

The Fiscal Side of the Ledger

Companion Analysis to Understanding Carrying Capacity

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Start With What You Already Know

If you live on St. Simons Island, you probably drive through the Frederica Road/Sea Island Road intersection routinely — many of us daily. And most days, it works.

The pattern is familiar and specific. The backup forms southbound on Frederica Road, in the stretch between the Lawrence Road roundabout and the Sea Island Road intersection. It is primarily a north-end problem: residents of the island's north end traveling south absorb it, while Sea Island residents passing westbound through the intersection typically move through — though they carry the risk of the same backup on the heaviest days. The rhythm is predictable too: it is a mix of residents, workers, and visitors rather than any single group, and it flows south in the late morning, then back north and east in the afternoon, at far higher volume during the summer season and holidays. On an ordinary weekday, the queue forms at peak travel times, then clears. But the traffic backup is not random. The engineering studies of this corridor, and the traffic engineers consulted in preparing this analysis, identify the intersection itself as the root cause: the southbound queue on Frederica Road is the intersection's waiting line. Relieving that backup means adding capacity at the intersection — which is exactly what the county's roundabout proposes to do.

So the question this paper examines is not *whether* there is a problem today. The question is about time: what happens as the development already planned and approved gets built out over the next 20 years. Two-thirds of the island's remaining buildable land sits north of this intersection, where routine errands require driving through it. Every new home adds trips to the same southbound stretch, at the same times of day, behind the same intersection.

The answer is predictable, because it is arithmetic. The homes are coming at a knowable pace, the trips they generate are well documented, and the intersection's capacity — with or without improvement — is a number engineers can estimate. This paper is not a warning that the sky is falling. It is a projection, from public data and stated assumptions, of when the condition you see a few weeks a year becomes the condition you see most days — and what each proposed remedy buys, in years and in dollars. If the assumptions are wrong, the paper says so openly and invites correction. But if they are even approximately right, the island's window for deciding how to respond is measured in years, not decades.

The Question at the Heart of This Analysis

During the preparation of Understanding Carrying Capacity, several island residents asked a common question:

“If the county only improves the Frederica Road/Sea Island Road intersection with better signals and turn lanes instead of building the roundabout, when would we run out of capacity?”

The answer could be calculated using simple arithmetic. An enhanced signalized intersection is projected to reach capacity around **2037**. The roundabout extends that point to approximately **2040**. The difference between the two alternatives is roughly **2½ years**.

That finding raises a larger question.

“If these intersection alternative reaches capacity within only a few years of one another, then perhaps the intersection itself is not the primary issue.”

Perhaps the real issue is the continued growth feeding traffic into it.

Purpose of this paper

Growth on St. Simons Island is often discussed from two very different perspectives.

One focuses on the benefits. Every new home adds property tax revenue that helps fund county government and public services.

The other focuses on the costs. Every new home also generates additional traffic on a transportation system whose capacity changes very slowly.

This paper attempts to measure both sides of that ledger using the same assumptions and the same timeline. Rather than asking whether growth is “good” or “bad,” it asks a different question:

“What are the fiscal benefits of continued residential buildout, and how long can the island’s transportation system absorb the traffic that accompanies it?”

What This Analysis Found

Four conclusions emerge consistently throughout the analysis. Together they define the central findings of this paper.

1. The model assumes no development boom.

The primary scenario simply continues the island's historical construction pace of approximately **155 homes per year**, the rate observed during the 2010–2019 decade.

- No zoning changes.
- No acceleration.
- No speculative growth.
- Tomorrow simply looks like the last fifteen years.

2. Continued growth creates substantial new tax revenue.

Under that historical pace, approximately **3,100 new homes** are constructed over twenty years.

Those homes generate roughly **\$66.7 million in additional annual property tax revenue** by 2045.

That is meaningful revenue for Glynn County.

3. The same growth increases daily traffic by approximately 37 percent.

Those same homes generate approximately **38,000 additional daily vehicle trips**, with roughly two-thirds loading the Frederica Road corridor.

Transportation demand grows every year.

Road capacity does not.

