yellow arrow signal heads and to run in coordination during the peak periods of the day, additional improvements in intersection operations are expected. Though numeric changes in delay at each intersection are modest under 2025 Build conditions, greater benefit is anticipated at the corridor level, particularly as traffic volumes continue to increase beyond the 2025 horizon year.

SR 307

Table 29: 2025 Build Intersection Capacity Analysis Results

| Int. | Intersection Name | Intersection Traffic Control | Approach LoS (Delay, s/veh)' - AM Peak Hour |  |  |  | Intersection Delay (s/veh) ${ }^{2}$ AM Peak Hour | Approach LoS (Delay, s/ven) ${ }^{\text {' - PM Peak Hour }}$ |  |  |  | Intersection Delay (s/veh) ${ }^{2}$ PM Peak Hour |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | $N B$ | SB | $E B$ | WB |  | NB | SB | EB | WB |  |
| Segment 1 - Community Gateway |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | SR 307 at SR 25/US 17/Ogeechee Road | Signalized | - | $\mathrm{D}(41.8)$ | A (6.2) | B (16.5) | B (12.5) | - | C (28.1) | B (13.0) | B (18.4) | B (18.8) |
| 2 | SR 307 at Landfill Road | twsc | A (8.3) | A (0.0) | B (14.5) | - | B (14.5) | A (9.1) | A (0.0) | C (18.8) | - | C (18.8) |
| 3 | SR 307 at Sunshine Avenue | Twsc | A (9.5) | A (9.3) | C (18.2) | C (18.0) | C (18.2) | B (11.3) | A (8.9) | C (24.8) | C (23.2) | C (24.8) |
| 4 | SR 307 at Southbridge Boulevard | Signalized | D (35.0) | A (9.5) | D (44.1) | B (17.2) | C (28.3) | B (18.8) | A (6.4) | $\mathrm{C}(34.9)$ | C (22.7) | B (16.1) |
| Segment 2 - Industrial South |  |  |  |  |  |  |  |  |  |  |  |  |
| 5-A | SR 307 at l-16 EB Ramps (SBT/EBR) | Signalized | - | D (45.8) | B (15.5) | - | C (28.1) | - | B (13.3) | B (16.1) | - | B (14.0) |
| 5-B | SR 307 at l-16 EB Ramps (NBT/EBL) | Signalized | A (5.3) | - | D (44.3) | - |  | B (12.7) | - | B (16.3) | - |  |
| 6-A | SR 307 at l-16 WB Ramps (NBT/WBR) | Signalized | A (7.5) | - | - | C (28.8) | C (24.7) | C (20.8) | - | - | B (17.0) | B (17.9) |
| 6-B | SR 307 at l-16 WB Ramps (SBT/WBL) | Signalized | - | D (50.4) | - | B (19.2) |  | - | B (17.6) | - | B (14.0) |  |
| 7 | SR 307 at Pine Meadow Drive | Signalized | B (10.6) | B (10.6) | D (36.2) | E (67.2) | B (17.7) | B (11.3) | B (14.1) | C (23.9) | $\mathrm{D}(52.1)$ | B (18.2) |
| 8 | SR 307 at Airport Park Drive | TWSC | A (0.0) | A (0.0) | - | C (16.7) | C (16.7) | A (0.0) | A (0.0) | - | B (11.6) | B (11.6) |
| 9 | SR 307 at Prosperity Drive | Signalized | A (5.5) | A (8.8) | C (30.4) | C (33.1) | A (7.8) | A (9.2) | B (15.7) | C (20.5) | C (33.6) | B (14.8) |
| 10 | SR 307 at Jamaica Run Road | TWSC | A (0.0) | B (14.0) | - | E (38.1) | E (38.1) | A (0.0) | B (11.4) | - | C (16.5) | C (16.5) |
| 11 | SR 307 at Clyde Alexander Way | TWSC | B (10.3) | B (13.5) | F (70.7) | F (102.0) | F (102.0) | B (12.6) | B (10.9) | F (83.1) | F (112.5) | F (112.5) |
| 12 | SR 307 at Eason Drive | TWSC | B (10.6) | B (13.4) | F (65.3) | F (119.7) | F (119.7) | B (12.8) | B (11.0) | F (61.3) | F (85.4) | F (85.4) |
| 13 | SR 307 at Old Dean Forest Road | TWSC | A (9.6) | A (0.0) | C (21.6) | - | C (21.6) | B (13.1) | A (0.0) | C (18.6) | - | C (18.6) |
| 14 | SR 307 at Morgan Industrial Boulevard | TwSC | A (0.0) | D (28.1) | - | C (20.4) | C (20.4) | A (0.0) | C (16.6) | - | D (25.4) | D (25.4) |
| Segment 3 - Industrial Central |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 | SR 307 at SR 26/US 80/Louisville Road | Signalized | E (59.8) | D (48.5) | E (57.7) | D (35.9) | D (53.3) | $\mathrm{D}(42.0)$ | C (25.1) | D (35.1) | D (47.8) | D (37.9) |
| 16 | SR 307 at Old Louisville Road | Signalized | A (1.0) | A (1.0) | D (52.5) | D (41.7) | A (7.5) | A (0.4) | A (7.9) | D (46.5) | D (51.1) | A (9.0) |
| 17 | SR 307 at Distribution Drive | TWSC | A (2.4) | A (3.4) | D (48.6) | C (34.3) | A (5.6) | A (3.6) | A (6.8) | D (47.0) | D (38.1) | A (9.9) |
| 18 | SR 307 at Sonny Perdue Drive | Signalized | A (7.6) | A (9.0) | - | D (48.4) | B (13.4) | B (16.5) | B (13.7) |  | D (42.4) | B (19.8) |
| Segment 4-Ailport |  |  |  |  |  |  |  |  |  |  |  |  |
| 19 | SR 307 at Product Support Road | Signalized | A (1.8) | A (6.1) | E (61.9) | E (56.4) | A (6.1) | D (35.1) | C (23.8) | D (53.3) | D (52.0) | C (34.9) |
| 20 | SR 307 at Hangar Road | TWSC | B (10.0) | $\mathrm{B}(12.5)$ | E (38.0) | F (54.1) | F (54.1) | B (11.5) | B (11.4) | F (116.6) | F (233.0) | F (233.0) |
| 21 | SR 307 at Billy B. Hair Drive | TWSC | B (10.2) | A (0.0) | B (14.5) | - | B (14.5) | B (11.6) | A (0.0) | C (18.8) | - | C (18.8) |
| 22 | SR 307 at Davidson Drive | Signalized | A (3.6) | A (0.4) | $\mathrm{E}(57.5)$ | D (54.4) | A (5.8) | B (11.0) | C (31.3) | D (48.2) | $\mathrm{D}(36.1)$ | C (24.6) |
| 23 | SR 307 at Robert B. Miller Road | Signalized | - | D (44.5) | A (2.1) | B (14.1) | B (14.0) | - | D (41.5) | $\mathrm{C}(21.8)$ | B (16.1) | C (23.8) |
| Segment 5-Industrial North |  |  |  |  |  |  |  |  |  |  |  |  |
| 24 | SR 307 at Commerce Boulevard/Export Boulevard | Signalized | D (36.6) | D (39.4) | A (9.0) | A (9.1) | B (10.9) | D (37.6) | D (43.8) | B (11.0) | A (6.8) | B (13.3) |
| 25 | SR 307 at SR 21/Augusta Road | Signalized | E (69.8) | E (56.2) | F (86.1) | F (119.1) | E (76.8) | D (42.3) | D (36.7) | F (81.6) | F (98.1) | E (55.5) |
| Segment 6 - Port Gateway |  |  |  |  |  |  |  |  |  |  |  |  |
| 26 | SR 307 at Jimmy DeLoach Pkwy | Signalized | - | B (14.1) | B (12.3) | B (11.9) | B (13.2) | - | B (10.8) | B (14.3) | B (13.1) | B (13.0) |
| 27 | SR 307 at SR 25/Coastal Highway | Signalized | C (31.4) | D (35.9) | B (17.4) | D (51.9) | C (31.9) | C (30.6) | D (46.1) | C (25.2) | E (66.6) | D (41.2) |

