





Coastal Empire IN SIGNAL STREET, SAN AND SAN **Transportation Study**

Final Report

February 2023

Coastal Empire Transportation Study

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Acronyms and Abbreviations

BCR	Benefit-Cost Ratio
BIL	Bipartisan Infrastructure Law
CMF	Crash Modification Factor
CORE MPO	Coastal Region Metropolitan Planning Organization
EMS	Emergency Medical Services
FHWA	Federal Highway Administration
FORD	Freight Operations and Rural Development
GDOT	Georgia Department of Transportation
GDP	Gross Domestic Product
GRAD	Georgia Ready for Accelerated Development
HCS	Highway Capacity Software
I	Interstate
ICE	Intersection Control Evaluation
INFRA	Infrastructure for Rebuilding America
LOS	Level of Service
MEGA	National Infrastructure and Project Assistance
MPO	Metropolitan Planning Organization
NEPA	National Environmental Policy Act
NHFN	National Highway Freight Network
NHFP	National Highway Freight Program
NHPP	National Highway Performance Program
NHS	National Highway System

SSTP	Statewide Strategic Transportation Plan
STBG	Surface Transportation Block Grant
STIP	Statewide Transportation Improvement Program
STRAHNET	Strategic Highway Network
TAP	Transportation Alternatives Program
TE	Transportation Enhancement
TIP	Transportation Improvement Program
USDOT	U.S. Department of Transportation
VHD	Vehicle Hours of Delay

Executive Summary

The Coastal Empire Transportation Study is an initiative of the Georgia Department of Transportation (GDOT) to assess the roadway network in Bryan, Bulloch, Chatham, and Effingham Counties (Coastal Empire region). The region serves as a "front door" to the state and its economy for global industry as well as where producers and manufacturers in the southeast choose to export their commodities and goods to the rest of the world. Home to several ports including the Port of Savannah, the fastest-growing gateway in the United States,¹ the region is also home to a variety of industrial development, which is expected to double to 200 million square feet within 10 years. It is estimated that the destination for 75 percent of the truck trips generated by cargo flow at the Port of Savannah is at one of the industrial sites within the region.

The growth at the Port of Savannah and within the region is in part due to the competitive drive times for trucks hauling freight from the Port to and from warehousing and distribution centers within the region. According to the Coastal Region Metropolitan Planning Organization's (CORE MPO's) 2020 travel demand model, the majority of the industrial space within the region is currently within a 40-minute drive of the Port of Savannah. The growth at the Port of Savannah and the region's subsequent industrial growth is expected to result in a significant increase in freight traffic on the roadway network. Further, by 2050, significant portions of nearly all interstates and state routes in the region are projected to double or triple in traffic volume.

Without improving capacity or connectivity on the region's roadway network in response to this growth, by 2050, only 34 percent of the planned industrial space would be within a 40-

The Coastal Empire Transportation Study recommendations propose more than \$1 billion of transportation investments in the four-county region to improve mobility and connectivity on the roadway network in order to support the region's unprecedented economic growth.

minute drive from the Port of Savannah. As such, the purpose of the study is to develop investment recommendations to accommodate the projected increase in traffic volumes, while also improving the safety, connectivity, and reliability of the roadway network.

More than 20 potential projects have been identified by this study that meet a positive benefit-to-cost ratio, and therefore, as funding allows, are recommended to move forward to implementation. These projects propose varying types of improvements, including corridor expansions, intersection and interchange improvements, technology investments, as well as infrastructure to improve safety at at-grade railroad crossings. The potential projects and project are listed and shown in **Table ES 1**, **Figure ES 1**, and **Figure ES 2**. Six corridor projects are recommended for further study and are shown on **Figure ES 2**. Together, these projects would represent an investment of more than \$1 billion in the Coastal Empire region's transportation infrastructure based on initial, planning-level cost estimates, and are projected to accommodate the increase in volumes at current level-of-service traffic, while also improving operations and safety for all vehicles. Additionally, with the implementation of the recommended corridor projects, 93 percent of planned industrial space within the region will be accessible within a 1-hour drive from the Port of Savannah, a 36 percent increase from a no build scenario.

¹ Georgia Ports Authority. 2021. Port of Savannah moves 5M TEUs. Accessed from <u>https://gaports.com/press-releases/port-of-savannah-moves-5m-teus/</u>

Table ES 1. List of Potential Projects Recommended by the Coastal Empire Transportation Study

Project Name	PE (in millions)	ROW (in millions)	Utilities (in millions)	Construction Cost (in millions)	Total Cost (in millions)	Time Frame	Permitting Complexity
I-16 Widening	\$14.2	\$ -	\$42.4	\$423.9	\$481	Long-Term	High
I-95 Auxiliary Lanes	\$3	\$ 25	\$8	\$85	\$121	Long-Term	High
State Route 204 Widening	\$1	\$6	\$3	\$35	\$45	Long-Term	High
Belfast Keller Road Widening ⁱ	\$0.5	\$0.9	\$0.2	\$1.9	\$3.5	Mid-Term	Medium
John Carter Road Widening	\$0.4	\$1.4	\$1.2	\$12	\$15	Mid-Term	Medium
Old River Road Widening ⁱⁱ	\$0.5	\$2.5	\$1	\$12	\$16	Mid-Term	Medium
Blue Jay Road Extension and Freight Upgrades	\$1	\$7	\$3	\$34	\$45	Mid-Term	Medium
State Route 21 Widening ⁱⁱⁱ	\$18	\$6	\$7	\$37	\$68	Long-Term	High
Effingham Parkway South Extension	\$0.6	\$13	\$1.8	\$17.6	\$33	Mid-Term	Medium
Effingham Parkway North Extension ⁱⁱⁱ	\$1	\$26	\$2.9	\$29.1	\$59	Long-Term	High
Effingham Parkway Widening ⁱⁱⁱ	\$16.5	\$5	\$6.5	\$33	\$61	Long-Term	High
US 80 Widening ^{iv,v}	\$4.5	\$21.5	\$13.5	\$136.5	\$176	Long-Term	Medium
Improvements near Bryan County Mega Site (PI #0016618)	\$5.7	\$59	\$2.3	\$108	\$175	Long-Term	Medium
US 80 at US 280 ^v (<i>PI #0018386</i>)	\$0.3	\$2.1	\$0.3	\$3.2	\$5.9	Mid-Term	Low
State Route 21 at Old Augusta Road ⁱⁱⁱ	\$0.3	\$0.1	\$0.2	\$1.5	\$2.1	Short-Term	Low
US 80 at SR 17 ⁱⁱⁱ	\$0.3	\$0.2	\$0.5	\$5	\$6	Mid-Term	Medium
I-95 at Airways Avenue/Pooler Parkway	\$0.2	\$ -	\$0.1	\$2.8	\$3.1	Short-Term	Low
State Route 204 at Old River Road	\$0.3	\$0.8	\$0.3	\$2.6	\$4	Short-Term	Low
I-16 at Pooler Parkway	\$0.3	\$ -	\$0.4	\$4	\$4.7	Short-Term	Low
US 80 at Chatham Parkway	\$0.3	\$0.2	\$ -	\$0.4	\$0.9	Short-Term	Low
US 17 at Chatham Parkway	\$0.3	\$2.7	\$0.2	\$2.1	\$5.3	Mid-Term	Low
Truman Parkway at East Bay Street	\$9	\$4	\$ -	\$85	\$98	Long-Term	Low
US 17 at Belfast Keller Road ^{i,vi}	\$0.3	\$ -	\$ -	\$0.2	\$0.5	Short-Term	Low
At-Grade Railroad Crossing Improvements	-	-	-	-	TBD	Mid- & Long-Term	TBD
Real-Time Information Signage	-	-	-	-	TBD	Mid-Term	TBD
Potential Project Source (if identified from previous plan or study)							

Potential Project Source (if identified from previous plan or study)

ⁱ Belfast Keller Road Transportation Assessment

i Coastal Region Metropolitan Planning Organization (CORE) Transportation Improvement Program (TIP)

iii Effingham Transportation Master Plan (TMP)

[™] Bulloch Long Range Transportation Plan (LRTP) 2035

North Bryan Transportation Study

vi Richmond Hill - South Bryan County Transportation Study

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Figure ES 1. Potential Corridor and Intersection/Interchange Projects Recommended by the Coastal Empire Transportation Study

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Figure ES 2. Additional Potential Projects Recommended by the Coastal Empire Transportation Study

The Coastal Empire Transportation Study was completed in conjunction with other study efforts by the Coastal Region Metropolitan Planning Organization (CORE MPO) and the City of Pooler. Specifically, the CORE MPO completed a study of the SR 307 / Dean Forest Road corridor, and the City of Pooler, in cooperation with the CORE MPO, completed a study of the SR 26 / US 80 corridor - both within Chatham County. Together, these study efforts identify potential projects that would improve the safety, connectivity, and reliability of the roadway network within the four-county Coastal Empire region. These additional studies are included as appendices in this report.

It is recommended that the potential projects identified in this report and improvements identified in the aforementioned studies be considered for inclusion in either local, regional, or statewide plans, which is a necessary procedural step for these projects to be considered for funding for design, engineering, and construction activities. The projects have been assigned a time frame for implementation to identify those that could move forward more quickly to address the region's needs. Further, potential federal funding opportunities and sponsors have been identified to aid in the implementation process.

1 Introduction

Bryan, Bulloch, Chatham, and Effingham Counties – together referred to as the Coastal Empire region for the purposes of this study – comprise one of the most vital areas of Georgia's overall economy. This region, shown on **Figure 1-1** is currently facing unique freight transportation challenges due to unprecedented growth at the Port of Savannah as well as for industrial development within the region. As such, the Georgia Department of Transportation (GDOT) initiated the Coastal Empire Transportation Study to develop project recommendations to improve regional mobility and connectivity to and from the Port of Savannah and industrial sites within the region.

The Coastal Empire Transportation Study was completed in conjunction with other study efforts by the Coastal Region Metropolitan Planning Organization (CORE MPO) and the City of Pooler. Specifically, the CORE MPO completed a study of the SR 307 / Dean Forest Road corridor, and the City of Pooler, in cooperation with the CORE MPO, completed a study of the SR 26 / US 80 corridor - both within Chatham County. Together, these study efforts identify potential projects that would improve the safety, connectivity, and reliability of the roadway network within the four-county Coastal Empire region. These additional studies are included as appendices in this report.

The study team has collected and analyzed data, held stakeholder meetings, and completed several modeling tasks to develop project recommendations for the region. The *Existing Conditions and Future Needs Technical Memorandum*, completed in August 2022, documents the methodology and results of the previously completed analysis tasks.² The purpose of this *Coastal Empire Transportation Study Final Report* is to document the project recommendations identified through the study process. Additionally, this report identified potential federal funding sources and an implementation strategy for a subset of the recommended potential projects. At the conclusion of this study, these projects are recommended to be considered for inclusion in local, regional, and statewide plans in order to be advanced toward implementation.

1.1 Summary of Existing and Future Conditions

Prior to developing project recommendations, the study team completed an analysis to identify existing and future operational and safety conditions on the roadway network. This process started with the identification of 20 corridors and 22 intersections (including interchanges) to be studied, based on truck volumes and current or likely future land use patterns. Several types of analysis were completed for the study corridors and intersections, including a review of crash history, a desktop environmental screening, and development of travel demand and traffic models for both existing (2020) and future (2050) years. The study team also developed study goals and objectives with input from the Advisory Committee, which are listed in **Table 1-1**, to guide the development and screening of project recommendations.

² Existing Conditions and Future Needs Technical Memorandum. Georgia Department of Transportation. August 25, 2022.

Table 1-1. Study Goals and Objectives

Goal: Improve regional mobility to and from the Port of Savannah.

- Sustain and improve the operation of the roadway and freight network.
- Modernize transportation infrastructure to improve freight operations.
- Increase connectivity, capability, and capacity on the roadway and freight network.
- Improve safety for passenger vehicles and freight.

Goal: Improve regional connectivity to support strategic industrial development.

- Improve connectivity within the region to increase access to jobs, goods, and services.
- Improve connections to areas beyond the region to reduce the cost and time of goods delivery.
- Futureproof the transportation network to support anticipated population and commercial growth.

The study team also gathered input from stakeholders through the study's Advisory Committee, consisting of public-sector stakeholders at the state, regional, and local levels; and in one-on-one meetings, including local economic development authorities. Private-sector stakeholders were also consulted. In total, the study team met with 18 stakeholder groups over the course of the study to learn about existing and anticipated challenges on the transportation network, as well as the location and size of planned industrial development in the region.