The most recent weekday traffic counts available for this intersection (Glynn County, March 2020) showed peak-hour volumes of 2,278 vehicles (AM) and 2,619 vehicles (PM). Applying the same 2.4 percent annual growth rate used throughout this analysis, current 2026 peak-hour volumes are estimated at approximately 2,626 vehicles (AM) and 3,020 vehicles (PM).

4. Capacity is exhausted before buildout is complete.

The Frederica/Sea Island Road intersection reaches practical capacity around **2040**, consistent with the county's own engineering analysis.

At that point only about **2,325** of the projected **3,100** homes have been built.

Nearly **800 additional homes** continue arriving after the transportation system has already reached its practical limit.

Primary Exhibit

Twenty Years at the Island's Own Pace

This scenario assumes nothing extraordinary.

- No construction boom.
- No rezoning.
- No acceleration.
- It simply continues the construction rate the island actually experienced during the 2010s.

Year	Cum. New Homes	Existing-Home Tax	Incremental Tax	Total Tax	Island Daily Trips	Corridor-Loaded New Trips
2026	155	\$67.3M	\$1.7M	\$69.0M	105,312	1,274
2027	310	\$69.2M	\$3.6M	\$72.8M	107,223	2,549
2028	465	\$71.2M	\$5.6M	\$76.7M	109,135	3,823
2029	620	\$73.2M	\$7.7M	\$80.9M	111,047	5,098
2030	775	\$75.4M	\$9.9M	\$85.3M	112,958	6,372
2031	930	\$77.6M	\$12.3M	\$89.9M	114,870	7,646
2032	1,085	\$79.9M	\$14.9M	\$94.8M	116,782	8,921
2033	1,240	\$82.3M	\$17.6M	\$99.9M	118,693	10,195
2034	1,395	\$84.8M	\$20.5M	\$105.3M	120,605	11,470
2035	1,550	\$87.5M	\$23.5M	\$111.0M	122,517	12,744
2036	1,705	\$90.2M	\$26.8M	\$117.0M	124,428	14,019
2037	1,860	\$93.0M	\$30.3M	\$123.3M	126,340	15,293
2038	2,015	\$95.9M	\$33.9M	\$129.9M	128,252	16,567
2039	2,170	\$99.0M	\$37.8M	\$136.8M	130,163	17,842
2040	2,325	\$102.1M	\$42.0M	\$144.1M	132,075	19,116
2041	2,480	\$105.4M	\$46.4M	\$151.8M	133,987	20,391
2042	2,635	\$108.9M	\$51.0M	\$159.9M	135,898	21,665
2043	2,790	\$112.4M	\$56.0M	\$168.4M	137,810	22,939
2044	2,945	\$116.2M	\$61.2M	\$177.3M	139,722	24,214
2045	3,100	\$120.0M	\$66.7M	\$186.7M	141,633	25,488

Assumptions embedded: 155 homes/yr; blended new-construction value ~\$1.27M appreciating at 4%/yr; 0.85% effective rate; 30% homestead freeze; trips at 9.4/day existing and 12.33/day blended new; two-thirds of new-home trips corridor-loaded; current traffic baseline derived from Glynn County's March 2020 peak-hour counts at Frederica Road/Sea Island Road, grown forward at 2.4%/yr to 2026. All dollar figures nominal.

What This Table Shows

By 2045, approximately **3,100 new homes** have been added to St. Simons Island.

Those homes produce approximately **\$66.7 million** in additional annual property tax revenue.

At the same time they generate roughly 38,200 additional daily vehicle trips—an increase of approximately 37 percent over today's estimated island-wide traffic. At the Frederica Road/Sea Island Road intersection specifically, current peak-hour volumes are estimated at approximately 2,626 vehicles (AM) and 3,020 vehicles (PM), based on the county's March 2020 counts grown forward at the same 2.4 percent annual rate.