${ }^{1}$ Approach delay reported for left-turn movement only on the major street at unsignalized intersections
Overall intersection delay reported as the worst minor street approach at unsignalized intersections

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Table 30: 2045 Build Intersection Capacity Analysis Results

|  | Intersection Name | Intersection Traffic Control | Approach LOS (Delay, s/veh) ${ }^{1}$ - AM Peak Hour |  |  |  | Intersection Delay (s/veh) ${ }^{2}$ AM Peak Hour | Approach LOS (Delay, s/ven) ${ }^{1}$ - PM Peak Hour |  |  |  | Intersection Delay (s/veh) ${ }^{2}$ PM Peak Hour |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| No. |  |  | $N B$ | SB | EB | WB |  | $N B$ | SB | EB | WB |  |
| Segment 1 - Community Gateway |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | SR 307 at SR 25/US 17/Ogeechee Road | Signalized | - | C (26.6) | C (22.6) | C (23.2) | C (23.3) | - | D (49.6) | C (26.7) | C (31.1) | C (33.6) |
| 2 | SR 307 at Landfill Road | Twsc | A (8.7) | A (1.1) | C (23.4) | - | C (23.4) | A (9.7) | A (0.0) | D (28.3) | - | D (28.3) |
| 3 | SR 307 at Sunshine Avenue | TWSC | A (9.9) | B (10.1) | D (26.1) | C (24.7) | D (26.1) | B (12.9) | A (9.4) | E (37.0) | E (38.4) | E (38.4) |
| 4 | SR 307 at Southbridge Boulevard | Signalized | C (25.2) | B (10.5) | E (59.5) | D (35.7) | C (30.0) | B (15.7) | B (10.0) | D (48.0) | C (27.4) | B (18.8) |
| Segment 2 - Industrial South |  |  |  |  |  |  |  |  |  |  |  |  |
| 5-A | SR 307 at I-16 EB Ramps (SBT/EBR) | Signalized | - | E (65.7) | B (16.8) | - | C (28.6) | - | C (27.8) | B (17.2) | - | C (22.6) |
| 5-B | SR 307 at l-16 EB Ramps (NBT/EBL) | Signalized | A (6.6) | - | D (37.2) | - |  | B (19.9) | - | B (17.3) | - |  |
| 6-A | SR 307 at l-16 WB Ramps (NBT/WBR) | Signalized | C (34.6) | - | - | C (22.0) | C (31.0) | C (24.8) | - |  | B (17.6) | C (24.3) |
| 6-B | SR 307 at l-16 WB Ramps (SBT/WBL) | Signalized | - | D (39.3) | - | B (18.0) |  | - | C (29.1) | - | B (14.9) |  |
| 7 | SR 307 at Pine Meadow Drive | Signalized | D (40.8) | B (10.6) | D (42.9) | F (108.3) | D (38.5) | C (23.6) | C (29.9) | D (54.5) | E (73.2) | C (34.3) |
| 8 | SR 307 at Airport Park Drive | TWSC | $\mathrm{A}(0.0)$ | $\mathrm{A}(0.0)$ | - | D (29.8) | D (29.8) | A (0.0) | A (0.0) |  | B (13.2) | B (13.2) |
| 9 | SR 307 at Prosperity Drive | Signalized | $\mathrm{A}(6.7)$ | C (21.1) | C (33.4) | C (30.1) | B (13.4) | B (10.4) | B (17.4) | D (47.2) | C (34.1) | B (19.2) |
| 10 | SR 307 at Jamaica Run Road | twsc | A (4.5) | A (5.1) | - | E (66.9) | A (8.3) | A (3.9) | A (5.3) | - | D (35.1) | A (5.3) |
| 11 | SR 307 at Clyde Alexander Way | TWSC | $\mathrm{A}(0.0)$ | A (0.0) | B (14.5) | C (21.0) | C (21.0) | A (0.0) | $\mathrm{A}(0.0)$ | C (22.5) | C (16.4) | C (22.5) |
| 12 | SR 307 at Eason Drive | TWSC | $\mathrm{A}(0.0)$ | $\mathrm{A}(0.0)$ | B (14.0) | D (25.3) | D (25.3) | A (0.0) | $\mathrm{A}(0.0)$ | C (17.8) | C (18.4) | C (18.4) |
| 13 | SR 307 at Old Dean Forest Road | twsc | B (12.3) | A (0.0) | C (23.0) | - | C (23.0) | C (18.4) | $\mathrm{A}(0.0)$ | D (29.4) | - | D (29.4) |
| 14 | SR 307 at Morgan Industrial Boulevard | TWSC | B (12.2) | A (2.9) | - | C (31.6) | A (9.1) | A (5.8) | A (6.6) | - | D (52.7) | A (7.9) |
| Segment 3-Industrial Central |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 | SR 307 at SR 26/US 80/Louisville Road | Signalized | C (21.2) | C (28.0) | D (41.5) | C (28.9) | C (27.1) | C (28.8) | B (13.6) | C (30.3) | D (47.0) | C (24.7) |
| 16 | SR 307 at Old Louisville Road | Signalized | D (48.4) | A (4.2) | D (52.7) | D (40.0) | C (34.8) | A (0.6) | A (1.9) | D (48.5) | E (55.5) | A (5.1) |
| 17 | SR 307 at Distribution Drive | TWSC | A (2.2) | B (10.4) | D (45.2) | C (30.8) | A (7.1) | A (7.3) | B (14.8) | E (61.3) | D (35.6) | B (16.9) |
| 18 | SR 307 at Sonny Perdue Drive | Signalized | B (15.6) | C (20.7) |  | E (55.1) | C (20.5) | C (30.1) | A (9.2) |  | E (56.8) | C (21.6) |
| Segment 4-Airport |  |  |  |  |  |  |  |  |  |  |  |  |
| 19 | SR 307 at Product Support Road | Signalized | B (16.4) | A (9.8) | E (56.3) | D (51.1) | B (15.6) | D (45.3) | D (45.2) | E (59.9) | D (54.6) | D (48.8) |
| 20 | SR 307 at Hangar Road | Twsc | B (11.8) | C (15.9) | B (12.2) | C (16.7) | C (16.7) | B (13.7) | B (14.3) | C (15.8) | C (22.6) | C (22.6) |
| 21 | SR 307 at Billy B. Hair Drive | TWSC | B (12.2) | A (0.0) | B (12.1) | - | B (12.1) | B (13.7) | A (0.0) | B (14.7) | - | B (14.7) |
| 22 | SR 307 at Davidson Drive | Signalized | A (9.1) | C (20.2) | D (51.9) | D (48.6) | B (15.6) | B (16.3) | $\mathrm{D}(38.9)$ | D (47.8) | C (31.7) | C (29.3) |
| 23 | SR 307 at Robert B. Miller Road | Signalized | - | D (38.6) | C (26.3) | C (21.4) | C (26.2) |  | D (36.1) | A (4.8) | C (25.5) | B (15.7) |