The information provided by stakeholders proved to be invaluable to the study. The feedback received provided a more holistic view of the challenges the region faces and a more complete understanding of the magnitude of growth the region is expected to see. The study team incorporated the industrial development information received from stakeholders into a customized travel demand model built specifically for the region and for this study. This customized model better reflects the expected volume of freight traffic that will be generated by the warehousing and distribution sites within the region. It would not have been possible to make this model without the additional outreach the study team conducted with public and private stakeholders. Additionally, the information shared by the stakeholders played an important role in developing and screening project recommendations.

For the travel demand and traffic models, the study team developed a no build scenario for the year 2050, which is the latest year of the MPO's and GDOT's planning horizon. The 2050 "no build" scenario analyzes how the existing transportation network (including all funded projects) would operate with the anticipated increase in traffic. The 2050 "no build" travel demand model results indicated that significant portions of nearly all interstates and state routes in the region are projected to double or triple in traffic volume.

The traffic volumes on nearly all interstates and state routes in the Coastal Empire region are projected to double or triple by 2050.

Based on the 2050 no build traffic modeling results, many of these corridors are expected to experience significant delay due to the increase in traffic on the network. Much of this projected increase can be

attributed to the growth at the Port of Savannah and the subsequent increase in industrial development within the region. These findings, along with the outputs from the other analyses, were integral components for developing and screening improvement options. The *Existing Conditions and Future Needs Technical Memorandum* provides the methodology and outputs used for these analyses.²



Figure 1-1. Coastal Empire Region

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2 Development of Project Recommendations

Following completion of an existing conditions and future needs analysis, the study team proceeded with development of recommended improvements. The study team utilized a multi-step process to analyze more than 100 transportation improvement options and to produce a list of recommendations for the Coastal Empire region. The process for developing project recommendations involved four steps: (1) option identification; (2) option screening; (3) project classification; and (4) development of recommended potential projects. The steps of the process are summarized on **Figure 2-1** and are discussed in the following sections. The process resulted in the development of several project recommendations, which are presented in Section 3.



Figure 2-1. Process for Developing Recommendations

2.1 Identification of Options to be Evaluated

The process of developing project recommendations began with the identification of more than 100 potential improvement options using a multi-pronged approach.

The study team first reviewed local, regional, and statewide plans (including <u>GDOT's GeoPI database</u>) to identify proposed freight-related recommendations for the study area corridors and intersections.³ The purpose of identifying these recommendations was to evaluate the performance of proposed projects using the study's screening methodology. The study team also interviewed several public- and private-sector stakeholders to gain an understanding of existing and potential future transportation-related issues associated with the Coastal Empire region's roadway network. This feedback was used as a qualitative supplement to identify improvement options that may not have been identified through the data analysis.

The majority of the improvement options were developed by the study team using the data and model outputs from the existing conditions and future needs analysis, including projected traffic operations and volumes, crash locations, and planned development. Corridor-wide improvements were developed using engineering judgment, and intersection/interchange improvements were developed using GDOT's Intersection Control Evaluation (ICE) tool.

³ Excluding projects that are fiscally constrained/planned or under construction, as these projects are included in the no build travel demand model.

The potential improvement options were then categorized into one of four types: (1) "Capacity Adding and New Connections," (2) "Operational and Safety," (3) "Freight Accommodations," and (4) "At-Grade Railroad Crossings." Each of the improvement option categories were subject to a slightly different screening process, as explained in Section 2.2. A full list of the more than 100 potential improvement options and their descriptions are included in Appendix A.

2.2 Option Screening

The next step of the project development process was to screen the more than 100 improvement options identified. The screening process involved three types of evaluation, including a proximity analysis, a qualitative evaluation, and a traffic modeling evaluation. A total of 10 points were possible for each category, calculated by a combination of measures or by relativity of results. An overview of the evaluation types, measures used, and total possible points is shown on **Figure 2-2**. The results of the improvement option screening process are included in Appendix B-1.



Figure 2-2. Scoring Summary

Most improvement options within the categories of "Capacity Adding and New Connections" and "Operational and Safety" were eligible for a total of 30 points – 10 for each of the evaluation categories. Improvement options within the "Freight Accommodations" and "At-Grade Railroad Crossings" categories require further development and therefore were not able to be modeled. As such, these options only underwent the proximity analysis and the qualitative evaluation and were eligible to receive a total of 20 points. The types of evaluations completed for each improvement category are summarized in **Table 2-1**. Additional details on how scores were derived are provided in the following sections.

Table 2-1. Evaluations	Completed for Eacl	h Improvement	Category

Improvement Category	Proximity	Qualitative	Traffic Modeling
Capacity Adding and New Connections	\checkmark	\checkmark	\checkmark
Operational and Safety	\checkmark	\checkmark	\checkmark
Freight Accommodations	\checkmark	\checkmark	
At-Grade Railroad Crossings	\checkmark	✓	

After scores were produced for the improvement options, those receiving 15 points or more (representing the 75th percentile) were selected to move forward for additional analysis and potential inclusion in the recommended project list. Based on the scoring threshold, a total of 31 options were advanced and were thereinafter considered to be projects.

Based on stakeholder feedback and direction from GDOT, a handful of additional project options were also advanced, some of which were scored and did not meet the scoring threshold and others that were not included in the screening process. These include (1) an interchange project located at Truman Parkway and East Bay Street in Chatham County, (2) a project to implement real-time information signage on I-16 and I-95, and (3) improvements for several at-grade railroad crossings.

2.2.1 Proximity Analysis

The purpose of the proximity analysis was to evaluate each improvement option's potential ability to address existing safety issues on the roadway network, mitigate projected traffic and freight congestion, and facilitate access to planned industrial development. These factors were assessed by determining an improvement option's proximity to areas with high crash densities, significant congestion, and locations of planned industrial development.

Options from all improvement categories underwent a proximity analysis and were eligible to receive a total of up to 10 points for this evaluation. The following sections describe the methodology used to calculate proximity analysis scores. The proximity analysis scores for the improvement options are included in Appendix B-2.

Crash Score

A score based on an improvement option's proximity to areas with high crash frequencies within the study area was determined using the crash intensity map from the *Existing Conditions and Future Needs Technical Memorandum* (see *All Crashes, 2016-2022* map included in Appendix B-2).² An improvement option was eligible to receive up to 2.5 points for this category. Up to 2 points were awarded (in 0.5 increments) based on an improvement's proximity to an area of dense crashes, with an additional 0.5 points awarded for proximity to a location where a fatal crash had occurred.

Traffic Delay Score

A traffic delay score was assigned to improvement options based on proximity to areas projected to experience congestion in the 2050 no build conditions. This score was determined using the level of service (LOS) map from the *Existing Conditions and Future Needs Technical Memorandum* (see 2050 *Daily Level of Service* map in Appendix B-2).² Scores for this category ranged from 0 to 3 points

depending on an improvement's proximity to areas of projected LOS, where 0 points were assigned for proximity to an area of LOS of A, B, or C; 1 point for LOS D; 2 points for LOS E; and 3 points for LOS F.

Freight Delay Score

A freight delay score was assigned to improvement options based on proximity to areas projected to experience freight congestion in the 2050 no build conditions. The freight delay score was determined based on the truck Vehicle Hours of Delay (VHD) map from the *Existing Conditions and Future Needs Technical Memorandum* (see *2050 Daily Truck Hour Delay* map in Appendix B-2).² Freight delay scores ranged from 0 to 2 depending on an improvement's proximity to areas of projected truck delay, where 0 points were assigned for proximity to an area not expected to experience delay, 1 point for moderate delay, and 2 points for significant delay.

Planned Industrial Development Score

The improvement options were evaluated based on proximity to planned industrial development and the Port of Savannah. A total of 38 planned industrial development sites were identified within the study area, which were then aggregated into 10 planned development areas (see *Planned Industrial Development Areas* table and *Planned Development Areas* map in Appendix B-2). The study team was able to gather a robust inventory of planned industrial development within the The inventory of planned industrial development was gathered using resources provided by county development authorities and private sector stakeholders.

region based on the significant resources provided by the county development authorities and stakeholders from the private sector.

Each planned development area was assigned a value from 0.5 to 2 based on the total estimated square footage comprised within each planned development area. The areas with the greatest amount of square footage were assigned a value of 2.⁴ A total of 2.5 points was possible for this category, where the score for the improvement option is reflective of the value of the closest planned development area. An improvement within or intersecting more than one planned development area was assigned a score of 2.5.

2.2.2 Qualitative Evaluation

The improvement options were also evaluated qualitatively with a possibility to receive a total of 10 points. This category consisted of nine measures used to evaluate whether an option was supported or identified in a previous plan (1 point) or by a stakeholder (1 point), as well as whether the option aligned with the study's goals and objectives (up to 8 points). The qualitative scores for the improvement options are included in Appendix B-3.

2.2.3 Traffic Modeling Evaluation

Improvement options in the "Capacity Adding and New Connections" and "Operational and Safety" categories underwent an additional level of screening using traffic modeling software. Improvement options that showed negative operational benefits, or worsened delay, based on the model outputs were

⁴ Note that the value for the Port of Savannah was not assigned using this methodology, rather it was assigned a value of 2 to reflect current and projected growth.

screened out. The remaining improvement options were eligible to receive a total of 10 points for this category. For options that were analyzed using more than one model, the project was assigned the average score from the combined model outputs. The modeling results for the improvement options are summarized in Appendix B-4.

Capacity Adding and New Connections Improvement Options

The operational benefits of the "Capacity Adding and New Connections" improvement options were evaluated using the travel demand model, HCS, or both. The travel demand model was used for improvement options that either provided a new connection or increased the number of lanes. HCS was used for any improvement options that increased the number of lanes.

The travel demand model outputs were used to calculate how much each improvement option could improve VHD for all traffic, as well as for trucks only, as compared to the no build model. The options were measured two ways – (1) the total number of VHD reduced, and (2) the percent reduction in VHD – for a total of four VHD measurements. The outputs from these calculations were ranked for each project and assigned a score ranging from 0 to 2.5, where 0 represents the options providing the least amount of improvement and 2.5 represents those providing the most improvement. The four VHD calculations were then summed to provide a single score for each project.

Improvement options proposing to increase the number of lanes were analyzed using HCS. The improvement option's ability to improve roadway density, or the number of vehicles per mile per lane, was calculated by comparing the roadway density between the build and no build models. The difference was then weighted by the corridor volume. The options were ranked and assigned a score from 0 to 10, where 0 indicates that the option shows no improvement in density and 10 indicates the most improvement in density.

Operational and Safety Improvement Options

"Operational and Safety" improvement options that propose improvements to an intersection or interchange were analyzed using SIDRA and/or Synchro.⁵ The study team first determined the optimal configuration for each intersection and interchange using the GDOT Intersection Control Evaluation (ICE) tool. The identified improvement was then evaluated using SIDRA for options proposing roundabouts and Synchro for all other options.

The outputs from these traffic models were used to measure an improvement option's ability to decrease intersection delay, which is measured in seconds per vehicle. For this calculation, the difference in intersection delay between the 2050 build and no build models, averaged for the a.m. and p.m. peak periods, was weighted by intersection volume. The options were ranked and assigned a score from 0 to 10, where 0 indicates that the project shows no improvement in delay and 10 indicates the project yields a delay reduction of 50 hours or more.

⁵ Projects proposing two-way left-turn lanes or raised medians were not able to be evaluated using traffic models due to unavailability of input data.

2.3 Project Classification

As previously noted, 31 improvement options were advanced through the screening process along with one additional option selected to move forward based on feedback from stakeholders and GDOT, for a total of 32 potential projects. These projects were classified into an implementation time frame category and an investment type from GDOT's Statewide Strategic Transportation Plan (SSTP)⁶ based on the results of a desktop environmental screening and preliminary cost estimates.

A total of 32 potential projects were identified to be advanced for further analysis based on the evaluation results.

The other two potential projects identified to move forward -(1) real-time information signage on I-16 and I-95 and (2) improvements for several at-grade railroad crossings - were also assigned implementation time frame and investment type classifications. However, this was completed based on engineering judgement since environmental screening has not been completed nor have cost estimates been produced for these projects.