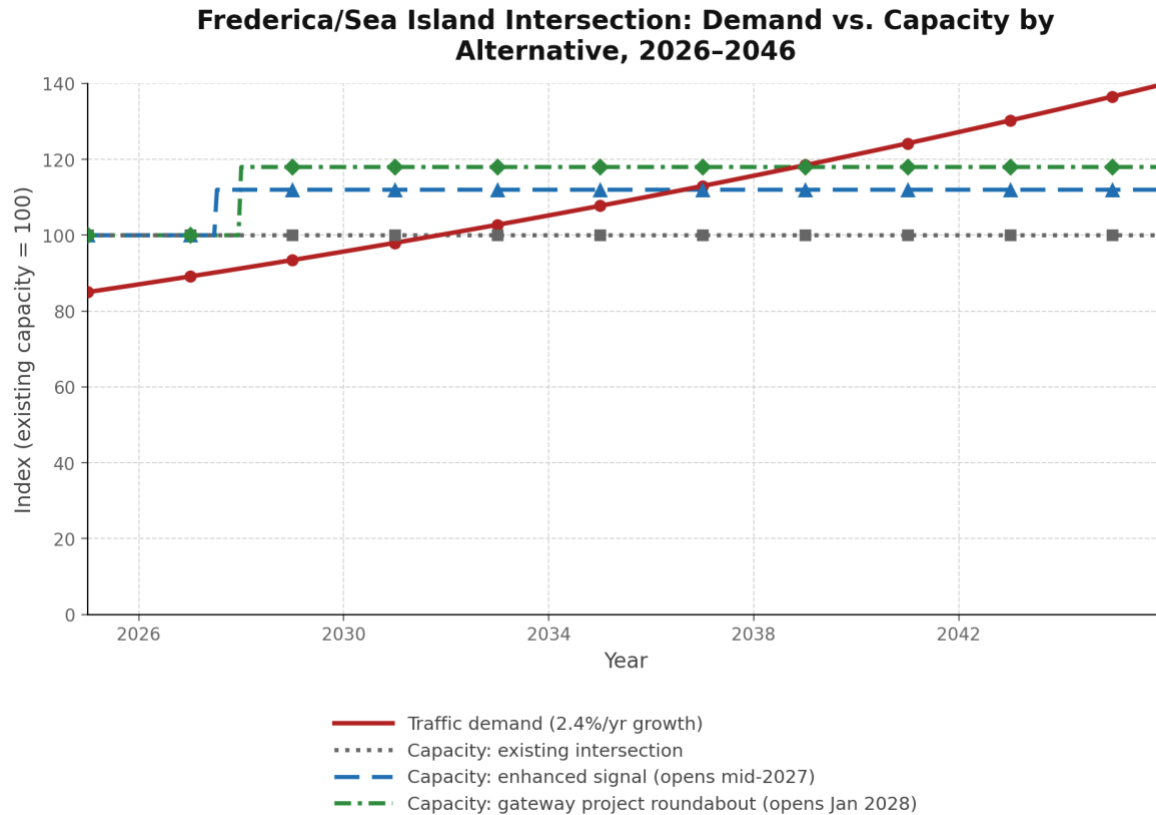
Approximately **25,500** of those daily trips are concentrated on the Frederica Road corridor leading toward the Sea Island Road intersection.

The fiscal benefits continue to grow throughout the period. The transportation capacity does not and predictably additional improvements with cost will be required in the future.

Exhibit

How Long Does Each Alternative Last?

One Demand Curve. Three Capacity Limits.



What This Chart Shows

This chart illustrates one of the central findings of this paper.

While different intersection improvements provide different amounts of capacity, they all face the same underlying reality: continued residential growth steadily increases traffic demand.

The question is not simply which intersection performs better—the roundabout does provide more capacity—but whether any improvement can keep pace with long-term growth.

One demand curve, three different capacity limits.

The rising demand line is identical in every scenario because traffic demand is driven by residential buildout—not by the type of intersection that is constructed.

Under the assumptions used in this analysis:

- Existing intersection reaches capacity around **2033**
- Enhanced signal reaches capacity around **2037**
- The roundabout reaches capacity around **2040**

These estimates are conservative if anything: SEI's 2022 update, which is the first to test weekday (not holiday-weekend) conditions, shows the existing signal already at LOS F during weekday PM peak under 2020 pre-COVID counts — worse than the holiday-weekend figures underlying earlier analyses. Actual capacity exhaustion may arrive sooner than the years modeled above.