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| Int. No. | Intersection Name | Intersection Traffic Control | Approach LOS (Delay, s/veh) ${ }^{1}$ - AM Peak Hour |  |  |  | Intersection Delay (s/veh) ${ }^{2}$ | Approach LOS (Delay, s/veh) ${ }^{1}$ - PM Peak Hour |  |  |  | Intersection Delay (s/veh) ${ }^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | NB | SB | EB | WB |  | $N B$ | SB | EB | WB |  |
| Segment 5-Industrial North |  |  |  |  |  |  |  |  |  |  |  |  |
| 24 | SR 307 at Commerce Boulevard/Export Boulevard | Signalized | D (50.9) | E (55.6) | A (9.8) | D (41.7) | C (29.6) | D (52.3) | D (53.8) | B (13.9) | A (1.4) | B (14.4) |
| 25 | SR 307 at SR 21/Augusta Road | Signalized | - | B (16.4) | B (17.2) | C (24.9) | B (19.4) | - | B (19.9) | C (22.6) | B (11.4) | B (19.4) |
| 25-N | SR 21/Augusta Road at SR 307 NE Quadrant | Signalized | B (18.7) | C (26.9) | - | C (26.7) | C (23.3) | B (15.0) | C (22.8) | - | D (49.0) | C (20.7) |
| 25-S | SR 21/Augusta Road at SR 307 SE Quadrant | Signalized | B (10.3) | A (9.6) | - | D (51.7) | B (15.1) | C (22.6) | B (10.6) | - | D (50.9) | C (24.5) |
| Segment 6 - Port Gateway |  |  |  |  |  |  |  |  |  |  |  |  |
| 26 | SR 307 at Jimmy DeLoach Pkwy | Signalized | - | C (21.1) | A (7.3) | D (44.2) | B (17.7) | - | C (30.5) | C (28.7) | B (18.7) | C (28.1) |
| 27 | SR 307 at SR 25/Coastal Hwy | Signalized | C (31.3) | D (36.7) | D (42.1) | F (92.4) | D (48.0) | B (19.7) | C (30.5) | C (31.3) | F (171.2) | E (55.0) |

${ }^{1}$ Approach delay reported for left-turn movement only on the major street at unsignalized intersections
${ }^{2}$ Overall intersection delay reported as the worst minor street approach at unsignalized intersections

### 4.4.3.2 2045 (Long-Term) Build

Under the 2045 horizon year, only the selected corridor alternatives were analyzed at the intersection level. Critical improvements considered as part of this scenario include:

- All improvements listed in Section 4.4.3.1
- Access management between Pine Meadow Drive and Robert B. Miller Road
- Signalization of the intersection of SR 307 with Jamaica Run Road
- Signalization of the intersection of SR 307 with Morgan Industrial Boulevard
- Construction of a SPUI at SR 26/US 80/Louisville Road
- Construction of a quadrant interchange at SR 21/Augusta Road
- Additional minor intersection improvements and signal upgrades throughout the corridor to accommodate geometric changes associated with access management strategies

With these improvements in place, the study intersections are generally expected to operate at LOS D or better overall during the AM and PM peak hours of travel. Only the intersection with SR 25/ Coastal Highway is anticipated to operate at LOS E or worse, with long delays on the westbound approach attributable to high volumes of heavy vehicles exiting GCT Gate 4. At the intersections of SR 307 with SR 26/US 80/Louisville Road and SR 21/Augusta Road, LOS F conditions observed under the 2045 No-Build scenario are replaced with LOS C or better overall under 2045 Build conditions with selected interchange alternative. As for the 2025 horizon year, greater benefit is anticipated at the corridor level, particularly near the intersections with SR 26/US 80/Louisville Road and SR 21/Augusta Road.

### 4.4.4 Segment Analysis Results

Intersection capacity analysis results indicate that the selected alternatives recommended under the 2045 Build scenario will yield acceptable operations across the SR 307 study corridor and even offer improvements relative to 2021 Existing conditions, in some cases. However, extensive preliminary engineering, public involvement, and right-of-way acquisition phases may delay the design, construction, and opening of the recommended interchanges at SR 26/US 80/Louisville Road and SR 21/Augusta Road for a period. To better understand how corridor operations may evolve as improvements are introduced incrementally over time, the following scenarios were modeled in SimTraffic software:

- 2025 Build - Short-Term improvements from Section 4.3.4
- 2045 Build (Interim Concepts) - Short-Term improvements from Section 4.3.4
- 2045 Build (Final Concepts) - Short-Term and Long-Term improvements from Section 4.3 .4 with selected alternatives from Section 4.4.1

Corridor travel time outputs from SimTraffic are summarized in Table 31 and Table 32 for the AM and PM peak hours of travel, respectively. These travel time outputs were converted to a corresponding average travel speed and vehicular LOS as defined by the HCM6 Urban Street Facilities methodology.

### 4.4.4.1 $\quad \underline{2025 ~(S h o r t-T e r m) ~ B u i l d ~}$

As shown in Table 31 and Table 32, corridor travel time is expected to decrease by up to three minutes per vehicle under the 2025 Build scenario relative to the 2025 No-Build scenario. When short-term improvements such as signal upgrades and installations, corridor retiming, and intersection geometry modifications are implemented, operational gains are expected to be minimal initially. However, travel time savings of up to eight minutes per vehicle are observed when comparing 2045 Build (Interim Concepts) conditions to 2045 No-Build conditions. As such, more substantial operational gains might be realized for a period between the 2025 and 2045 horizon years.

### 4.4.4.2 2045 (Long-Term) Build (Interim Concepts)

Though the combination of conventional intersection geometry improvements at SR 26/US 80/Louisville Road and corridor retiming offer significant improvement over 2045 No-Build conditions, northbound SR 307 (Segment 2, AM Peak Hour) and southbound SR 307 (Segment 3, PM Peak Hour) are still expected to operate at LOS E under 2045 Build (Interim Concepts) conditions. As described within the Existing Conditions Assessment in Section 3, traffic flow becomes less stable at LOS E, increasing the likelihood of large increases in delay under even slight fluctuations in traffic demand. This concept is evidenced by the fact that the minimum and maximum simulated travel time covers a range of up to 10 minutes per vehicle across 10 random seed runs that utilize the same traffic volume inputs. Accordingly, it is possible that actual corridor travel time under the 2045 Build (Interim Conditions) network is longer or that the delays noted here are observed sooner than the 2045 horizon year.

### 4.4.4.3 2045 (Long-Term) Build (Final Concepts)

Upon the introduction of interchanges at the intersections of SR 307 with SR 26/US 80/Louisville Road and SR 21/Augusta Road, corridor travel time is expected to return to levels equal to or less than that observed under 2025 Build conditions. Additionally, all segments are expected to operate at LOS D or better during both the AM and PM peak hours of travel, indicating that these conditions are likely to be stable across fluctuations in traffic volume that typically occur from day-to-day and week-to-week throughout the year. Under 2045 Build (Final Concepts) conditions, simulated corridor travel time decreases by up to 15 minutes per vehicle and 11 minutes per vehicle on northbound and southbound SR 307, respectively, relative to 2045 No-Build conditions. When compared to 2045 Build (Interim Concepts) conditions, net travel time savings of up to 12 minutes per vehicle and 4 minutes per vehicle are observed on northbound and southbound SR 307, respectively.