Desktop Environmental Screening

A desktop environmental screening was performed to determine each project's proximity to natural (e.g., wetlands), cultural (e.g., historic houses), and social environmental (e.g., conservation area) resources using a 1,000-foot buffer. The purpose of this analysis was to determine the potential complexity of the permitting process for the project, including environmental permitting, acquisition of right-of-way, and others. Based on the results of this analysis, each project was assigned as having a low, medium, or high permitting complexity depending on proximity to the aforementioned resources. For example, a project requiring acquisition of a significant amount of right-of-way and having potential impacts to streams, wetlands, and open waters and disturbances of United States Army Corps of Engineers-managed properties would be considered to have a high permitting complexity, is included in Appendix C.

Cost Estimates

Planning-level cost estimates, including preliminary engineering (PE), right-of-way acquisition, reimbursable utility, and construction costs, were developed for the 32 potential projects. A contingency for the total project cost was assigned based on the potential permitting complexity determined – potential projects were assigned a 30 percent contingency within the high complexity category, 25 percent for medium complexity, and 20 percent for low complexity. A breakdown of the project costs is included in Appendix D.

Implementation Time Frame Classification

The results from the desktop environmental screening and cost estimates were used to classify the potential projects into an implementation time frame category of either short-, mid-, or long-term. The purpose of this classification was to identify the estimated duration to completion for each project. Short-term projects are recommended to be implemented within 5 years, mid-term projects within 10 years, and

⁶ Georgia Department of Transportation. 2021. 2021 Statewide Strategic Transportation Plan: 2050 Statewide Transportation Plan. Accessed from https://www.dot.ga.gov/InvestSmart/SSTP/GDOT_FINAL_2021SSTP.pdf

long-term projects beyond 10 years. The implementation time frame is directly correlated with the project's estimated cost and anticipated environmental complexity – the more costly and complex the project is expected to be, the longer the duration to completion. **Figure 2-3** reflects a framing of the project options across the three time frame categories.⁷



Figure 2-3. Project Implementation Time Frame

Investment Type Classification

During this step, the potential projects were also classified by investment type according to GDOT's investment strategies outlined in the 2021 SSTP⁶: Foundational, Catalytic, and Innovative. The SSTP defines these categories as follows: *Foundational – taking care of our existing transportation system; Catalytic – growing Georgia's economy*; and *Innovative – preparing for transportation demands of the future*.⁶ The project definitions were used to determine the classification for each project, where projects that propose upgrades to existing infrastructure were deemed Foundational, those that propose new infrastructure or major redesign of existing infrastructure were deemed Catalytic, and those proposing the incorporation of new technology were deemed Innovative. The project investment types are identified on the project fact sheets in Section 3.

Potential projects within the "Operational and Safety," "Freight Accommodations," and "At-Grade Railroad Crossings" categories were considered final recommendations after this step. Potential projects within the "Capacity Adding and New Connections" category underwent additional analyses and screening, as discussed in Section 2.4.

⁷ Note that the project count does not include the real-time information signage and at-grade railroad crossing improvement projects.

2.4 Project Recommendations

During the final step of the study process, an additional level of analysis was completed for the "Capacity Adding and New Connections" potential projects, including a benefit-cost analysis and a travel demand model. The study team also devised a funding and implementation strategy to identify potential funding sources and sponsors for these projects. As previously noted, these analysis tasks were not performed for the other three project types, which either were not suited for or were not yet sufficiently developed to be analyzed by these tools. The benefit-cost analysis methodology is presented in Section 2.4.1, the travel demand model results are presented in Section 3.1, the funding and implementation strategies are presented in Sections 4 and 5.

2.4.1 Benefit-Cost Analysis

The study team first completed a benefit-cost analysis to obtain a benefit-cost ratio (BCR) for the 18 "Capacity Adding and New Connections" potential projects advanced from the previous step. The purpose of the benefit-cost analysis was to identify a final list of potential corridor improvement projects and estimate project eligibility for discretionary grants. The results of the benefit-cost analysis led to a final list of 12 corridor improvement projects that are recommended for implementation and six projects recommended to undergo further study. These potential projects and their BCRs are presented in Section 3.

The benefit-cost analysis led to the identification of 12 potential corridor improvement projects recommended to move forward for implementation.

The study team followed the U.S. Department of Transportation's (USDOT) detailed guidance for a benefit-cost analysis provided in the *2022 Benefit Cost Analysis Guidance for Discretionary Grant Programs.*⁸ Sponsoring agencies may seek federal discretionary funding for future phases of the recommended projects, which will require a benefit-cost analysis to be completed. Using USDOT's guidance for the benefit-cost analysis for the projects in this phase will be beneficial for calculating benefits when preparing discretionary grant applications.

Using an Excel-based calculator, the study team calculated cost savings for four inputs, shown on **Figure 2-4** and discussed in the following sections – travel time savings, vehicle operating cost savings, safety cost savings, and emissions savings – which are weighted against the total costs associated with the project recommendations to produce a BCR.⁹

⁸ Benefit Cost Analysis Guidance 2022 (Revised).pdf (transportation.gov)

⁹ All of the benefit-cost analysis inputs with the exception of emissions savings correspond with the metrics used to calculate the business key performance indicators (KPIs) in the Georgia Freight Plan.

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Figure 2-4. Benefit-Cost Analysis Inputs

Given that the BCRs for the potential corridor projects are based on the results from the planning phase, it is recommended that the inputs for the benefit-cost analyses be reviewed and refined as the projects progress through the implementation process. Further, the BCRs produced should be used to compare projects in relation to each other and identify potential funding sources. The study team has documented the full list of limitations of this benefit-cost analysis in Appendix E.

Value of Travel Time Savings

Each project was reviewed in the 2050 no build and 2050 build travel demand model networks, and the VHDs were exported to calculate the project-level daily vehicle delay saved in the build compared to the no build condition. This value was then annualized and classified into two categories: passenger vehicle delay savings and truck delay savings.¹⁰ To obtain the monetized value for annual travel time savings, the delay savings was multiplied by the average vehicle occupancy, provided in Table A-4 of the *2022 Benefit-Cost Analysis Guidance for Discretionary Grants Programs,* and the value of time for automobiles and trucks from Table A-3.¹¹

Vehicle Operating Cost Savings

Another data input used to calculate BCRs was the total fuel cost savings for both passenger vehicles and trucks from reducing idle time in congestion. This was calculated by multiplying the annual travel time savings by the idle fuel use values for both passenger vehicles and trucks from the U.S. Department of Energy.¹² These values were monetized using 2022 fuel costs for gasoline and diesel from the U.S. Energy Information Administration.¹³

¹⁰ Also referred to in the benefit-cost analysis as "auto"

¹¹ Benefit Cost Analysis Guidance 2022 (Revised).pdf (transportation.gov) (p. 36-37)

¹² https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles

¹³ https://www.eia.gov/dnav/pet/PET_PRI_GND_DCUS_NUS_A.htm, website accessed during July 2022

Safety Cost Savings

To obtain the safety cost savings for project recommendations, a predictive safety analysis was conducted using crash modification factors (CMFs), crash data from 2016 to 2020 from the Numetric database, and USDOT's values for the KABCO crash severity classification, where:

- K = a fatality resulting from the crash
- A = incapacitating injuries such as amputation, disabling, and/or more
- B = the victim has minor injuries such as cuts or scrapes but are not incapacitating
- C = there is possible injury, but on a lesser scale
- O = there were no apparent injuries at the scene¹⁴

Each project was reviewed for associated CMFs. A CMF is a value that is used to estimate the change in crash frequency after the implementation of a safety countermeasure. These values were identified through the CMF Clearinghouse, a web-based repository for CMFs produced from traffic studies.¹⁵ CMFs for the countermeasures listed in the CMF Clearinghouse are classified by several characteristics, including roadway type, area type, and intersection type, among others. The most relevant CMFs were applied to estimate annual crash reductions.

The safety cost savings for each project recommendation was calculated using the estimated annual crash rates, classified by KABCO severity from the build and no build scenarios. Using USDOT's monetized value for KABCO crash classification, the safety cost savings is the difference between the safety costs in the build and no build scenarios for 2050.

Emissions Savings

To obtain the cost savings for emissions reduction for the project recommendations, the estimated emissions avoided because of the travel time savings were calculated for three major pollutants – carbon dioxide, nitrogen oxides, and fine particulate matter.

To calculate the emissions savings for 2050, the average idle emissions rate for each pollutant, obtained from the U.S. Environmental Protection Agency,^{16,17} was multiplied by the annual travel time savings for both passenger vehicles and trucks. The resulting value was then monetized using the pollutant damage cost (adjusted to 2020 dollars) provided in Table A-6 of the *2022 Benefit-Cost Analysis Guidance for Discretionary Grant Programs*.¹⁸

Project Costs

The total project cost (pre-construction and construction) was estimated and annualized using a discount rate of seven percent over a 20-year period, which reflects an annual cost of the project based on the average lifecycle of transportation infrastructure as defined by USDOT. This step is not typical for a benefit-cost analysis, in which costs and benefits are typically estimated over a 20-year period. However, because only one year of benefits (2050) was available from the travel demand model, costs had to reflect one year for an "apples-to-apples" comparison.

¹⁴ Crash Modification Factors Clearinghouse Brochure (cmfclearinghouse.org)

¹⁵ Crash Modification Factors Clearinghouse (cmfclearinghouse.org)

¹⁶ https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P100EVXV.TXT

¹⁷ https://www.nrcan.gc.ca/energy/efficiency/communities-infrastructure/transportation/cars-light-trucks/idling/4415

¹⁸ Benefit Cost Analysis Guidance 2022 (Revised).pdf (transportation.gov)

3 Study Recommendations

From the technical and quantitative analysis, the project development process resulted in the identification of 12 potential corridor improvement projects, 11 potential intersection and interchange improvement projects, a freight technology recommendation, and the identification of several at-grade railroad crossings recommended to undergo further study for operational and safety improvements. Overall, these improvements represent a potential of more than \$1 billion in investments to support growth in the region's economy and improve the resiliency, reliability, and safety of the network for the region's key industrial users. The following sections present the recommended potential projects and contain fact sheets providing detailed information about the improvements. Additionally, the study team has identified a list of six potential projects which are not currently recommended for advancement to implementation, but that are recommended to be reconsidered in future studies as necessitated by traffic demand. These projects are discussed in Section 3.1.1.

3.1 Potential Corridor Improvement Projects

Coastal Empire Transportation Study Recommendations

12 Corridor Improvement Projects

11

Intersection and Interchange Projects

Additional recommendations on:

- Technology
- At-grade Railroad Crossings
- Corridors for Further Study

\$1.4 Billion Investment to support growth in the

region's economy

The 12 potential corridor improvement projects recommended by the study team are shown on **Figure 3-1** and listed in **Table 3-1** along with their estimated costs, BCR values (expressed as a range), implementation time frames, and investment types. These potential projects propose a variety of improvements to accommodate the forecasted increase in traffic volumes, including adding capacity on existing roads, creating new connections, and upgrading existing roads to better accommodate freight.

These potential projects are discussed in further detail in the fact sheets included on pages 18 through 28. The study team completed a funding analysis to identify potential federal funding sources for these projects, which are presented on the fact sheets and discussed in detail in Section 4. Discussion about the implementation of the potential corridor improvement projects, including lead sponsor agency recommendations, are included in Section 5.



Figure 3-1. Recommended Potential Corridor Improvement Projects

Project Name (estimated project length)	Cost Estimate (2022\$) ¹⁹	BCR Range	Implementation Time Frame	Investment Type
I-16 Widening (30 miles)	\$481M	> 5	Long-term	Catalytic
I-95 Auxiliary Lanes (7 miles)	\$121M	> 5	Long-term	Catalytic
State Route 204 Widening (8 miles)	\$45M	1 to 5	Long-term	Catalytic
Belfast Keller Road Widening (0.4 miles)	\$3.5M	> 5	Mid-term	Catalytic
John Carter Road Widening (3 miles)	\$15M	1 to 5	Mid-term	Catalytic
Old River Road Widening (3 miles)	\$16M	> 5	Mid-term	Catalytic
Blue Jay Road Extension and Freight Upgrades <i>(14 miles)</i>	\$45M	> 5	Mid-term	Catalytic
State Route 21 Widening (7 miles)	\$68M	1 to 5	Long-term	Catalytic
Effingham Pkwy. South Extension (5 miles)	\$33M	> 5	Mid-term	Catalytic
Effingham Pkwy. North Extension (10 miles)	\$59M	1 to 5	Long-term	Catalytic
Effingham Pkwy. Widening (6 miles)	\$61M	1 to 5	Long-term	Catalytic
US 80 Widening (34 miles)	\$176M	1 to 5	Long-term	Catalytic

Table 3-1. Recommended Potential Corridor Improvement Projects

A travel demand model was completed for these potential projects to understand the travel time benefits of the projects for the year 2050. The results of this model show that the corridor projects will help to maintain existing drive times to most areas in the region from the Port of Savannah. In the context of industrial development, the model indicates that 93 percent of the planned development would be accessible from the Port of Savannah within a 1-hour drive, as compared to only 57 percent in the no build travel demand model. A comparison of the 2050 build and no build travel sheds for the region are shown on **Figure 3-2**. These results indicate that the potential corridor projects will reduce drive times between the Port of Savannah and warehousing/distribution centers, which will maintain the region's competitiveness for attracting new businesses.