Every alternative reaches capacity within approximately the same seven-year period.

The Bottom Line

The intersection matters. Growth matters more.

Every reasonable alternative eventually reaches capacity because continued residential development steadily consumes the additional roadway capacity each project provides.

The Intersection Alternatives

The historical public discussions have largely focused on whether the roundabout or an enhanced signal provides the better engineering solution.

This analysis suggests a different perspective.

This analysis assumes the enhanced signal increases the intersection's capacity by approximately 20–25 percent over the existing configuration, and the roundabout by approximately 35 percent — both drawn from published FHWA and industry references, and both reduced by an induced-demand adjustment before projecting the exhaustion years shown in the chart above.

This 20–25 percent range for the enhanced-signal alternative is consistent with SEI's own 2022 capacity analysis: comparing the "no-build" and "with turn lanes" 2041 scenarios at this intersection, the modeled reduction in Intersection Capacity Utilization implies an effective capacity gain of roughly 20–24 percent during PM peak periods — the binding constraint in every scenario tested.

That benefit comes at an estimated incremental cost of roughly **\$5 million**—an estimated \$2–3 million signal modernization versus an estimated \$7–8 million delivered roundabout cost—before considering additional land acquisition costs and litigation risk. The additional \$5M provides added capacity for a only a few years.

It is also worth noting that the roundabout's advantage is not uniform across all conditions tested. SEI's 2022 analysis found that under sustained weekday PM peak demand — as opposed to the shorter or lighter-volume periods also tested — the roundabout's most-loaded approach exceeded its theoretical capacity, with volume-to-capacity ratios of 1.08 to 1.23 depending on the geometric configuration modeled, while the signal-with-turn-lanes alternative remained under capacity in that same period. Neither alternative is capacity-proof under every condition; each performs differently depending on how demand is distributed across the day.

No alternative fundamentally changes the long-term outcome because every option is ultimately governed by the same growth curve.

The Delivery Timeline

The roundabout has been under study for approximately **twenty-seven years**, from its initial engineering work in 2001 to its anticipated completion around 2028.

The project's scope, as defined by Glynn County, is to construct a roundabout at the Frederica Road/Sea Island Road intersection, together with the associated utility relocation and other site work required to build it. In June 2026, Glynn County finalized a \$1.2 million utility relocation agreement with Georgia

Power, under which Georgia Power is required to begin relocating the power lines that conflict with the roundabout within six months. County officials have said they hope construction could begin by the end of 2026; this analysis continues to use the county’s previously stated January 2028 opening as its working assumption.

Under the assumptions in this analysis, the additional capacity provided by the project is consumed in approximately **twelve years**.

The county’s infrastructure delivery cycle is slower than its capacity-consumption cycle.

If future capacity projects require similar planning and construction timelines, infrastructure improvements will struggle to keep pace with continued residential growth.

The Hilton Head Threshold

Hilton Head offers a useful comparison because it illustrates what can happen when transportation demand outgrows the available capacity.

For purposes of this analysis, the Hilton Head threshold is defined as **sustained year-round over-capacity operation**—not merely seasonal congestion, but a condition in which the transportation system is regularly unable to absorb normal demand.

Applying that threshold to the Frederica Road/Sea Island Road intersection produces the following outlook:

Threshold	Without Roundabout	With Roundabout (opens 2028)
Shoulder-season capacity reached	Around 2033	Around 2040
Sustained year-round over-capacity	Around 2037	Early-to-mid 2040s

Under the model’s assumptions, the roundabout delays the more serious year-round condition, but it does not prevent it.

The projected timing is especially important because it coincides with the period when Glynn County would be receiving its largest property-tax gains from continued buildout.

By the early-to-mid 2040s, the annual incremental property-tax revenue generated by new residential development is projected to be approximately **\$56 million to \$67 million**.