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Table 31: Horizon Year Build Corridor LOS Comparisons (AM Peak Hour)

| Measure | 2025 No-Build | 2025 Build | 2045 No-Build | 2045 Build Interim Concepts | 2045 Build Final Concepts |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Northbound SR 307 |  |  |  |  |  |
| Minimum Travel Time (mm:ss) | 16:49 | 15:44 | 24:38 | 19:28 | 16:06 |
| Maximum Travel Time (mm:ss) | 20:50 | 17:40 | 33:21 | 25:28 | 18:05 |
| Average Travel Speed (mph) | 28.3 | 30.7 | 18.1 | 22.9 | 30.0 |
| Overall Corridor LOS | C | B | D | D | C |
| Segment 1 LOS | B | B | B | B | B |
| Segment 2 LOS | D | C | F | E | C |
| Segment 3 LOS | C | B | C | B | C |
| Segment 4 LOS | B | A | B | B | B |
| Segment 5 LOS | D | D | F | E | B |
| Segment 6 LOS | A | A | A | B | A |
| Southbound SR 307 |  |  |  |  |  |
| Minimum Travel Time (mm:ss) | 16:36 | 16:44 | 20:09 | 19:48 | 16:12 |
| Maximum Travel Time (mm:ss) | 20:27 | 20:01 | 29:42 | 22:28 | 18:08 |
| Average Travel Speed (mph) | 27.4 | 27.8 | 22.9 | 24.4 | 29.8 |
| Overall Corridor LOS | C | C | D | C | C |
| Segment 1 LOS | C | C | C | B | B |
| Segment 2 LOS | C | C | D | C | C |
| Segment 3 LOS | C | C | D | D | C |
| Segment 4 LOS | B | B | C | B | B |
| Segment 5 LOS | B | B | C | A | A |
| Segment 6 LOS | C | D | E | E | B |

Table 32: Horizon Year Build Corridor LOS Comparisons (PM Peak Hour)

| Measure | 2025 No-Build | 2025 Build | 2045 No-Build | 2045 Build <br> Interim Concepts | 2045 Build Final Concepts |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Northbound SR 307 |  |  |  |  |  |
| Minimum Travel Time (mm:ss) | 16:07 | 15:40 | 21:58 | 19:38 | 15:47 |
| Maximum Travel Time (mm:ss) | 18:03 | 17:27 | 34:53 | 29:35 | 17:27 |
| Average Travel Speed (mph) | 30.1 | 31.1 | 19.6 | 21.8 | 30.8 |
| Overall Corridor LOS | B | B | D | D | B |
| Segment 1 LOS | B | A | B | B | B |
| Segment 2 LOS | C | C | C | C | C |
| Segment 3 LOS | B | B | C | C | C |
| Segment 4 LOS | B | B | C | C | B |
| Segment 5 LOS | E | D | F | F | C |
| Segment 6 LOS | A | A | A | A | A |
| Southbound SR 307 |  |  |  |  |  |
| Minimum Travel Time (mm:ss) | 17:09 | 16:44 | 19:43 | 18:35 | 16:33 |
| Maximum Travel Time (mm:ss) | 19:26 | 19:02 | 27:58 | 24:05 | 20:28 |
| Average Travel Speed (mph) | 28.1 | 29.0 | 22.0 | 24.5 | 28.3 |
| Overall Corridor LOS | C | C | D | C | C |
| Segment 1 LOS | C | C | C | C | C |
| Segment 2 LOS | C | C | C | C | D |
| Segment 3 LOS | C | C | F | E | C |
| Segment 4 LOS | B | B | C | C | C |
| Segment 5 LOS | C | C | C | A | B |
| Segment 6 LOS | C | C | C | C | A |

### 4.4.5 Capacity Analysis Summary

The findings presented in Section 4.4.3 suggest that investment in the short-term improvements recommended in Table 27 and Table 28 in Section 4.3.4 are unlikely to return substantial corridor-wide gains upon initial construction and opening but will enhance intersection and corridor operations for a period between the 2025 and 2045 horizon years. However, the network-wide influence of congestion originating at the intersections of SR 307 with SR 26/US 80/Louisville Road and SR 21/Augusta Road is expected to increase over time. Corridor operations under 2045 Build (Interim Concepts) conditions are depicted graphically in Figure 42 and Figure 43 for the AM and PM peak hours of travel, respectively. These figures highlight the portions of the SR 307 corridor between Prosperity Drive and SR 21/Augusta Road that may experience oversaturated conditions during the peak hours of travel in the absence of the grade-separated improvements recommended as part of this study.


## Overall Corridor Operation SR 21/Augusta Road



## Key Simulation Observations:

1. The intersection of SR 26/US 80 with SR 307 operates at LOS F, with excessive delays and long queues up to 0.75 miles in length on the southbound approach that impact adjacent intersections
2. The intersection of SR 21/Augusta Road with SR 307 operates at LOS F, with excessive delay and long queues on the eastbound approach that impact adjacent intersections



Savannah/Hilton Head International Airport


21

Westbound SR 26/US 80 at SR 307
95 ${ }^{\text {th }}$ Percentile Queue Length: $\mathbf{0 . 2 5}$ miles Average Delay: 1.7 minutes/vehicle


## Legend

Intersection LOS A-CIntersection LOS D-EIntersection LOS F

- Model-Observed Queue LengthKey Observation

25


## Overall Corridor Operations

Average Travel Speed (Northbound): 21.8 mph - LOS D
-Average Travel Speed (Southbound): $\mathbf{2 4 . 5} \mathbf{~ m p h}$ - LOS C
-Note: LOS E (Average Travel Speed < 18 mph ) on southbound SR 307 between Product Support Road and SR 26/US 80/Louisville Road and LOS F on northbound SR 307 between Robert B. Miller Road and SR 21/Augusta Road

The map depicted in Figure 44 summarizes intersection and segment LOS under 2045 Build (Final Concepts) conditions. As shown in the map, all intersections and segments are expected to operate at LOS D or better when each of the improvements recommended as part of this study are constructed. Specific projects recommended under the short-term (0-5 Years) horizon, long-term ( $5+$ Years) horizon, and by GDOT or adjacent development are also indexed in this map based on the listing provided in Section 6. The projects listed in Figure 44 exclude those focused on non-motorized and transit modes.


## 5 Public Outreach

### 5.1 Stakeholder Outreach Strategy

### 5.1.1 Public Participation Goals and Process

The SR 307 Corridor Study adheres to the requirements and recommendations outlined in the CORE MPO's Public Participation Plan. The goals of public participation for the SR 307 Corridor Study are to:

- Raise the level of awareness of how residents and other parties can become involved in the Study.
- Ensure that those interested in the Study have adequate, appropriate, and meaningful opportunities to participate.
- Utilize the Stakeholder Advisory Committee to reach interested parties in the community and within the planning area.


### 5.1.2 Stakeholder Advisory Committee

Early in the process, a Stakeholder Advisory Committee (SAC) was established to provide input and feedback regarding the development of the SR 307 Corridor Study. This group also acted as ambassadors for the project by sharing information with their constituent groups and encouraging members of the community to participate in the planning process.

The SAC consisted of key stakeholders, such as agencies, local government partners, business owners, operators and tenants, and relevant community organizations. A list of the SAC members and organizations is available in Table 33.

Table 33: SAC Members and Organizations

| Organization | Name(s) |
| :---: | :---: |
| CORE MPO | Mark Wilkes |
| Chatham County | Pamela Bernard |
| Chatham Emergency Services | Chief Chuck Kerns |
| City of Garden City | Scott Robider |
| City of Pooler | Robbie Byrd |
| City of Port Wentworth | Edwin Booth |
| City of Savannah | Steve Henry |
| Georgia Ports Authority (GPA) | Randy Weitman |
| Georgia DOT - Planning | Ned Green |


| Organization | Name(s) |
| :---: | :---: |
| Georgia DOT - District 5 | Cynthia Phillips <br> Joseph Capello <br> Troy Pittman |
| Georgia DOT - Research Freight Group | Tom McQueen <br> Radney Simpson |
| Federal Highway Administration (FHWA) | Ann-Marie Day |
| Chatham Area Transit | Shalonda Rountree |
| Garden City Convention and Visitors Bureau (CVB) | Warren Boyle |
| Pooler Chamber of Commerce | Pam Southard |
| Savannah Area Chamber of Commerce | Jared Downs |
| Savannah Economic Development Authority (SEDA) | Jesse Dillon |
| Savannah/Hilton Head International Airport | Mark Denmark |
| Gulfstream | Joseph Drake |
| Bike Walk Savannah | Caila Brown |

### 5.1.3 Community Engagement

### 5.1.3.1 Agency Coordination Meetings

Small group meetings with project stakeholders were held in September 2021 to allow a more focused discussion on specific geographic areas or topics of interest. This is particularly important as SR 307 provides critical north-south connections from SR 25/US 17/Ogeechee Road to SR 25/Main Street and crosses several municipal boundaries including the Cities of Savannah, Garden City, and Pooler. Meetings were held with the following agencies/organizations:

- City of Savannah/Garden City/Port Wentworth/Pooler/Chatham County
- Georgia Ports Authority
- Gulfstream
- Savannah-Area Chamber of Commerce/Savannah Economic Development Authority (SEDA)/Savannah-Hilton Head International Airport Commission
- Chatham Area Transit


### 5.1.3.2 Community Meeting and Public Information Open House

A community meeting was held on November 8, 2021, at 6 p.m. Forty-three individuals pre-registered to participate in the meeting. The purpose of this meeting was to discuss existing conditions along the corridor and discuss preliminary ideas for recommended solutions. A meeting summary is provided in Appendix E.