¹⁹ These costs reflect planning-level estimates and are subject to change based on further engineering and permitting review, as well as construction cost inflation.

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Figure 3-2. 2050 Truck Travel Time from the Port of Savannah, Comparison of No Build and Build Scenarios (Source: Regional Travel Demand Model Output)

I-16 Widening

GDOT INVESTMENT TYPE: CATALYTIC

Time Frame: Long-term

Project Description



This project includes the widening of I-16 from four to six lanes between I-95 in Chatham County and State Route 67 in Bulloch County (approximately 30 miles) and is recommended to be a GDOT-led project.

I-16 is a vital mobility corridor for the region, especially for freight traveling to and from the ports. A significant amount of industrial development is anticipated adjacent to I-16, which will result in increased freight traffic on the interstate.

Widening the interstate by one lane in each direction will help mitigate the effect of increased traffic volumes on I-16 and improve the reliability of the network for freight.

Although GDOT owns a significant amount of right-of-way along I-16, it is anticipated that the permitting process for this project will be complex given the numerous environmental resources located along the corridor.

Stakeholders have indicated that potential industrial development along US 301 in Bulloch County could support widening I-16 an additional distance between State Route 67 and US 301 in Bulloch County.

This is estimated to cost an additional \$152 million. This future extension should be further studied.



Cost Estimate* Benefit-Cost Ratio Range \$481M Greater 5 *Estimate is reported in 2022 dollars and reflects the cost of preliminary engineering, utilities

*Estimate is reported in 2022 dollars and reflects the cost of preliminary engineering, utilities, right-of-way acquisition, construction, and a 30% contingency.

Federal Funding Opportunities

This project is suited for both federal formula and discretionary funding because I-16 is part of the National Freight Network and the Strategic Highway Network, and the corridor has high regional and U.S. significance. The following funding programs should be considered for implementation:

Funding Programs	Discretionary	Formula
Infrastructure for Rebuilding America	\checkmark	
MEGA (National Infrastructure Project Assistance)	\checkmark	
National Highway Freight Program		\checkmark
National Highway Performance Program		\checkmark

I-95 Auxiliary Lanes

GDOT INVESTMENT TYPE: CATALYTIC

Time Frame: Long-term

Project Description



This project includes construction of an auxiliary lane on I-95 in each direction from US 17 in Bryan County to State Route 21 in Chatham County (approximately 7 miles) and is recommended to be a GDOT-led project.

By serving as an additional lane for vehicles merging onto and exiting the interstate, an auxiliary lane improves safety and the flow of traffic.

I-95 serves as a vital mobility corridor within the region, providing north-south connectivity for traffic. Similar to I-16, I-95 is expected to experience a significant increase in congestion as a result of freight traffic associated with planned industrial development.

The auxiliary lanes will provide additional capacity for the increased volumes and improve the reliability of the interstate.

The permitting process for this project is expected to be complex due to the need for right-of-way and the project's proximity to environmental resources.

GDOT could also consider a future study of widening I-95 to eight lanes, which is estimated to cost \$601 million.



Cost Estimate* Benefit-Cost Ratio Range S121M Greater 5 *Estimate is reported in 2022 dollars and reflects the cost of preliminary engineering, utilities

*Estimate is reported in 2022 dollars and reflects the cost of preliminary engineering, utilities, right-of-way acquisition, construction, and a 30% contingency.

Federal Funding Opportunities

This project is suited for both federal formula and discretionary funding because I-95 is part of the National Freight Network and the Strategic Highway Network, and the corridor has high regional and U.S. significance. The following funding programs should be considered for implementation:

Funding Programs	Discretionary	Formula
Infrastructure for Rebuilding America	\checkmark	
MEGA (National Infrastructure Project Assistance)	\checkmark	
National Highway Freight Program		\checkmark
National Highway Performance Program		\checkmark

State Route 204 Widening

GDOT INVESTMENT TYPE: CATALYTIC

Time Frame: Long-term

Project Description



This project includes the widening of State Route 204 in Chatham County from Old River Road to I-95 (approximately 8 miles) and is recommended to be a GDOT-led project. The purpose of this project is to provide redundancy in the network by improving parallel routes to I-16. This type of improvement is necessitated by the significant amount of industrial development planned in this area.

Expanding State Route 204 will provide increased capacity for freight and mitigate congestion associated with the planned developments.

The permitting process for this project is expected to be complex given the amount of right-of-way that will be required and the project's proximity to environmental resources.

The purpose of this project is to provide redundancy in the network by improving parallel routes to I-16. This type of improvement is necessitated by the significant amount of industrial development planned in this area.



Cost Estimate* Benefit-Cost Ratio Range \$45M Between 1 and 5

*Estimate is reported in 2022 dollars and reflects the cost of preliminary engineering, utilities, right-of-way acquisition, construction, and a 30% contingency.

Federal Funding Opportunities

This project is well suited for federal discretionary funding because State Route 204 is part of the Strategic Highway Network, provides access to emergency service and planned industrial facilities, and improves quality of life for rural areas. It would also be eligible for formula programs. The following funding programs should be considered for implementation:

Funding Programs	Discretionary	Formula
Infrastructure for Rebuilding America	\checkmark	
Rebuilding American Infrastructure Sustainably and Equitably	\checkmark	
Rural Surface Transportation Program	\checkmark	

Belfast Keller Road Widening

GDOT INVESTMENT TYPE: CATALYTIC

Time Frame: Mid-term

Project Description



This project includes the widening of Belfast Keller Road from two to six lanes with a divided median between I-95 and Great Ogeechee Parkway in Bryan County (approximately 0.5 mile) and is recommended to be a locally led project.*

The proposed widening of this section of the corridor is largely in response to the recently constructed interchange at I-95 and Belfast Keller Road, and the projected increase in traffic volumes associated with planned industrial and residential development in the area.

The widening of Belfast Keller Road is also recommended in the Bryan County Transportation Plan. It is anticipated to have a straightforward permitting process relative to other recommended projects.

The proposed widening of this section of the corridor is largely in response to the recently constructed interchange at I-95 and Belfast Keller Road.

* This potential project originated from the Belfast Keller Road Transportation Assessment.



Cost Estimate* Benefit-Cost Ratio Range \$3,500 Greater 5 than 5

*Estimate is reported in 2022 dollars and reflects the cost of preliminary engineering, utilities, right-of-way acquisition, construction, and a 25% contingency.

Federal Funding Opportunities

This project is suited for both federal formula and discretionary funding based on its proximity to planned industrial and emergency service facilities and improvements to quality of life for rural areas. The following funding programs should be considered for implementation of this project:

Funding Programs	Discretionary	Formula
Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation	\checkmark	\checkmark
Rural Surface Transportation Program	\checkmark	
Surface Transportation Block Grant		\checkmark

John Carter Road Widening

GDOT INVESTMENT TYPE: CATALYTIC

Time Frame: Mid-term

Project Description



This project includes the widening of John Carter Road from Little Neck Road to Old River Road (approximately 3 miles) from two to four lanes and is recommended to be a locally led project. The purpose of this project is to create redundancy in the roadway network by providing alternate routes to I-16, a vital mobility corridor in the region.

Located near several planned industrial developments, the John Carter Road widening project will provide improved access and capacity for freight traffic.

Widening the corridor will also mitigate congestion associated with the planned developments.

The project is anticipated to have a straightforward permitting process relative to other recommended projects.

The purpose of this project is to create redundancy in the roadway network by providing alternate routes to I-16, a vital mobility corridor in the region.



Cost Estimate*Benefit-Cost Ratio Range\$15MBetween 1 and 5

*Estimate is reported in 2022 dollars and reflects the cost of preliminary engineering, utilities, right-of-way acquisition, construction, and a 25% contingency.

Federal Funding Opportunities

This project is suited for both federal formula and discretionary funding based on its local significance and improvements to quality of life for rural areas. The following funding programs should be considered for implementation of this project:

Funding Programs	Discretionary	Formula
Rural Surface Transportation Program	\checkmark	
Surface Transportation Block Grant		\checkmark

Old River Road Widening

GDOT INVESTMENT TYPE: CATALYTIC

Time Frame: Mid-term

Project Description



This project includes the widening of Old River Road from two to four lanes from State Route 204 in Chatham County to I-16 in Effingham County (approximately 3 miles) and is recommended to be a locally led project.* The purpose of this project is to provide redundancy in the network by improving parallel routes to I-16.

Located near several planned industrial developments, the Old River Road widening project will provide improved access and capacity for freight traffic. Widening the corridor will also mitigate congestion associated with the planned developments.

This project is included in Coastal Region (CORE) MPO's Mobility 2045 Metropolitan Transportation Plan to address the need for the corridor to better accommodate freight traffic.

The project is anticipated to have a straightforward permitting process relative to other recommended projects.

The Old River Road widening project will provide improved access and capacity for freight traffic.

* This potential project originated from the CORE MPO FY 2021-2024 TIP.



Cost Estimate* Benefit-Cost Ratio Range S16M Greater 5 *Estimate is reported in 2022 dollars and reflects the cost of preliminary engineering, utilities

*Estimate is reported in 2022 dollars and reflects the cost of preliminary engineering, utilities, right-of-way acquisition, construction, and a 25% contingency.

Federal Funding Opportunities

This project is suited for both federal formula and discretionary funding based on its local significance, proximity to planned industrial facilities, and improvements to quality of life for rural areas. Local funding has been identified for implementation of this project; however, should that change, the following funding programs should be considered of this project:

Funding Programs	Discretionary	Formula
Rural Surface Transportation Program	\checkmark	
Surface Transportation Block Grant		\checkmark

Blue Jay Road Extension and Freight Upgrades

GDOT INVESTMENT TYPE: CATALYTIC

Time Frame: Mid-term

Project Description



This project includes the extension of Blue Jay Road from Sand Hill Road in Effingham County to the intersection of US 280 at US 80 in Bryan County (approximately 3 miles).

Additionally, the existing corridor (from Sand Hill Road to State Route 21; approximately 11 miles) is proposed to be upgraded, including widening travel lanes and improving roadway structure, to better accommodate freight traffic.* This project is recommended to be locally led.

The purpose of this project is to improve connections between State Route 21 and I-16 and to create redundancy in the transportation network. This project will also support the significant amount of industrial development planned within the area.

The roadway is not included in the state highway system. Further coordination with Effingham County is needed to determine whether the proposed improvements warrant inclusion of the roadway within the state highway system.

The permitting process for this project will be somewhat complex given the project's proximity to environmental resources.

*This potential project originated from the Effingham TMP (IDs N-21 and N-19).



Cost Estimate* Benefit-Cost Ratio Range \$4500 Greater 5 than 5

*Estimate is reported in 2022 dollars and reflects the cost of preliminary engineering, utilities, right-of-way acquisition, construction, and a 25% contingency.

Federal Funding Opportunities

This project is suited for both federal formula and discretionary funding based on its local significance, proximity to emergency service facilities, and improvements to quality of life for rural areas. The following funding programs should be considered for implementation of this project:

Funding Programs	Discretionary	Formula
Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation	\checkmark	\checkmark
Rural Surface Transportation Program	\checkmark	
Surface Transportation Block Grant		\checkmark

State Route 21 Widening

GDOT INVESTMENT TYPE: CATALYTIC

SEM

Time Frame: Long-term

Project Description



This project includes the widening of State Route 21 from four to six lanes with a raised median and a median opening every 1,000 feet between State Route 30 in Chatham County and 9th Street in Effingham County (approximately 7 miles).* Additionally, the project includes the proposed construction of a sidewalk where not currently present along sections of State Route 21 located in an urban core. It is recommended that this be a GDOT-led project.