That is also the period when the island’s roundabout would be moving toward the kind of sustained capacity problem that led Hilton Head to pursue a transportation investment measured in the hundreds of millions of dollars (\$290M Corridor Project).

The comparison does not mean St. Simons Island will become Hilton Head.

It means the same sequence of events is possible:

1. Development creates substantial new tax revenue at the current rate.
2. Traffic demand grows faster than roadway capacity.
3. Congestion becomes a year-round condition.
4. Glynn County is later required to fund a major transportation solution.

The central planning question is whether St. Simons can recognize that sequence early enough to avoid repeating it.

Sensitivity: What Happens Under Faster Buildout?

The primary scenario uses the island's own historical pace of approximately **155 homes per year**.

Two shorter-term scenarios help illustrate how the results change if development occurs more quickly.

Low 10-Year Scenario

This scenario adds approximately **1,700 homes by 2035**, or about **170 homes per year**.

That pace is only slightly above the island's observed 2010–2019 construction rate and may be plausible if recent activity continues.

By 2035, the model produces:

- approximately **\$25.8 million** in annual incremental property-tax revenue,
- approximately **\$113.3 million** in total modeled residential property-tax revenue,
- approximately **124,400 daily island-wide vehicle trips**, and
- approximately **14,000 new daily trips** loading the Frederica Road corridor.

Even this relatively moderate scenario places the enhanced signal alternative near its projected capacity limit by the end of the period.

Mid 10-Year Scenario

This scenario adds approximately **3,500 homes by 2035**, or about **350 homes per year**.

That pace is two to four times faster than anything the island has sustained during a full decade. It should therefore be understood as a **zoning-capacity ceiling**, not as the most likely forecast.

By 2035, the model produces:

- approximately **\$53.2 million** in annual incremental property-tax revenue,
- approximately **\$140.6 million** in total modeled residential property-tax revenue,
- approximately **146,600 daily island-wide vehicle trips**, and

- approximately **28,800 new daily trips** loading the Frederica Road corridor.

At that pace, every intersection alternative would be overtaken far earlier than in the primary scenario.

What the Sensitivity Analysis Shows

The exact dollar totals and exhaustion years change with the pace of development.

The direction of the results does not. Faster growth produces more tax revenue sooner, but it also consumes transportation capacity sooner.

Stress Testing the Model

Every long-range analysis depends on assumptions.

The purpose of stress testing is not to prove that one number is exact. It is to determine whether the central conclusion survives when reasonable assumptions are changed.

The model was tested by varying the principal inputs, including:

- home-value appreciation,
- the share of homesteaded properties,
- new-home values,
- the effective property-tax rate,
- construction pace,
- trip-generation rates, and
- the share of new development routed through the Frederica Road corridor.

Varying the major fiscal assumptions independently produces a 2045 incremental property-tax estimate ranging from approximately **\$47 million to \$95 million**, compared with the central estimate of **\$66.7 million**.

A fully conservative combination of assumptions produces approximately **\$31 million** in annual incremental revenue by 2045.

A more aggressive combination produces a substantially higher figure.

The appreciation rate has the largest effect on the revenue result. The assumed homestead share has relatively little effect.

Traffic findings are even more stable because they do not depend on property values, appreciation, millage rates, or homestead exemptions. They depend primarily on:

- how many homes are built,

- how many trips each home generates, and
- where those trips enter the road network.

Under every plausible assumption set, the same basic conclusion remains:

Residential buildout creates substantial public revenue and substantial corridor-concentrated traffic at the same time.

Key Assumptions

The model is intended to be transparent and adjustable. Its central assumptions are summarized below.

Assumption	Central Value
Existing homes	Approximately 11,000
Historical construction pace	Approximately 155 homes per year
New homes in primary scenario	Approximately 3,100
Existing-stock average value	\$700,000
Blended new-home value	Approximately \$1.27 million
Annual appreciation	4.0%
Effective property-tax rate	0.85%
Homestead-frozen share	30%
Existing-home trip rate	9.4 trips per day
Blended new-home trip rate	12.33 trips per day
North-end share of new development	Approximately two-thirds
Annual traffic-demand growth	2.4%
Enhanced signal capacity gain	Approximately 20–25% over existing intersection
Roundabout capacity gain	Approximately 35% over existing intersection
Roundabout opening assumption	January 2028

These are not all verified facts. Some are sourced values, some are derived estimates, and some are planning assumptions selected to test a reasonable central case. That distinction matters. The paper therefore identifies several open items that could improve the precision of the model without changing its basic structure.