A Public Information Open House (PIOH) was hosted on December 7, 2021, from 6:00 p.m. to 7:30 p.m. at Garden City's City Hall. The PIOH was open to the larger community including those who live and work in the community to seek feedback on a draft list of recommendations and concepts for SR 307. In conjunction with the PIOH, an online survey was launched through the CORE MPO website to seek feedback. Notification of the PIOH included a media release, legal ad prepared for use by the CORE MPO, and collaboration with the Stakeholder Advisory Committee (SAC) for distribution.

### 5.1.3.3 Online Engagement

Throughout the project, the project team assisted the CORE MPO with a project-specific webpage, hosted on the MPC website. This website served as a hub for all information, project documentation, findings, and schedules for the study. The website was regularly updated with information to keep the public informed of the study's process.

The project team also hosted two online surveys to capture targeted feedback from the overall community. The first survey focused on identification of existing challenges in the corridor as well a vision for the future of the corridor. The second survey coincided with the PIOH to seek feedback on the alternatives. The results of both surveys are included in Appendix E (note: The final page of each survey includes email addresses and therefore not included to maintain privacy).

### 5.1.3.4 Email Updates

Early in the process, a database was established to be used for email blasts to engage and inform residents and stakeholders. The Project Team sent out regular updates to invite stakeholders to participate through surveys and/or meetings. An email sign-up form was available on the project website.

### 5.1.4 CORE MPO Engagement

Informational presentations were provided to the CORE MPO Policy Board and committees. The first meeting provided an overview of the study findings and alternatives while the second meeting focused on the Draft Report and Final Recommendations.

- Topic: Status Update/Study Findings and Alternatives
- MPO Technical Coordinating Committee (TCC) - 09-Dec-2021
- MPO Policy Board - 15-Dec-2021
- Topic: Presentation of the Draft Report
- MPO Economic Development and Freight Advisory Committee (EDFAC), 17-Feb-2022
- MPO TCC, 17-Feb-2022

During the presentation to the MPO TCC on February 17, 2022, several questions were raised by members of the TCC. Representatives of the Georgia Ports Authority noted that north of I-16, the characteristics of the SR 307 corridor, including heavy truck traffic and adjacent land uses, do not appear to support bicycle and pedestrian facilities and may potentially create unsafe conditions for these multimodal users. Bike Walk Savannah mentioned that the SR 307 corridor represents one of the few opportunities for a significant north-south connection of bicycle and pedestrian accommodations in this area, and they favored the implementation of such facilities. The study team noted that future bicycle and pedestrian connectivity along the SR 307 corridor is included in the CORE MPO's Non-Motorized Transportation Plan and locations of sidewalks/shared-use paths would be evaluated further prior to construction of these facilities. Personnel representing SEDA and the City of Pooler inquired about the overall cost of the program improvements; accordingly, tabulated costs of the recommendations have been included in Section 6 of the Final Report.

### 5.2 Meetings and Summaries

### 5.2.1 Agency Coordination Meetings

A series of small group meetings were held early in the process to review the initial data analysis and findings as well as gain insight and additional information from area stakeholders. For each small group meeting, the project team presented the study findings and analysis and invited meeting participants to share feedback. The list below provides highlights from these meetings.

- New development and redevelopment are underway and planned on and around the Gulfstream campus and the Savannah/Hilton Head International Airport. Gulfstream has property on both sides of SR 307. Davidson Drive will become a main corridor and will need to be widened. Billy B. Hair Drive will also become a main access point.
- Employment at the southeast airport site is approximately 30 to 40 jobs, so not a high demand. Most projects in the southeast quadrant are not heavy truck traffic generators.
- The northwest quadrant will gain approximately 300 employees or contractors in the next five years, with an additional 800 employees at build-out ( $5+$ years).
- Significant industrial development is occurring along the corridor. The Project Live Oak development is 73 acres, similar to the Mitsubishi development. Additional developments in the area include McCraney and Foram Group developments of approximately 10,000 square feet of industrial off Jimmy DeLoach Parkway.
- A signal warrant is under review by GDOT at Prosperity Drive.
- The Georgia Air National Guard (GA ANG) is considering relocating their base entrance from Mikell Avenue to Davidson Road. They are also coordinating with the proposed CenterPoint Industrial City Gardens development, located on the south side of SR 307 between Darque Road and Robert B. Miller Road. The planned development currently consists of three primary warehouse buildings totaling 915,000 square feet.
－Chatham Area Transit（CAT）receives regular requests for transit services in the area and has had some preliminary conversations with Chatham County as part of the＂One Chatham＂initiative to expand transit．Amazon has expressed interest in CAT service，but CAT cannot meet the 24－ hour schedule，so this may be addressed through an on－demand service．There are many businesses along the corridor whose employees would benefit from transit services．Subsequent to the small group meeting with CAT，the study team completed additional research on previous CAT studies that evaluated the need to potentially expand service along the SR 307 corridor，and key findings included：
－The West Chatham Mobility Study，completed by CAT in 2015，demonstrated a need for expanded service along the SR 307 corridor．In particular，proposed modifications to Route 3 included service along SR 307 between SR 26／US 80／Louisville Road and SR 21／Augusta Road（West Chatham Mobility Study，pages 41－42）．
－Additionally，the West Chatham Mobility Study discussed multiple＂refined＂alternative route concepts along SR 307 for the primary purpose of providing internal circulation within Garden City，which expressed strong support for expanded service．Of these routes，the Green Route，a proposed loop route running the entirety of SR 307 between I－16 and SR 25／US 17／Ogeechee Road was predicted to be the most successful new route，with an estimated 1，064 daily boardings（West Chatham Mobility Study，page 53）．
－Other，more recent studies prepared by CAT placed less emphasis on the SR 307 corridor； however，the proposed＂West Chatham Circulator＂described in the 2017 Origin and Destination Analysis（O－D）passes through the portion of SR 307 between the Savannah／Hilton Head International Airport and SR 21／August Avenue currently serviced by CAT Route 3.

The study team also coordinated with the $165^{\text {th }}$ Civil Engineer Squadron of the GA ANG via separate email and telephone correspondence between January 31， 2022 and February 1，2022．The GA ANG inquired about the recommended raised median along SR 307．The GA ANG advised that aviation fuel trucks use the existing TWLTL to circumnavigate queue spillback from the Norfolk Southern rail crossing north of Robert B．Miller Road．These trucks are transporting fuel from a storage area on the south side of SR 307 near Darque Avenue to awaiting aircraft on the north side of SR 307 near Robert B．Miller Road，and the raised median would prohibit this practice．The GA ANG requested that the medians be mountable to help facilitate bypass movements during periods of heavy traffic． In an email response on February 1，2022，the study team noted that the recommended grade separation at the Norfolk Southern rail crossing would eliminate the rail－related backups and mitigate the concerns raised by the GA ANG．Based on GA ANG＇s input，the study team raised the priority of the recommended grade separation（project GS－02）relative to other long－term recommendations and above installation of a raised median from SR 26／US 80／Louisville Road to Robert B．Miller Road （project AC－02），specifically．
Similar questions were raised during the study team＇s presentation to the MPO Policy Board on February 23，2022．It was noted that the slow－moving fuel trucks turn right onto SR 307 at Product Support Road，then make a left－turn onto Robert B．Miller Road and cause traffic delays in the process．The study team noted that they were aware of these operations as this had been
discussed with the GA ANG as noted above, and that the recommended grade separation at the Norfolk Southern rail crossing would mitigate related traffic delays.