The purpose of this project is to expand the corridor to accommodate the projected increase in freight traffic as a result of growth at area ports. Increased capacity on State Route 21 will also support planned industrial development in Effingham County.

The project is a programmed project in the Effingham Transportation Master Plan (ID N-20). The project's permitting process is expected to be complex given its proximity to environmental, cultural, and social resources.

The purpose of this project is to expand the corridor to accommodate the projected increase in freight traffic.

* This potential project originated from the Effingham TMP (ID N-20).



Cost Estimate*Benefit-Cost Ratio Range\$68MBetweenand55

*Estimate is reported in 2022 dollars and reflects the cost of preliminary engineering, utilities, right-of-way acquisition, construction, and a 35% contingency.

Federal Funding Opportunities

This project is best suited for federal formula funding because State Route 21 is part of the Strategic Highway Network and provides access to emergency service and planned industrial facilities. The following funding programs should be considered for implementation of this project:

Funding Programs	Discretionary	Formula
Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation		\checkmark
Surface Transportation Block Grant		\checkmark

Effingham Parkway Improvements

GDOT INVESTMENT TYPE: CATALYTIC

Time Frame: Mid-term and Long-term

Project Description



This set of projects includes several improvements to Effingham Parkway, which is anticipated to be completed as a two-lane roadway by 2025 (PI No. 0006700). Effingham Parkway, located in Effingham County, will provide access to the Savannah Gateway Industrial Hub and serve as a parallel route to State Route 21. The following projects, which are recommended to be locally led, are proposed:

Widening to 4 lanes

Widening of the 6-milelong corridor from two to four lanes will increase capacity for freight.*

Northern Extension

Extending the corridor north by 10 miles to State Route 21 in Springfield will create an additional east-west connection in Effingham County.**

Southern Extension

Extending the corridor south by 4 miles to Jimmy Deloach Parkway via Benton Boulevard will provide a more direct connection for freight to access major arterials and interstates. Accommodations for bicyclists and pedestrians through this area are also recommended.



Development of an access management plan for the corridor is also recommended to balance the needs of residential development, industrial development, and through traffic.

Context-sensitive solutions should also be considered, particularly for the southern extension where established residential development exists. Effingham Parkway is not included in the state highway system. Further coordination with Effingham County is needed to determine whether the proposed improvements warrant inclusion of the roadway within the state highway system.

All three projects are expected to have a complex permitting process given their proximity to environmental, cultural, and social resources.

Effingham Parkway, located in Effingham County, will provide access to the Savannah Gateway Industrial Hub and serve as a parallel route to State Route 21.

*This potential project originated from the Effingham TMP (ID N-22).

** This potential project originated from the Effingham TMP (ID N-7) but the study team proposes a slightly different alignment.

Effingham Parkway Improvements

Cost Estimates*

Widening to Four Lanes:

Northern Extension:

Southern Extension:

\$33M

*Estimates are reported in 2022 dollars and reflect the cost of preliminary engineering, utilities, right-of-way acquisition, and construction. The following contingencies have been used for the projects: Widening (35%), Northern Extension (30%), and Southern Extension (25%).

Benefit-Cost Ratio Ranges



Federal Funding Opportunities

These projects are suited for both federal formula and discretionary funding based on their regional significance and improvements to quality of life for rural areas. The following funding programs should be considered for implementation of the projects:

Funding Programs	Discretionary	Formula
Rebuilding American Infrastructure Sustainably and Equitably	\checkmark	
Rural Surface Transportation Program	\checkmark	
Surface Transportation Block Grant		\checkmark

US 80 Widening

SEI

GDOT INVESTMENT TYPE: CATALYTIC

Time Frame: Long-term

Project Description



This project includes the widening of US 80 from two to four lanes from Amanda Road in Bulloch County to State Route 17 in Effingham County (approximately 34 miles) and is recommended to be a GDOT-led project.* The purpose of this project is to prepare the region's network for increased traffic volumes by creating redundancy and improving routes parallel to I-16.

The widening of US 80 will support planned industrial development, especially in northern Bryan County. Expanding the corridor will create increased capacity and improve eastwest connectivity in the region.

The widening of US 80 is a listed project in Bulloch County's Long Range Transportation Plan (LRTP) 2035 and also recommended in the North Bryan Transportation Study. Given the project length, need for right-of-way, and proximity to environmental and cultural resources, the permitting process for this project will be complex.

The widening of US 80 between I-95 and Burnsed Boulevard in Chatham County was also considered but received a low estimated benefit-cost ratio. Further study of this segment is recommended.

* This potential project originated from Bulloch County's 2035 LRTP and the North Bryan Transportation Study.



Cost Estimate* Benefit-Cost Ratio Range S176M Between and 5

*Estimate is reported in 2022 dollars and reflects the cost of preliminary engineering, utilities, right-of-way acquisition, construction, and a 30% contingency.

Federal Funding Opportunities

This project is suited for both federal formula and discretionary funding based on its regional significance, improvements to quality of life for rural areas, and proximity to emergency facilities and planned industrial facilities. The project is within a USDOT-defined Historically Disadvantaged Community. The following funding programs should be considered for implementation of this project:

Funding Programs	Discretionary	Formula
Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation	\checkmark	\checkmark
Rural Surface Transportation Program	\checkmark	
Surface Transportation Block Grant		\checkmark

3.1.1 Potential Corridor Projects Recommended for Further Study

Based on the results of the benefit-cost analysis, a total of six potential projects are not currently recommended to move forward for implementation. Although these projects all showed operational benefits, they either resulted in a BCR of less than 1.0 or are not currently necessitated due to the recommendation of a similar project. Given that these projects all yield positive operational benefits, the study team recommends that these projects be reconsidered in the future as the need for additional capacity and operational improvements arises. The projects classified within this category are listed below and shown on **Figure 3-2**. Further explanation of these projects is provided below. Low Ground Road Extension (Effingham County)

- State Route 119 Widening (Effingham County)
- State Route 204 Access Controlled Corridor (Chatham County)
- State Route 21 Access Controlled Corridor (Chatham County)
- US 80 Widening (Chatham County)
- I-95 Widening (Bryan and Chatham Counties)

Three projects were developed to address the need for additional north-south connections in Effingham County, including Low Ground Road Extension (\$22 million), Blue Jay Road Extension and Freight Upgrades (\$45 million), and State Route 119 Widening (\$98 million). All three of these projects showed a BCR of more than 1.0 with the Blue Jay Road project performing the best of the three. Based on the projected traffic volumes, the study team concluded that only one north-south connection project was necessitated. However, it is recommended that the Low Ground Road and State Route 119 projects remain in consideration, as there may be a need for these upgrades if development and traffic volumes continue to grow.

Both the State Route 21 and State Route 204 Access Controlled Corridor projects showed significant operational benefits in the model results, but when weighed against the costs (\$990 million and \$586 million, respectively) the projects showed a BCR of less than 1.0, meaning the costs outweigh the benefits. The conversion of these state routes to access-controlled corridors will be complex and will require significant coordination with the community and local municipalities. The study team recommends that these potential projects undergo further analysis to determine if modifications are needed to the design, project extents/termini, and costs.

Two widening projects for US 80 were included in the benefit-cost analysis, one for a 34-mile section between Bulloch and Effingham Counties and the other for approximately 6.5 miles in Chatham County. While the 34-mile widening project showed a BCR greater than 1.0, the other widening project did not. The US 80 Widening project in Chatham County is estimated to cost \$101 million and proposes the widening of US 80 to six lanes from I-95 to Burnsed Boulevard. The study team recommends GDOT to reconsider this project as part of future studies and plans.

Two alternatives were evaluated for adding capacity on I-95 – (1) adding auxiliary lanes between State Route 21 and US 17 and (2) widening to eight lanes between Liberty County and State Route 21. Both potential projects resulted in operational benefits, however when compared against the costs, the auxiliary lanes project yielded a higher BCR and was therefore recommended to move forward for implementation. The I-95 widening project is recommended to remain in consideration should future traffic volumes exceed current projections and multiple capacity options are needed on the interstate.

February 2023



Figure 3-3. Potential Corridor Projects Recommended for Further Study

3.2 Potential Intersection and Interchange Improvement Projects

The 11 potential intersection and interchange improvement projects recommended by the study team are listed in **Table 3-2** along with their estimated costs, implementation time frames, and investment types. These projects are located on one or more of the corridors presented in Section 3.1 and propose improvements to address operational and safety issues on the network that may become exacerbated with an increase in traffic volumes. Some projects recommend minor upgrades, such as signal optimization, whereas other projects propose significant improvements, such as reconfiguration to better accommodate freight. These potential projects are discussed in further detail in the fact sheets included on pages 32 through 38.

Project Name	Cost Estimate (2022 \$) ²⁰	Implementation Time Frame	Investment Type
Improvements near Bryan County Mega Site	\$175M	Mid-term	Foundational & Catalytic
US 80 at US 280	\$5.9M	Mid-term	Foundational
State Route 21 at Old Augusta Road	\$2.1M	Short-term	Catalytic
US 80 at SR 17	\$6M	Mid-term	Foundational
I-95 at Airways Avenue/Pooler Parkway	\$3.1M	Short-term	Foundational
SR 204 at Old River Road	\$4M	Short-term	Foundational
I-16 at Pooler Parkway	\$4.7M	Short-term	Foundational
US 80 at Chatham Parkway	\$900k	Short-term	Catalytic
US 17 at Chatham Parkway	\$5.3M	Mid-term	Foundational
Truman Parkway at East Bay Street	\$98M	Long-term	Catalytic
US 17 at Belfast Keller Road	\$500k	Short-term	Foundational

Table 3-2.	Recommended Potentia	Intersection and	l Interchange In	nprovement Pr	oiects
10010 0 2.		in microconom ana	i interenange m	ipioveniene i i	5,0010

²⁰ These costs reflect planning-level estimates and are subject to change based on further engineering and permitting review, as well as construction cost inflation.

Based on screening results and stakeholder feedback, a total of 11 intersection and interchange improvement projects are recommended to move forward. The proposed improvements are located at areas that are currently or are expected to experience safety and/or operational issues. Each improvement shown on the map is detailed further on the following pages. Note that most of the improvements are preliminary and are recommended to undergo further analysis to finalize a design recommendation.



INTERSECTION AND INTERCHANGE IMPROVEMENTS

Transportation Improvements in the Vicinity of Bryan County Mega Site **GDOT INVESTMENT TYPE: FOUNDATIONAL AND CATALYTIC** Time Frame: Mid-term

Project Description

The development of the Bryan County Mega Site will result in an increased amount of traffic on and around the intersection of I-16 and US 280. It is anticipated that this will require several operational improvements to be implemented, such as changes to the interchange at I-16 and US 280, widening of adjacent roadways, and the construction of a new access point to I-16, among other transportation improvements.*

Project Benefits







Improved **Safetv**

Proximity Operations to Industrial Development

Cost Estimate S1751



* These potential projects originated from the North Bryan Transportation Study and from GDOT PI No. 0016618.

US 80 at US 280

GDOT INVESTMENT TYPE: FOUNDATIONAL

Project Description

The signalized intersection of US 80 at US 280 (PI No. 0018386) experiences high truck volumes. The recommended improvement includes construction of a multilane roundabout, with a footprint to accommodate heavy trucks. A roundabout would provide a safer environment for entering vehicles and especially for turning trucks.**

Project Benefits



Improved Safety

Improved Proximity to Industrial **Operations** Development





** This potential project originated from the North Bryan Transportation Study and from GDOT PI No. 0018386

Time Frame: Mid-term

State Route 21 at Old Augusta Road **GDOT INVESTMENT TYPE: CATALYTIC**

Time Frame: Short-term

Project Description

The intersection of State Route 21 at Old Augusta Road experiences a significant amount of truck traffic given its proximity to the ports and industrial development. Operational improvements at the intersection are crucial to accommodate the increased volumes expected on State Route 21 in future years. Proposed intersection improvements include widening of State Route 21 by providing additional through lanes and dual northbound right-turn lanes. These improvements could be considered as part of the State Route 21 widening project recommendation.***

Project Benefits





Improved **Safety**

Improved **Operations**

Proximity to Industrial **Development**

1111

ΠПП

Cost Estimate \$2.1M



This potential project originated from the Effingham TMP (ID I-30), but the study team recommends a different intersection configuration.