Open Verification Items

The following information would allow future editions of this analysis to replace assumptions with verified local data:

- Glynn County’s island-only building-permit history
- Actual homestead-exemption counts for St. Simons Island
- Published island-specific tax-digest totals
- Current vacant-lot assessments
- Geographic distribution of the remaining lots of record
- Final construction cost and land-acquisition cost for the roundabout project
- Confirmation of the project’s actual construction start and opening dates
- Any published Hilton Head gateway volume-to-capacity data that can replace the inferred threshold

Obtaining those records would improve the precision of the estimates.

It would not change the central question the community must answer.

What This Paper Does Not Claim

This analysis does not conclude that St. Simons Island should stop growing.

It does not conclude that the roundabout should or should not be built.

It does not argue that additional property-tax revenue lacks value.

It also does not claim that every projected year or dollar amount will occur exactly as modeled.

The analysis makes a narrower point:

- Residential growth produces two measurable outcomes at the same time.
- It creates new public revenue.
- It also creates new transportation demand.
- Both effects accumulate year after year.
- A complete public discussion should acknowledge both.

Final Observation

The fiscal case for residential growth is real.

By 2045, continued construction at the island's historical pace could generate tens of millions of dollars in additional annual property-tax revenue for Glynn County.

But that revenue does not arrive by itself. It arrives with thousands of new homes and tens of thousands of additional daily vehicle trips on a constrained island road network. Most certainly there is a future capacity improvement needed.

The central finding of this paper is therefore not that growth has no benefit. It clearly does.

The finding is that **the fiscal benefits and the infrastructure consequences occur together**, while the county's ability to deliver new transportation capacity appears to move far more slowly than the demand consuming it.

The county's infrastructure delivery cycle is slower than its capacity-consumption cycle.

That is the imbalance that deserves the community's attention.

The long-term question facing St. Simons Island is not simply which intersection improvement should be selected.

It is whether future development approvals, transportation investments, and land-use decisions will be coordinated so that growth does not outrun the infrastructure required to support it.

That is not an argument for a predetermined political outcome. It is an argument for planning before the capacity is gone.

A Closing Note on Method and Intent

The author is not a traffic engineer. This analysis was prepared by a career technology and analytics consultant using publicly available data, published engineering references, and transparent, adjustable assumptions. It should be read as a structured framework for community discussion — not as a substitute for professional traffic engineering.

For that reason, this study has been provided to Southeastern Engineering and to Glynn County officials, with a request for their data and technical review to enhance and improve it. As corrected or additional information is received, this paper will be amended as needed, and amended editions will be identified as such.

The goal of this work is not to motivate a political agenda. It is to capture facts, state assumptions openly, and inform the community — so that decisions about growth and infrastructure can be made with both sides of the ledger in view.

Sources and Supporting Material

The analysis draws on:

- U.S. Census Bureau and American Community Survey housing data
- Glynn County parcel and planning information
- Glynn County Gateway Project records and schedules
- Southeastern Engineering analyses
- The 2021 Buckholz engineering review
- Federal Highway Administration roundabout guidance
- Institute of Transportation Engineers trip-generation references
- Local property-value and market data
- Hilton Head and US 278 corridor planning materials
- The companion density analysis, *SSI_Density_Maximum_July2026_v1.0*

Detailed assumptions, calculations, source classifications, sensitivity tables, and year-by-year outputs are retained in the supporting appendices and model workbook.

The complete technical edition of this analysis — The Fiscal Side of the Ledger — containing the full footnotes and source classifications (VERIFIED / PARTIAL / ILLUSTRATIVE / ASSUMPTION) for every figure presented here.