Area stakeholders also provided valuable feedback and insight that initiated coordination between the study team and local agencies. On February 10, 2022, the City of Savannah made a specific inquiry on behalf of an interested citizen regarding the recommended improvements at the intersection SR 307 and Old Louisville Road. The citizen explained that turning left off of SR 307/Dean Forest Road onto Old Louisville Road can be difficult. The study team responded to the City of Savannah via email that recommended improvements to the intersection include short-term signal upgrades and retiming along the corridor (project $\mathrm{IN}-03$ ), including protected-permissive phasing for the northbound left-turns. The study team also noted that the long-term improvements recommend the same signal operations, as well as the construction of a raised median and northbound u-turn eyebrow (project AC-02).

### 5.2.2 Stakeholder Advisor Committee (SAC) Meetings

The initial meeting with the Stakeholder Advisory Committee was held on October 14, 2021. This meeting was held virtually during the data gathering and needs assessment phase. This meeting invited stakeholders to share their perspectives on existing challenges in the corridor as well as their vision for its future. A summary of the meeting is included in Appendix $\mathbf{E}$.

A second SAC meeting was held on January 31, 2022, and this virtual meeting invited stakeholders to provide their feedback and ask questions regarding the improvement recommendations along the SR 307 corridor. A summary of this meeting and a memorandum dated February 25, 2022, which summarized questions submitted by the SAC with responses, are included in Appendix E.

### 5.3 Community Feedback

### 5.3.1 Agency Coordination Meetings

Based on feedback from the public meetings and online surveys, there is consensus about the need for improvements along SR 307. Feedback from the community was weighted towards concerns of residents along the SR 307 corridor, such as safety, congestion, and high truck traffic volumes. Reoccurring themes and most frequently referenced items are outlined below.

- The first survey asked for feedback from the community for preliminary ideas. A full summary of the survey results is included in Appendix E. Highlights include:
- The intersections at SR 26/US 80/Louisville Road and SR 21/Augusta Road received the strongest support for intersection improvements.
- There is concern about increasing truck traffic and the mixing of truck traffic with vehicular traffic.
- Safety is a top concern in addition to the truck traffic.
- Community members stated they would like to see more resident-oriented development, such as shopping, restaurants, and development to add to the quality of life.
－The public demonstrated support for transit and sidewalks，but stronger support for transit and increased accessibility to jobs was demonstrated from economic development agencies who work with the companies in need of employees．
－The second online survey focused on draft recommendations for the corridor．A full summary of the survey results is included in Appendix E．Highlights include：
－All respondents indicated strong support／support for intersection improvements．
－All respondents indicated strong support for grade separations at SR 26／US 80／ Louisville Road and CSXT and SR 21／Augusta Road．
－All respondents indicated strong support／support for a raised median．
－Most respondents indicated strong support／support for pedestrian improvements and bike facilities．Some respondents indicated neither support nor oppose．
－Most respondents indicated strong support／support for expanded transit service．Some respondents indicated neither support nor oppose．


## 5．3．2 Business Community Feedback

The business community has also provided valuable local insight and information throughout the duration of the study related to several of the planned developments listed in section 5．2．1，and the study team has coordinated recommended improvements along SR 307 with some of the individual developments as summarized below：
－As requested by the study team，site plans for the proposed RaceTrac fueling center and convenience store at the southeast corner of the intersection of SR 307 and SR 26／US 80／ Louisville Road were provided via email correspondence on September 21，2021．Although the site plan has not yet been approved，the study team incorporated the proposed offsite improvements into the short－term auxiliary lane recommendations（project IN －02）at this intersection．
－In response to a specific inquiry by the study team，proposed designs for the intersections along SR 307／Dean Forest Road at Pine Meadow Drive and Prosperity Drive in conjunction with Project Live Oak were provided via email correspondence on November 19，2021．The study team incorporated the proposed improvements into the corridor layouts and long－term recommendations along the SR 307 corridor，including the new signalized intersection at Prosperity Drive．
－In response to a specific inquiry by the study team，designs for the proposed signalized intersection of SR 307／Dean Forest Road and Sonny Perdue Drive in conjunction with the proposed Loves Travel Center were provided via email correspondence on November 24， 2021. The study team incorporated the proposed improvements into the concept layouts and long－term recommendations along the SR 307 corridor．
－As requested by the study team，site plans for the CenterPoint Industrial City Gardens development were provided on February 20， 2022 via email correspondence．The study team
provided a cursory review of the site plan's access to SR 307 and noted that one of its driveways would likely become right-in/right-out once the raised median along SR 307 is constructed.

## 6 Recommendations

Consistent with the goals highlighted in the Mobility 2045 Metropolitan Transportation Plan (MTP) published by the Coastal Region Metropolitan Planning Organization (CORE MPO), the purpose of this study is to identify and prioritize short-term ( $0-5$ Years) and long-term (5+ Years) improvement projects needed for motorized, non-motorized, and transit users along the SR 307 corridor; facilitate planning and programming of projects through the CORE MPO MTP process; and justify the future programming of projects in the CORE MPO's Transportation Improvement Plan (TIP) and Total Mobility Plan (TMP). These objectives were accomplished through a comprehensive Existing Conditions Assessment (Section 3), Future Conditions Assessment (Section 4), and Public Outreach (Section 5).

Based on existing field observations, horizon year model runs in SimTraffic software, and feedback from the public and key stakeholders, bottlenecks at SR 26/US 80/Louisville Road and SR 21/Augusta Road are likely to continue to contribute to significant delays for freight and passenger car trips traversing the corridor during the peak periods of the day. Existing crash history suggests that peak hour congestion may contribute to a high frequency of rear-end collisions at these nodes. The crash data explored as part of this study also indicates that a lack of access management and conflicts between the tractor-trailer and commuting passenger car traffic streams leave the segments between Pine Meadow Drive and Robert B. Miller Road particularly susceptible to collisions. These findings informed the selection of the recommended short- and long-term motorized and non-motorized improvements summarized in Table 34 and Table 35. For reporting purposes, SR 307 is assumed to have a north-south orientation from SR 25/US 17/Ogeechee Road to Robert B. Miller Road and an east-west orientation from Robert B. Miller Road to SR 25/Coastal Highway. To assist future planning efforts and project programming, the recommendations also include a Priority Ranking column. The priority rankings were assigned within each time period category based on each project's potential to improve traffic operations and safety along the corridor.

Total projected costs (including preliminary engineering, right-of-way, and construction) have also been developed for the recommended short- and long-term improvements and are summarized in Table 36 and Table 37, respectively. The projected costs include Preliminary Engineering, Right-of-Way Acquisition, and Construction, and itemized amounts for each are shown in the Project Pages included in Appendix F. The cost estimates were developed for budgetary purposes, and they do not reflect costs related to securing federal or state funding. When projects are programmed, planning and engineering costs should be adjusted to reflect specific requirements of the funding source. Further, construction costs should be adjusted for the programmed construction year based on prevailing market conditions.

The concept design maps illustrating the recommendations for individual intersections and the SR 307 corridor are attached in Appendix F.