US 80 at State Route 17

GDOT INVESTMENT TYPE: FOUNDATIONAL

Project Description

The US 80 at State Route 17 intersection is signalized. Intersection operations in both the AM and PM peak hours are expected to deteriorate as demand on US 80 and State Route 17 increases in the future. Construction of a multilane roundabout with an eastbound bypass right-turn lane from US 80 would reduce intersection delays in the future.****

Project Benefits



Effingham Chatham Fort Stewar 17 Bryan 80 Miles 6 3

Time Frame: Mid-term

INTERSECTION AND INTERCHANGE IMPROVEMENTS

**** This potential project originated from the Effingham TMP (ID I-19).

I-95 at Airways Avenue/Pooler Parkway GDOT INVESTMENT TYPE: FOUNDATIONAL

Time Frame: Short-term

Project Description

Pooler Parkway experiences delays that impact its interchange with I-95 due, in part, to uncoordinated signal systems at the I-95 north- and southbound ramps, Mill Creek Circle, and Benton Boulevard. The proposed improvements are to enhance operations by coordinating signal timing, removing the median opening and signal at Mill Creek Circle, widening Pooler Parkway approaching the I-95 interchange, and reconfiguring the Benton Boulevard intersection.

Project Benefits



Proximity to Industrial Development

Cost Estimate





State Route 204 at Old River Road

Project Description

The intersection of State Route 204 at Old River Road is unsignalized, with Old River Road being a stopcontrolled approach. The intersection is expected to experience significant delays, especially in the AM peak hours, in the future. The potential improvement includes construction of a single-lane roundabout at the intersection to improve operations.



Time Frame: Short-term



I-16 at Pooler Parkway GDOT INVESTMENT TYPE: FOUNDATIONAL

Project Description

The I-16 at Pooler Parkway interchange is experiencing delays, mainly because of high traffic volumes. Potential improvements include providing dual southbound left-turn lanes from Pooler Parkway onto the I-16 eastbound ramp. For the I-16 westbound ramp, improvements include providing an additional shared lane on the exit ramp and configuring the lanes as dual westbound left-turn lanes and a westbound right-turn lane.

Project Benefits



Operations



Cost Estimate



Time Frame: Short-term

Time Frame: Short-term



US 80 at Chatham Parkway

GDOT INVESTMENT TYPE: CATALYTIC

Project Description

The intersection of US 80 at Chatham Parkway, located in Chatham County, experiences high entering volumes. Currently, Chatham Parkway terminates at US 80; the north leg of the intersection is a local road, Heidt Avenue, connecting a few commercial parcels. The potential improvement is to remove Heidt Avenue access to the intersection. Converting the four-legged intersection to a T-intersection would eliminate the existing split phasing and allow more green time for US 80, thereby reducing intersection delays significantly.

Project Benefits





INTERSECTION AND INTERCHANGE IMPROVEMENTS

US 17 at Chatham Parkway GDOT INVESTMENT TYPE: FOUNDATIONAL

Time Frame: Mid-term

Project Description

The intersection of US 17 at Chatham Parkway experiences a significant amount of truck traffic given its proximity to the ports and industrial development. An increase in volumes is expected on both US 17 and Chatham Parkway in the future. Potential improvements for the intersection include providing dual eastbound left-turn lanes, a westbound rightturn lane, and a southbound right-turn lane.

Project Benefits







to Industrial

Improved Safety Improved Operations

Cost Estimate





Truman Parkway at East Bay Street

GDOT INVESTMENT TYPE: CATALYTIC

Project Description

The Truman Parkway at East Bay Street interchange is located east of an existing at-grade railroad crossing for private ports. Trains traveling through the railroad crossing cause delays on East Bay Street throughout the day. Also, the Truman Parkway cloverleaf ramp geometry causes rear-end crashes and is a safety concern. The potential improvement is to elevate East Bay Street and reconstruct the interchange to eliminate the railroad and vehicular traffic conflict, therefore providing a safer design. This improvement is identified in Coastal Region (CORE) MPO's long-range plan.*****

Project Benefits





***** This potential project originated based on stakeholder feedback.

Time Frame: Long-term

US 17 at Belfast Keller Road GDOT INVESTMENT TYPE: FOUNDATIONAL

Time Frame: Short-term

Project Description

Significant congestion is expected at the intersection of US 17 at Belfast Keller Road in the future, especially with the anticipated future developments within the area. The intersection is unsignalized with Belfast Keller Road being a stop-controlled approach. Installation of a traffic signal at the intersection would reduce the delays experienced by drivers at this intersection.******

Project Benefits





Operations

Improved Safety





Proximity Infrastructure to Industrial Modernization Development

Cost Estimate \$500k



****** This potential project originated from the Richmond Hill – South Bryan County Transportation Study and from the Belfast Keller Road Transportation Assessment.

3.3 Additional Recommendations

In addition to the recommended potential corridor and intersection and interchange projects, the study team also recommends the advancement of two additional potential projects – real-time information signage on I-16 and I-95 and improvements for several at-grade railroad crossings. Both project ideas were identified by stakeholders and GDOT and recommended by the study team due to their relevance to the study goals and objectives. However, these projects are preliminary and will require further development and refinement before the projects can be evaluated and moved forward for implementation. Fact sheets for both projects are included on pages 40 and 41.

Real-Time Information Signage

GDOT INVESTMENT TYPE: INNOVATIVE

Time Frame: Mid-term

Project Description

THE REAL

Currently, truck drivers rely on informal communication methods to share congestion and queue information as they approach the gates at the Port of Savannah's Garden City and Ocean Terminals. Providing drivers with real-time travel times to the terminal gates will help disperse approaching truck traffic and prevent the exacerbation of existing truck queues. I-16 and I-95



are identified as the major interstate routes used to access the Port of Savannah within the region. Two real-time information signs installed on I-16 eastbound will provide the travel times to the gates via Jimmy Deloach Parkway, I-95, and State Route 307/Dean Forest Parkway. Similarly, signage installed on I-95 and Jimmy Deloach Parkway will inform truck drivers current wait times at the terminal gates. It is recommended that implementation of these improvements be led by GDOT.



At-Grade Railroad Crossing Improvements

GDOT INVESTMENT TYPE: FOUNDATIONAL

Time Frame: Mid-term and Long-term

Project Description

Eighteen at-grade railroad crossings have been identified within the study area for consideration for improvements based on safety, traffic operations, proximity to the ports, and proximity to planned industrial development with rail access.

Several of the at-grade railroad crossings near the ports currently pose safety risks (e.g., no crossing gate arms) and contribute to operational issues on the roadway (e.g., blocked crossings preventing the flow of vehicles). The operational issues at these crossings also



contribute to inefficiencies at the Port of Savannah. To help address this issue, some of the at-grade crossings are currently subject to curfews to prevent trains from blocking roadways during peak traffic periods. The projected growth at the Port of Savannah will likely exacerbate existing safety and operational issues and potentially create new issues.

These 18 crossings should be evaluated as a system to identify context-sensitive improvements. Potential improvements could include grade separation, train rerouting, or upgraded infrastructure. Partnerships between GDOT, the railroads, Georgia Ports Authority, and local agencies will be integral to identify solutions and funding sources.



CSX Crossings

- Two on State Route 21 in Effingham and Chatham Counties
- Two on West Bay Street in Chatham County
- One on State Route 25
 in Chatham County
- One on McCall Road in Effingham County
- Two on State Route 307 in Chatham County
- One on Old Augusta Road in Effingham County

Norfolk Southern Crossings

- One on McCall Road in Effingham County
- One on State Route 307 in Chatham County
- One on State Route 25 in Chatham County
- One on West Bay Street in Chatham County
- One on Grange Road in Chatham County

Georgia Central Railway Crossings

- One on Old River Road in Effingham County
- One on State Route 204
 in Bryan County
- Savannah & Old Fort Railroad Crossings
- One on East President Street in Chatham County

OmniTRAX Crossing

 One on McCall Road in Effingham County

4 Federal Funding Strategy

The 12 potential corridor improvement projects presented in Section 3.1 were assessed to determine the projects' eligibility for federal formula and discretionary programs. This assessment was based on the type of improvements the project is proposing and the project's proximity to certain land uses and activities (e.g., industrial land uses or emergency response facilities). Several programs were identified as potential funding sources for each project, which are presented in the following sections. Appendix G contains fact sheets providing an overview of the funding programs discussed in this section.

4.1 Potential Funding Sources

In November 2022, the Bipartisan Infrastructure Law (BIL) was passed and authorized dozens of formula and discretionary transportation funding programs for fiscal years 2022 through 2026. USDOT oversees the distribution of transportation funding across all modes including Federal Highway Administration (FHWA), Federal Transit Administration, and Federal Rail Administration funding, among others. It should be noted that funding programs and their selection criteria may change with administrations and future infrastructure funding authorizations, and therefore funding sources should be reviewed periodically to determine applicability to projects.

4.1.1 Federal Formula Funding

According to USDOT, "Formula funding programs allocate funding to recipients based on formulas set by Congress. USDOT distributes these funds to states, federally recognized tribal recipients, and transit agencies. The funds may be further allocated to localities at state, tribal, or agency discretion."²¹ Projects intended for formula funds are often required to be programmed into the Transportation Improvement Program (TIP) or Statewide Transportation Improvement Program (STIP) in which funds are allocated, or another statewide long-range plan. Each formula program has its own purpose and eligibility criteria, and therefore some projects are more applicable to certain programs than others.

Formula programs under BIL that are relevant to the project recommendations include National Highway Performance Program (NHPP), National Highway Freight Program (NHFP), Surface Transportation Block Grant Program (STBG), and Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT). These programs and whether they fund pre-construction activities are listed in **Table 4-1**.

Formula Funding Program	Funding for Pre-Construction Activities
National Highway Performance Program (NHPP)	
Surface Transportation Block Grant Program (STBG)	
National Highway Freight Program (NHFP)	\checkmark

Table 4-1. Recommended Formula Funding Opportunities

²¹ U.S. Department of Transportation. 2021. Overview of Funding and Financing at USDOT. Accessed from https://www.transportation.gov/rural/toolkit/overview-funding-and-financing-usdot

Formula Funding Program	Funding for Pre-Construction Activities
Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT)	\checkmark

Formula funds are distributed across the State of Georgia per Congressional District and must be distributed proportionally by population. The funding is split between any metropolitan planning organization (MPO) and non-MPO areas. For projects to be eligible for formula funding, they must be programmed. This means that they must be identified either in the short-range MPO TIP or STIP, which are usually 4-year programs, or a long-range plan, which typically has a 20-year planning horizon. These TIP/STIPs and long-range plans must be approved by FHWA.

Some of the federal formula funding programs include Lump Sum funding, which is a portion of funds from other programs that are designated for covering smaller projects that do not substantially increase roadway capacity. The Lump Sum funding is intended to provide GDOT and MPOs with the flexibility to address projects of immediate concern while fulfilling the requirements of the STIP. Funds are set up in lump sum banks to undertake improvements that emerge and are developed after the STIP is approved. Projects intended for use of Lump Sum funding are programmed in the STIP. In Georgia, there are 11programs of Lump Sum funding established at either the state level or through federal authorization, which are listed in **Table 4-2**.

Lump Sum Programs	Purpose
Transportation Enhancement (TE) Program	Non-traditional projects to strengthen the cultural, aesthetic, and environmental aspects of the transportation system
Transportation Alternatives Program (TAP)	Nonmotorized transportation improvements
Maintenance	Roadway and bridge resurfacing, preservation, and rehabilitation
Lighting	New or upgraded lighting systems
Rights-of-Way – Protective Buying and Hardship Acquisitions	Acquisition of right-of-way for future projects
Safety	Railroad protection device projects and railroad hazard elimination projects; Roadway safety improvements
Operations	Operational improvements and signal upgrades
Wetland Mitigation	Wetland enhancement, restoration, or preservation
Low Impact Bridges	Minimize impact of bridges and streamline their delivery
Freight Operations	Improve roads and bridges heavily traversed by trucks
Rural Development	Safety and broadband improvements in rural areas

Table 4-2. Federal Lump Sum Programs

It should also be noted that most federal formula funding requires a match (although some programs do not have a match requirement), which is typically at least 20 percent of the project cost and can come

from a variety of state, local, and private resources. State match sources are primarily state and motor fuel taxes and special fuel taxes (e.g., diesel). Local match sources can come from counties, cities, special taxing districts such as community improvement districts, municipal bonds and loans, special-purpose local option sales taxes (SPLOST), and private contributions.

4.1.2 Federal Discretionary Grant Funding

Discretionary grant funding is federal funding that is awarded to projects based on a competitive call for projects, typically referred to as a Notice of Funding Opportunity (NOFO). Projects are in competition with other projects across the United States for funding. These programs have become increasingly popular with the BIL, as more discretionary programs were created and funded by Congress. At the time of this report, detailed guidance has not yet been issued for several of these funding programs, but each has a specific purpose and high-level eligibility criteria.

Discretionary programs under BIL that are recommended for the potential projects identified in this study, identified in **Table 4-3**, include Rebuilding American Infrastructure with Sustainability and Equity (RAISE), Infrastructure for Rebuilding America (INFRA), Rural Surface Transportation Program (RURAL), and National Infrastructure and Project Assistance (MEGA). Like formula programs, these competitive programs are subject to change with new transportation funding authorization, which occurs every five years and is dependent upon congressional desire.

Table 4-3. Federal Discretionary Grant Funding Programs

Discretionary Grant Program			
Rebuilding American Infrastructure with Sustainability and Equity (RAISE)			
Infrastructure for Rebuilding America (INFRA)			
Rural Surface Transportation Program (RURAL)			
National Infrastructure and Project Assistance (MEGA)			

Similar to formula funding, discretionary grant programs typically require a match. This match varies based on the program, but historically projects with a larger share of match (greater than 20 percent) have been more competitive. By funding projects with a larger match, USDOT can select more projects for funding (i.e., the federal funding can be stretched further). Regardless, some discretionary programs allow for up to 100 percent federal share if certain requirements are met, such as RAISE grants in rural areas.

Discretionary grants are open to several recipients (project sponsors) including states, tribes, MPOs, counties, cities, townships, special taxing districts, transit agencies, and port authorities, among others, which further increases the competitiveness of the programs.

Once funding is awarded through USDOT, the project sponsor enters into an agreement, which includes funding obligation (a date in which the funds are programmed in the TIP/STIP) and spend-down requirements (when funds must be spent entirely). Project sponsors are required to submit progress reports to USDOT to demonstrate project delivery and schedule adherence.

4.2 Funding Strategy Methodology

It is important for project sponsors to plan ahead regarding a funding strategy to position the project for success and to keep the project on schedule. In any case, the project must first be included into the TIP/STIP or long-range plan, and for GDOT projects, a Project Identification (PI) number should be assigned.

When developing this study's funding strategy, each recommended project was screened based on a series of questions that are related to the eligibility criteria of all current funding programs (formula and discretionary), including:

- Is the project in an equity area (e.g., Justice40), area of persistent poverty, or historically disadvantaged area?^{22,23}
- Is the project located on an alternative fuel corridor as defined by USDOT?²⁴
- Is the project located on the Strategic Highway Network (STRAHNET)?
- Is the project located on the National Freight Network or National Highway System?
- Does the project location provide access to emergency services such as hospitals, fire stations, and police stations?
- Is the project in an urban area (as defined by the U.S. Census) or rural area?
- Is the project located in one of the most congested metropolitan areas?
- Does the project include at-grade railroad crossings?
- Does the project provide a connection to a planned development site such as industrial, warehousing, or distribution?
- To what extent does the project carry national or regional significance (scored low, medium, high)?
 - "Regional significance" was determined based on the number of counties a project serves and the affected roadway's functional class. Projects with these characteristics are more likely to have an impact across jurisdictional boundaries.

These questions, combined with the calculated BCR, were used to determine whether each project is best suited for formula or discretionary funding, and which specific programs would be most competitive to pursue. The following sections present the results of this assessment.

4.3 Project Funding Strategies

Several federal funding programs have been identified as potential funding sources for the potential corridor improvement projects. All potential funding programs are presented in the following sections.

4.3.1 Recommended Formula Programs

Although formula programs are not competitive nationally, it is important that projects intended for formula funds are competitive to ensure they are programmed into the TIP or STIP in which funds are allocated.

²² U.S. Department of Transportation. 2022. Justice40 Initiative. Accessed from https://www.transportation.gov/equity-Justice40

²³ Areas of Persistent Poverty & Historically Disadvantaged Communities | US Department of Transportation

²⁴ Alternative Fuel Corridors - Environment - FHWA (dot.gov)

Formula programs that are relevant to Coastal Empire project recommendations include the NHPP, NHFP, STBG, and PROTECT as summarized in **Table 4-4**.

Recommended Project	NHPP	NHFP	STBG	PROTECT
I-16 Widening	\checkmark	\checkmark		\checkmark
I-95 Auxiliary Lanes	✓	✓		✓
SR 204 Widening	✓			✓
Belfast Keller Road Widening			\checkmark	\checkmark
John Carter Road Widening			\checkmark	
Old River Road Widening			\checkmark	
Blue Jay Road Extension			\checkmark	\checkmark
SR 21 Widening			\checkmark	✓
Effingham Parkway Projects (all three)		~	\checkmark	
US 80 Widening			\checkmark	\checkmark

Table 4-4. Recommended Projects for Federal Formula Funding Programs

Legend: \checkmark = Project is eligible for program listed at the top of the column

National Highway Performance Program (NHPP)

The NHPP provides support for the condition and performance of the National Highway System (NHS) and ensures that federal investments support progress toward the achievement of performance targets established in a state's asset management plan for the NHS. After the passage of BIL, NHPP also began funding efforts to increase the resiliency of the NHS, including allocating up to 15 percent of program funds for protective features that mitigate the risk of recurring damage or the cost of future repairs from extreme weather events and natural disasters. The NHPP allows bundling of multiple eligible bridge projects into one project agreement.

The project recommendations that would be eligible for NHPP funds include those that are on the NHS. These projects are:

- I-16 Widening
- I-95 Auxiliary Lanes
- SR 204 Widening

National Highway Freight Program (NHFP)

The NHFP funds projects that improve the efficient movement of freight on the National Highway Freight Network (NHFN) and support federal freight goals, such as operational improvements that reduce congestion, improve the safety and resiliency of freight transportation in rural and urban areas, or improve the state of good repair of the NHFN.

The project recommendations that would be eligible for NHFP funds include those that are on the NHFN. These projects are:

- I-16 Widening
- I-95 Auxiliary Lanes

Surface Transportation Block Grant (STBG)

The STBG funds projects that preserve and improve the condition and performance of any federal-aid highway or public road. With the passage of the BIL, up to 15 percent of program funds are designated for non-federal aid highways in rural areas. The STBG is the most flexible of the federal-aid highway programs.

Given the program's flexibility, most of the project recommendations would be eligible for STBG funds; however, it is recommended that STBG funds be pursued for those projects that would be ineligible for other programs, such as the NHPP or NHFP. These projects are listed below with those in rural areas in bold:

- Belfast Keller Road Widening
- John Carter Road Widening
- Old River Road Widening
- Blue Jay Road Extension
- SR 21 Widening
- Effingham Parkway Projects
- US 80 Widening

Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT)

The PROTECT program has both formula and discretionary funds that are intended to help make surface transportation more resilient to natural hazards and extreme weather events through planning activities, resilience improvements, evacuation routes, and at-risk coastal infrastructure. Many roadway projects would be eligible for PROTECT funds if they improve roadway resiliency, ensure continued operation of surface transportation during disasters, improve access to emergency services, and protect natural infrastructure.²⁵

While the project recommendations have not yet reached the design phase – and therefore details regarding resiliency improvements, if any, are not available – pursuit of PROTECT funds is recommended for projects on the STRAHNET²⁶, which are also used as emergency evacuation routes, or that connect to emergency medical service (EMS) facilities. These projects are listed below, with those that are both on the STRAHNET and connect to EMS facilities in bold:

- I-16 Widening
- I-95 Auxiliary Lanes
- Blue Jay Road Extension
- SR 204 Widening
- SR 21 Widening
- US 80 Widening

²⁵ Federal Highway Administration. 2022. Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) Formula Program Fact Sheet. Accessed from https://www.fhwa.dot.gov/bipartisan-infrastructure-law/protect_fact_sheet.cfm

²⁶ Federal Highway Administration. 2014. Policy and Governmental Affairs: Strategic Highway Network. Accessed from https://www.fhwa.dot.gov/policy/2004cpr/chap18.cfm

4.3.2 Recommended Discretionary Programs

As mentioned previously, discretionary funding programs each have a specific purpose and eligibility criteria. Therefore, a project will likely be eligible for some but not all discretionary programs, and its application for funding will likely need to be tailored to each program's unique requirements. It is important to apply for discretionary funding strategically given a program's purpose and a project's features, rather than applying to all possible programs for each proposed project. Discretionary grant programs for which the recommended projects are most competitive include INFRA, MEGA, RURAL, and, for high-performing and high-impact projects, RAISE. As shown in **Table 4-5**, the majority of the recommended potential projects are likely eligible for RURAL funds. Larger-scale projects are likely eligible for INFRA and MEGA funding.

Recommended Project	INFRA	MEGA	RURAL	RAISE
I-16 Widening	\checkmark	\checkmark		
I-95 Auxiliary Lanes	\checkmark	\checkmark		
SR 204 Widening	\checkmark		\checkmark	\checkmark
Belfast Keller Road Widening			\checkmark	
John Carter Road Widening			\checkmark	
Old River Road Widening			\checkmark	
Blue Jay Road Extension			\checkmark	
Effingham Parkway Projects			√	\checkmark
US 80 Widening			\checkmark	

Table 4-5. Recommended Projects for Federal Discretionary Programs

Legend: \checkmark = Project is eligible for program listed at the top of the column

Note: SR 21 Widening is eligible for discretionary programs but was not recommended to pursue discretionary funding because this project is well-suited for formula programs and lacked characteristics that are typically considered competitive for discretionary funds, such as being located in equity areas or along the National Highway Freight Network.

Infrastructure for Rebuilding America (INFRA)

The INFRA program (also known as Nationally Significant Multimodal Freight & Highway Projects) provides grants for multimodal freight and highway projects of national or regional significance to improve the safety, efficiency, and reliability of the movement of freight and people in and across rural and urban areas.²⁷ Eligible projects include NHS and NHFN roadways, bridges, and railway-highway crossings, as well as highway freight, intermodal freight, and wildlife crossing projects. Competitive priorities for the INFRA program include projects that promote national or regional economic vitality, address climate change and environmental justice, address racial equity and barriers to opportunity, leverage federal funding, and include innovative technologies and program delivery.

²⁷ U.S. Department of Transportation. 2022. The INFRA Grants Program. Accessed from https://www.transportation.gov/grants/infra-grants-program

The potential projects that would be competitive for INFRA grants, along with the competitive priorities met, are outlined in **Table 4-6**.

Recommended Project	National Highway System	National Highway Freight Network	EMS Access	Connection to Planned Industrial Facility	Regional Significance
I-16 Widening		\checkmark	√	\checkmark	\checkmark
I-95 Auxiliary Lanes		✓	✓	\checkmark	\checkmark
SR 204 Widening	\checkmark				\checkmark

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Legend: \checkmark = Project has characteristic listed at the top of the column

National Infrastructure and Project Assistance (MEGA)

The MEGA Projects program funds surface transportation infrastructure that is too large or complex for traditional funding programs and that will have a significant national or regional impact.²⁸ Eligible projects include roadways and bridges on the National Multimodal Freight Network, NHFN, or NHS as well as freight intermodal and freight rail projects, railway-highway grade separation or elimination projects, and certain transit projects. Projects will be more competitive if they advance safety within the broader transportation network, contribute to a state of good repair, increase travel time reliability and manage travel demand for goods movement, improve freight movement regionally and nationally, incorporate considerations of climate change and environmental justice, improve quality of life, and include innovative technology, project delivery, and financing.

The potential projects that would be competitive for MEGA grants, along with the competitive priorities met, are outlined in **Table 4-7**.