SR 307
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Table 34: Recommended Short-Term Improvements Summary
Short-Term (0-5 Years) Improvements

| Short-Term (0-5 Years) Improvements |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| ID | Priority Ranking | Name | Jurisdiction(s) | Description of Improvements |
| IN-01 | 3 | Distribution Drive Signalization | City of Pooler City of Savannah | - Install a stop-and-go traffic signal <br> - Install pedestrian signals, crosswalks, and ramps in accordance with GDOT Policy |
| IN-02 | 1 | SR 26/US 80/Louisville Road Auxiliary Lanes | City of Garden City City of Pooler City of Savannah | - Install dual eastbound left-turn lanes with 500 feet of storage and extend eastbound right-turn lane storage to 500 feet <br> - Install dual westbound left-turn lanes with 400 feet of storage and extend westbound right-turn lane storage to 400 feet <br> - Install dual northbound left-turn lanes with 400 feet of storage and extend northbound right-turn lane storage to 400 feet <br> - Install dual southbound left-turn lanes with 250 feet of storage and extend southbound right-turn lane storage to 250 feet <br> - Install pedestrian signals, crosswalks, and ramps in accordance with GDOT Policy <br> - Monitor the intersection for future growth and changes in traffic patterns in conjunction with recommended long-term improvements |
| IN-03 | 2 | Corridor Signal Retiming from SR 26/US 80/Louisville Road to Robert B. Miller Road | City of Savannah | - Conduct a 2.6 -mile-long corridor signal timing review to improve vehicular flow through time-of-day coordinated operations and optimize signal cycle length, splits, and offsets in conjunction with improvements constructed as part of project IN-02 <br> - Replace existing three-section permissive signal heads on SR 307 at Old Louisville Road intersection with four-section flashing yellow arrow signal heads <br> - Replace existing five-section protected/permissive signal heads on SR 307 at Robert B. Miller Road with four-section flashing yellow arrow signal heads |
| TS-01 | 4 | SR 307 Corridor Transit Expansion Study | Unincorporated Chatham County <br> City of Garden City City of Port Wentworth City of Pooler City of Savannah | - Coordinate with Chatham Area Transit (CAT) to review findings from the West Chatham Mobility Study and other recent studies conducted by CAT to inform recommendations for expanded service along 8.5-mile-long SR 307 corridor <br> - Coordinate with local Agencies, governing bodies, and other stakeholders to identify funding sources for construction and implementation of long-term improvements <br> - Assist development of potential route modifications to CAT Routes 3 and 17 <br> - Develop pilot program to track ridership numbers, identify new route(s) and stop/shelter location(s) |

Table 35: Recommended Long-Term Improvements Summary

| Long-Term (5+ Years) Improvements |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| ID | Priority Ranking | Name | Jurisdiction(s) | Description of Improvements |
| IN-04 | 6 | SR 25/US 17/Ogeechee Road Intersection Improvements | Unincorporated Chatham County City of Garden City | - Install dual eastbound left-turn lanes with 300 feet of storage <br> - Remove free-flow channelization for the westbound right-turn lane to accommodate eastbound dual left-turn receiving lanes <br> - Shift westbound through lanes north to accommodate additional eastbound left-turn lane <br> - Modify signal phasing to provide protected-only operation for eastbound left-turn movement and permitted-overlap phasing for westbound right-turn movement <br> - Replace existing pedestrian signals, crosswalks, and ramps in accordance with GDOT Policy |
| IN-05 | 2B | Jamaica Run Road Signalization | City of Savannah City of Garden City | - Install a stop-and-go traffic signal to operate as part of a coordinated system with adjacent intersections after completion of project AC-01 <br> - Install a westbound left-turn lane and a westbound right-turn lane with 250 feet of storage <br> - Install all necessary pedestrian signals, crosswalks, and ramps in accordance with GDOT Policy |

SR 307


| Long-Term (5+ Years) Improvements |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| ID | Priority Ranking | Name | Jurisdiction(s) | Description of Improvements |
| IN-06 | 2 C | Morgan Industrial Boulevard Signalization | City of Garden City City of Savannah | - Install a stop-and-go traffic signal to operate as part of a coordinated system with adjacent intersections after completion of project AC-01 <br> - Install all necessary pedestrian signals, crosswalks, and ramps in accordance with GDOT Policy |
| GS-01 | 1 | Grade Separation at CSX Crossing \#632473Y and SR 21/Augusta Road Interchange | Unincorporated Chatham County City of Garden City City of Port Wentworth | - Construct a grade-separated crossing of SR 307/Bourne Avenue over CSX Railroad crossing \#632473Y and SR 21/ Augusta Road <br> - Construct a signalized quadrant roadway system for access to and from SR 21/Augusta Road <br> - Modify traffic signal and construct dual southbound right-turn lanes with 525 feet of storage at Jimmy DeLoach Parkway <br> - Construct raised median along SR 307/Bourne Avenue from Commerce Boulevard/Export Boulevard to new signalized intersection west of Miller Tank Drive <br> - Construct raised median along SR 21/Augusta Road from Kaiser Chemical Road to new signalized intersection approximately 750 feet south of SR 307/Bourne Avenue <br> - Construct a 10 -foot-wide shared-use path on the west side of the interchange and a 5 -foot-wide sidewalk on the east side of SR 307/Bourne Avenue within the project limits to connect to projects GS-02 and PD-03 <br> - Extend 10 -foot-wide shared-use path along northeast quadrant ramp to SR 21 /Augusta Road to connect to future pedestrian accommodations along SR 21/Augusta Road <br> - Reconfigure private access west of CSX Railroad on north and south sides of SR 307/Bourne Avenue <br> - Install roadway lighting at the grade separation <br> - Install pedestrian lighting adjacent to shared-use path and sidewalks |
| GS-02 | 4 | SR 307/Dean Forest Road Grade Separation at Norfolk Southern Crossing \#855067U | City of Garden City City of Savannah | - Construct a grade-separated crossing of SR 307/Dean Forest Road over Norfolk Southern crossing \#885067U <br> - Realign Bourne Avenue east to create a four-leg intersection at Westport driveway <br> - Construct raised median along SR 307/Dean Forest Road from Robert B. Miller Road to Bourne Avenue/Westport Driveway <br> - Construct 10 -foot-wide shared-use path on west side and 5-foot-wide sidewalk on east side of SR 307/Dean Forest Road and connect to projects AC-02 and GS-01 <br> - Install roadway lighting at the grade separation <br> - Install pedestrian lighting adjacent to shared-use path and sidewalks |
| GS-03 | 3 | SR 26/US 80/Louisville Road Interchange | City of Garden City City of Pooler City of Savannah | - Construct an interchange at the intersection of SR 307/Dean Forest Road and SR 26/US 80/Louisville Road <br> - Construct raised median along SR 307/Dean Forest road from Morgan Industrial Boulevard to Old Louisville Road <br> - Replace dual northbound and southbound left-turn lanes constructed with $\operatorname{IN}-02$ with a single northbound and southbound leftturn lanes on SR 307/Dean Forest Road <br> - Construct raised median and eastbound and westbound ramps along SR 26/US 80/Louisville Road with retaining walls to accommodate the interchange <br> - Install roadway lighting at the interchange <br> - Install pedestrian lighting adjacent to shared-use path and sidewalks |