Table 4-7. Recommened Projects for MEGA Grants and Competitive Priorities

Recommended Project	National Highway Freight Network	EMS Access	Connection to Planned Industrial Facility	Regional Significance
I-16 Widening	\checkmark	\checkmark	✓	✓
I-95 Auxiliary Lanes	\checkmark	✓	1	√

Legend: \checkmark = Project has characteristic listed at the top of the column

Rural Surface Transportation Program (RURAL)

The RURAL program provides grants for projects that improve and expand surface transportation infrastructure in rural areas to increase connectivity, improve safety and reliability or the movement of people and freight, and generate regional economic growth and improve quality of life.²⁹ Eligible projects include highways, bridges, and tunnels eligible for the NHPP or STBG, highway freight projects, highway safety improvement projects, and highways and bridges that support the economy of a rural area. RURAL

²⁸ U.S. Department of Transportation. 2022. The Mega Grant Program. Accessed from https://www.transportation.gov/grants/mega-grant-program

²⁹ U.S. Department of Transportation. 2022. The Rural Surface Transportation Grant. Accessed from https://www.transportation.gov/grants/rural-surface-transportation-grant

program competitive priorities are the same as those for the MEGA Program: projects that advance safety within the broader transportation network, contributes to a state of good repair, increase travel time reliability and manage travel demand for goods movement, improve freight movement regionally and nationally, incorporate considerations of climate change and environmental justice, improve quality of life, and include innovative technology, project delivery, and financing.

The potential projects that would be competitive for MEGA grants, along with the competitive priorities met, are outlined in **Table 4-8**.

Recommended Project	Located in a Rural Area	Connection to Planned Industrial Facility	EMS Access	National Highway System	Regional Significance
Belfast Keller Road Widening	\checkmark	\checkmark			
Old River Road Widening	\checkmark	\checkmark			
Blue Jay Road Extension	✓		✓		✓
SR 204 Widening	\checkmark	\checkmark		\checkmark	✓
Effingham Parkway Projects	\checkmark				\checkmark
US 80 Widening	\checkmark	✓			

Table 4-8. Recommended Projects for RURAL Grants and Competitive Priorities

Legend: \checkmark = Project has characteristic listed at the top of the column

Rebuilding American Infrastructure with Sustainability and Equity (RAISE)

The RAISE program provides grants for surface transportation infrastructure projects that will have a significant local or regional impact.³⁰ Eligible projects include highways, bridges, pedestrian and bicycle facilities, passenger and freight rail, and ports. RAISE evaluation criteria include safety, environmental sustainability, quality of life, economic competitiveness and opportunity for partnership and collaboration, innovation, state of good repair, and mobility and community connectivity. In addition, 50 percent of RAISE funds are designated for projects in rural areas, which are potentially eligible for up to a 100 percent federal share.

It should be noted that in FY 2021 and 2022, fewer highway projects were awarded RAISE grants. This trend is likely to continue in 2023 and 2024 but may change as federal administrations change. Regardless, the project recommendations that would be competitive for RAISE grants, along with the competitive priorities met, are outlined in **Table 4-9**.

Table 4-9. Recommended Projects for RAISE Grants and Competitive Priorities

Recommended Project	Located in a Rural Area	Connection to Planned Industrial Facility	STRAHNET Route	National Highway System	Regional Significance
SR 204 Widening	✓	✓	✓	✓	✓

³⁰ U.S. Department of Transportation. 2022. RAISE Discretionary Grants. Accessed at https://www.transportation.gov/RAISEgrants

Recommended Project	Located in a Rural Area	Connection to Planned Industrial Facility	STRAHNET Route	National Highway System	Regional Significance
Effingham Parkway Projects	\checkmark				\checkmark

Legend: \checkmark = Project has characteristic listed at the top of the column

4.4 Assessment of Project Competitiveness

The program funding recommendations are based on the recommended projects' locations and proximity to destinations, such as planned industrial facilities or regionally significant areas within the study area. There are additional selection criteria, many of which are based on project design, that could make each of these projects more competitive. Therefore, these selection criteria should be considered when projects enter pre-construction phases. Based on the guidance from program NOFOs that are currently available, USDOT gives certain selection criteria greater competitive priority if they serve as the main purpose of the proposed project, have significant benefits in the competitive category, and go beyond standard, common practice.³¹ Common selection criteria include:

- Safety
- Environmental Sustainability
- Quality of Life
- Mobility
- Economic Competitiveness
- State of Good Repair
- Innovation

Operational and Railroad-Highway Improvement Funding Strategy

The study team has also recommended several intersection and interchange improvement projects and at-grade railroad crossing projects to move forward for implementation. These potential projects are eligible under several programs, including non-competitive programs such as the Lump Sum programs.

For operational improvements, GDOT should first consider the Lump Sum programs available. The newest of these programs is the Freight Operations and Rural Development (FORD) Lump Sum programs. The freight component of the program is intended to improve freight mobility and to address the infrastructure impacts of freight. Projects that are near designated freight routes, Georgia Ready for Accelerated Development (GRAD) sites, and corridors with high crash rates are all considered strong candidates. The Rural Development component of the program is reserved for projects outside of MPO areas and has a strong emphasis on safety improvements. The GDOT District Offices nominate projects for selection.

It is recommended that GDOT consider the two primary railroad crossing federal programs: the Railway-Highway Crossing Formula Program and Railroad Crossing Elimination Program through the BIL. The Railway-Highway Crossing Formula Program provides up to 100 percent federal funding per project for

³¹ U.S. Department of Transportation. Final 2022 RAISE Notice of Funding Opportunity. (2022). Accessed from https://www.transportation.gov/RAISEgrants/raise-nofo

those that propose safety improvements, including grade separation, protective devices, and replacement of warning devices. ³² The discretionary Railroad Crossing Elimination Program provides funding for projects that involve grade separation and realignment of track to eliminate roadway crossings.³³

³² Federal Highway Administration. 2022. Railway-Highway Crossings Program. Accessed from https://www.fhwa.dot.gov/bipartisan-infrastructure-law/rhcp.cfm

³³ Federal Railroad Administration. 2022. Railroad Crossing Elimination Grant Program Fact Sheet.. Accessed from https://railroads.dot.gov/elibrary/railroad-crossing-elimination-grant-program-fact-sheet

5 Plan Implementation Strategy

The plan implementation strategy intends to provide guidance on the suggested next steps to advance the recommended potential projects into concept development, design, and ultimately construction. Ultimately, to ensure these project recommendations are implemented, they should be incorporated into local, regional, and statewide plans, as appropriate, to ensure that they are considered for receiving state or federal funding.

5.1 Project Sponsors

The recommended potential projects represent a significant investment in the region's transportation network. As such, the project recommendations require the support and/or partnership of several agencies to oversee projects through implementation. One key item is determining which agency or organization will serve as the lead sponsor responsible for oversight of the project through the Plan Development Process (PDP).

The study team has determined which of the recommended potential projects are along a state-owned facility (e.g., interstate, state route) and which are along a locally owned facility (county road, local road). It is recommended that GDOT serve as the project sponsor for any projects along interstates, interchanges, and state routes, and the appropriate county serve as the project sponsor for projects along county/local roads. The identified lead project sponsor for each project recommendation is indicated in **Table 5-1**.

Project Name	Recommended Lead Sponsor
Corridor Improvement Projects	
I-16 Widening	GDOT
I-95 Auxiliary Lanes	GDOT
State Route 204 Widening	GDOT
Belfast Keller Road Widening	GDOT
John Carter Road Widening	Chatham County
Old River Road Widening	Chatham/Effingham Counties
Blue Jay Road Extension	Bryan/Effingham Counties
SR 21 Widening	GDOT
Effingham Pkwy Extensions and Widening	GDOT
US 80 Widening	GDOT
Intersection and Interchange Improvement F	Projects
Improvements near Bryan County Mega Site	GDOT
US 80 at US 280	GDOT
State Route 21 at Old Augusta Road	GDOT
US 80 at SR 17	GDOT
I-95 at Airways Avenue/Pooler Parkway	Chatham County

Table 5-1. Project Sponsors by Potential Project

Project Name	Recommended Lead Sponsor
SR 204 at Old River Road	GDOT
I-16 at Pooler Parkway	GDOT
US 80 at Chatham Parkway	GDOT
US 17 at Chatham Parkway	GDOT
Truman Parkway at East Bay Street	Chatham County / Savannah & Old Fort Railroad
US 17 at Belfast Keller Road	GDOT
At-Grade Railroad Crossings	To be determined
Real-Time Information Signage	GDOT

5.2 Plan Development Process

Projects that receive federal formula or discretionary funding are subject to the environmental review process under NEPA. All the recommended projects have been identified as eligible to receive some type of federal funding, which would require these projects to be reviewed under NEPA. Subsequently, projects should follow GDOT's PDP³⁴ to ensure compliance with NEPA and FHWA requirements. A high-level overview of GDOT's PDP is shown in **Figure 5-1**.

Planning	Preliminary Design	Final Design	Construction
Scoping	Environmental Process	Environmental Permits	Let to Contract
Input into Work Program (TPro)	Preliminary Design	Approve Right-of-Way Plans	Contractor Procurement
Value Engineering Study (if required)	Develop Right-of-Way Plans	Final Design	Begin Construction
Concept Report	Coordinate with Utilities and Railroads	Final Field Plan (Coordinate with Utilities and Railroad)	
TIP/STIP Conformity	Public Hearing	Acquire Right-of-Way	
	Preliminary Field Plan Review	Right-of-Way Plan Revisions	

Figure 5-1. GDOT Plan Development Process

Generally, the PDP process should be followed for all projects. The GDOT PDP Manual states "the PDP will be followed for:

- All construction and right-of-way projects prepared by or for GDOT where GDOT is proposed to let the project to construction.
- All construction projects that require the purchase of right-of-way.

³⁴ PDP.pdf (ga.gov)

- All construction or right-of-way projects proposed to use Federal funds for construction.
- All construction projects prepared by the Office of Maintenance requiring full size plans.
- All ITS projects.
- All major construction projects prepared by or for the Office of Local Grants as set forth in Project Management Agreements.
- All projects are required by Project Framework Agreements."³⁵

The first step before beginning the PDP process is to determine the project sponsor. Then the type of funding to be pursued will need to be determined for the project. Each project will need to be reviewed to see if it meets any of the criteria above, and if it does not need to follow the PDP, the project sponsor can proceed with local design and construction requirements.

For those projects that do follow the PDP, depending on the timeline and complexity of projects, certain tasks within each PDP step may not be necessary. Each project will vary, and the required steps, coordination, and tasks will be determined in the Planning phase. Project sponsors should refer to the PDP Manual for specific details about each phase, task, and coordination requirement.³⁶

The project recommendations are categorized by implementation timeline (as listed in Section 3), shortterm which could be completed within 5 years, mid-term which could be completed in 10 years, and longterm which could be completed within 15 years.

Short-Term Project Recommendations

The short-term intersection projects and other project types, such as at-grade railroad crossing improvements, will likely not be required to undergo every step of the PDP process and could reasonably be completed in a five-year time frame. For example, a small intersection improvement needs scoping, will likely require some environmental steps, and may require right-of-way acquisitions and construction procurement, but may not require full preliminary and final design plan steps, coordination with utilities and railroads, or public hearings. The following is a general guide for timing of implementation:

- Year 1: Planning
- Year 2-3: Preliminary Design
- Year 4: Final Design/ROW (if necessary)
- Year 5: Construction

Project sponsors should consult with GDOT on the specific process and schedule on a project-by-project basis.

Mid-Term Projects

Mid-term project recommendations must follow each step and component of the PDP as they contain more complexity. The exception to this is the project location proximity to any railroads which may not require coordination or Railroad Plan submission. This decision is determined at the Concept Report step. The steps of the PDP process will vary in timeline and complexity based on project scope, project extent, required environmental process and permitting, right-of-way acquisition, constructability, and construction phasing and sequencing. Generally, mid-term projects that could be completed within 10 years follow the following implementation schedule.

• Years 1-2: Planning

³⁵ <u>GDOT-PDP.pdf (ga.gov)</u> (p.3-1)

³⁶ <u>GDOT-PDP.pdf (ga.gov)</u>

- Years 3-6: Preliminary Engineering
- Years 7-8: Final Engineering/ROW (if necessary)
- Years 9-10: Construction

Long-Term Projects

The long-term projects will most likely require federal funding and likely each step of the PDP process will need to be followed. Much of the implementation timeline will rely on funding availability and authorization, so implementation can vary anywhere from 10 to 15 years (and sometimes longer). Generally, these projects can expect an implementation timeline such as the following:

- Years 1-3: Planning
- Years 4-7: Preliminary Engineering
- Years 8-9: Final Design/ROW (if necessary)
- Years 10+: Construction

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