SR 307


| Long-Term (5+ Years) Improvements |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| ID | Priority Ranking | Name | Jurisdiction(s) | Description of Improvements |
| AC-01 | 2A | Raised Median and Pedestrian Accommodations from Pine Meadow Drive to SR 26/US 80/Louisville Road | City of Garden City <br> City of Pooler City of Savannah | - Construct raised median along SR 307/Dean Forest Road beginning 1,200 feet south of Pine Meadow Drive to Morgan Industrial Boulevard <br> - Construct a 10 -foot-wide shared-use path on west side and 5 -foot-wide sidewalk on east side of SR 307/Dean Forest Road <br> - Construct restricted crossing U-turn (RCUT) intersection at Old Dean Forest Road <br> - Construct southbound U-turn eyebrow at Prosperity Drive and Morgan Industrial Boulevard intersections <br> - Construct northbound U-turn eyebrow at Jamaica Run Road <br> - Install pedestrian signals, crosswalks, and ramps in accordance with GDOT Policy at all intersections to accommodate new shared-use path and sidewalk, including signal adjustments where necessary <br> - Install pedestrian lighting adjacent to shared-use path and sidewalks <br> - Connect to improvements constructed with GDOT PI No. 0013727 and Project GS-03 |
| AC-02 | 5 | Raised Median and Pedestrian Accommodations from SR 26/US 80/Louisville Road to Robert B. Miller Road | City of Garden City <br> City of Pooler City of Savannah | - Construct raised median along SR 307/Dean Forest Road from SR 26/US 80/Louisville Road to Robert B. Miller Road <br> - Construct 10 -foot-wide shared-use path on west side, and 5-foot-wide sidewalk on east side of SR 307/Dean Forest Road <br> - Construct northbound U-turn eyebrows at Old Louisville Road, Distribution Drive, and Davidson Road <br> - Construct southbound U-turn eyebrows at Sonny Perdue Drive and Product Support Road <br> - Construct restricted crossing U-turn (RCUT) intersection at Hangar Road/Darque Road and Billy B. Hair Drive <br> - Install pedestrian signals, crosswalks, and ramps in accordance with GDOT Policy at all intersections to accommodate new shared-use path and sidewalk, including signal adjustments where necessary <br> - Install pedestrian lighting adjacent to shared-use path and sidewalk <br> - Connect to improvements constructed with Project GS-02 |
| PD-01 | 8 | Pedestrian Accommodations from SR 25/US 17/ Ogeechee Road to Landfill Road | Unincorporated Chatham County City of Garden City City of Savannah | - Construct 10-foot-wide shared-use path on east side and 5-foot-wide sidewalk on west side of SR 307/Dean Forest Road <br> - Modify driveways along segment to accommodate new pedestrian facilities <br> - Install pedestrian lighting adjacent to shared-use path and sidewalk |
| PD-02 | 7 | Shared-Use Path from Landfill Road to l-16 Eastbound Ramps | Unincorporated Chatham County City of Garden City | - Replace existing sidewalk on east side of SR 307/Dean Forest Road with 10 -foot-wide shared-use path <br> - Modify driveways along segment to accommodate new shared-use path <br> - Install pedestrian lighting adjacent to shared-use path <br> - Connect to improvements constructed as part of GDOT PI No. 0013727 |
| PD-03 | 9 | Sidewalks from SR 21/Augusta Road Interchange to SR 25/Coastal Highway | Unincorporated Chatham County City of Garden City | - Construct a 5 -foot-wide sidewalk on both sides of SR 307/Bourne Avenue beginning approximately 1,000 feet west of Jimmy DeLoach Parkway <br> - Retrofit outside shoulders on existing bridge across GPA Mega-Rail to accommodate new 6.5 -foot-wide sidewalks on both sides of SR 307/Bourne Avenue <br> - Modify driveways along segment to accommodate new pedestrian facilities <br> - Install pedestrian lighting adjacent to sidewalks <br> - Connect to improvements constructed as part of GS-01 |
| TS-02 | 10 | SR 307 Corridor Transit Expansion | Unincorporated Chatham County City of Garden City City of Port Wentworth City of Pooler City of Savannah | - Construct improvements recommended by West Chatham Mobility Study and/or Project TS-01 <br> - Coordinate with CAT to install stop/shelter locations, pull-off areas, and route signage not already constructed by other long-term projects |


| Short-Term (0-5 Years) Improvements Cost Estimates |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| ID | Priority Ranking | Name | Jurisdiction(s) | Estimated Costs |
| IN-01 | 3 | Distribution Drive Signalization | City of Pooler City of Savannah | \$695,000 |
| IN-02 | 1 | SR 26/US 80/Louisville Road Auxiliary Lanes | City of Garden City City of Pooler City of Savannah | \$3,190,000 |
| IN-03 | 2 | Corridor Signal Retiming from SR 26/US 80/Louisville Road to Robert B. Miller Road | City of Savannah | \$425,000 |
| TS-01 | 4 | SR 307 Corridor Transit Expansion Study | Unincorporated Chatham County City of Garden City City of Port Wentworth City of Pooler City of Savannah | \$75,000 |
|  |  |  | Total Cost of Short-Term Improvements | \$4,385,000 |

Table 37: Recommended Long-Term Improvements Cost Summary

| Long-Term (5+ Years) Improvements |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| ID | Priority Ranking | Name | Jurisdiction(s) | Estimated Costs |
| IN-04 | 6 | SR 25/US 17/Ogeechee Road Intersection Improvements | Unincorporated Chatham County City of Garden City | \$1,060,000 |
| IN-05 | 2B | Jamaica Run Road Signalization | City of Savannah City of Garden City | \$580,000 |
| IN-06 | 2 C | Morgan Industrial Boulevard Signalization | City of Garden City City of Savannah | \$760,000 |
| GS-01 | 1 | Grade Separation at CSX Crossing \#632473Y and SR 21/Augusta Road Interchange | Unincorporated Chatham County City of Garden City City of Port Wentworth | \$36,410,000 |
| GS-02 | 4 | SR 307/Dean Forest Road Grade Separation at Norfolk Southern Crossing \#855067U | City of Garden City City of Savannah | \$17,600,000 |
| GS-03 | 3 | SR 26/US 80/Louisville Road Interchange | City of Garden City City of Pooler City of Savannah | \$23,955,000 |
| AC-01 | 2A | Raised Median and Pedestrian Accommodations from Pine Meadow Drive to SR 26/US 80/Louisville Road | City of Garden City City of Pooler City of Savannah | \$19,300,000 |
| AC-02 | 5 | Raised Median and Pedestrian Accommodations from SR 26/US 80/Louisville Road to Robert B. Miller Road | City of Garden City City of Pooler City of Savannah | \$28,560,000 |

SR 307
RIDOR STUDY


| Long-Term (5+ Years) Improvements |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| ID | Priority Ranking | Name | Jurisdiction(s) | Estimated Costs |
| PD-01 | 8 | Pedestrian Accommodations from SR 25/US 17/ Ogeechee Road to Landfill Road | Unincorporated Chatham County City of Garden City City of Savannah | \$3,540,000 |
| PD-02 | 7 | Shared-Use Path from Landfill Road to I-16 Eastbound Ramps | Unincorporated Chatham County City of Garden City | \$2,285,000 |
| PD-03 | 9 | Sidewalks from SR 21/Augusta Road Interchange to SR 25/Coastal Highway | Unincorporated Chatham County City of Garden City | \$2,175,000 |
| TS-02 | 10 | SR 307 Corridor Transit Expansion | Unincorporated Chatham County <br> City of Garden City City of Port Wentworth City of Pooler City of Savannah | \$250,000 |
| Total Cost of Long-Term Improvements |  |  |  | \$136,475,000 |

Note: Cost estimates presented in this report are opinions of probable cost, and the study team has no control over the cost of labor, materials, equipment, or the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on information known to the study team at this time and represent only the study team's judgment as professionals familiar with the construction industry. The study team cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinion of probable costs.

## Appendices

A - Traffic Counts<br>B - Crash Data<br>C - Capacity Analysis Reports<br>D - ICE Worksheets<br>E - Public Outreach<br>F - Concept Layouts and Project Pages<br>G - Traffic Forecast


[^0]:    ${ }^{1}$ Approach delay reported for left-turn movement only on the major street at unsignalized intersections
    ${ }^{2}$ Overall intersection delay reported as the worst minor street approach at unsignalized intersections

[^1]:    - Table continued on next page

