

# UPDATED PRELIMINARY Valuation Estimate for the Cincinnati Southern Railway

**DRAFT – Privileged & Confidential**  
**Prepared at the Request of Counsel**

*This document has been produced by the Board of Trustees of the Cincinnati Southern Railway (“Board”) in response to a public-records request made pursuant to the Ohio Public Records Act, Ohio Rev. Code § 149.43. Except as necessary for the limited purpose of responding to the aforementioned public-records request, the production of this document is not intended to operate as a waiver of the attorney-client privilege, work-product protection, trade-secret protection, or any other privileges and protections held by the Board relative to this document, the information or subject matter contained within, or other documents that may concern the same information or subject matter, and the Board intends to retain such privileges and protections to the fullest extent permitted under the law.*

**UPDATED**

**FEBRUARY 18, 2022**



# Agenda

---

1. Updated Preliminary Conclusions
2. Assessment of NS Valuation
  - A. Summary of our Replication of their Model
  - B. Sensitivity of their Model to Various Assumptions
3. Implications of NS Information for the Preliminary Valuation
  - A. Replacement Cost Methodology
  - B. Opportunity Cost Approach
  - C. December 2009 Offer Letter



## The Valuation Range Remains Wide: **\$0.9B to \$2.4B**

---

The **\$690M** to **\$760M** NS value is significantly understated

- Understated revenue growth potential and profit margins
- Likely reasonable adjustments would increase this range to **\$937M** to **\$2.36B**

Statements from NS suggest adjusted ranges relative to our Dec. 2021 assessments:

- Opportunity cost: **\$1.11B** to **\$2.41B** range
- RCNLD: **\$1.31B** to **\$2.05B** range
- 2009 Offer: **\$1.15B** to **\$2.46B** range remains; 2009 offer strongly suggests NS valuation is low

The key to resolving this wide valuation is access to data that we can use to understand the specific economic and operational aspects of CSR and to test NS claims

**THESE FIGURES ARE SUBJECT TO CAVEATS ON THE FOLLOWING PAGE**

# Caveats Regarding Our Conclusions

---

These results are preliminary and will almost certainly change

We have adjusted our analysis for representations we understand NS made in the context of negotiations, but:

- NS representations were often high level, requiring assumptions on how to implement them
- We have not been able to test the veracity of these representations in many cases

Access to detailed operational and economic information about the line that is necessary for a robust valuation is very limited at present, requiring assumptions such as:

- Use of system averages rather than line-specific data
- Use of approximate rather than actual figures for route-miles

We have not considered any asset basis “step up” which ***might*** generate a tax benefit for the buyer of CSR

# Assessment of the NS Valuation



# The NS Third-Party Valuation Model Has Several Unknowns

---

NS values the line to a third-party at **\$690M** to **\$760M** using a model we do not have

- Some key NS inputs are known, but others are not
  - *Provided*: traffic levels, approximate rates and trackage rights, assumed operating margin, 10-year capex requirements, tax rate, required equity rate of return, assumed leverage
  - *Not provided*: debt cost, capex timing, empty moves, mileages on line for different types of traffic
- Attempts to replicate the NS approach with use of assumptions to fill in gaps results in a “base NS” model with an NPV of **\$687M** (slightly below the NS range)
- We use this “base NS” model to test some of the key parameters in the NS model:
  - Growth in freight rates
  - Operating expenses

# Rate and Traffic Growth Are Key Drivers

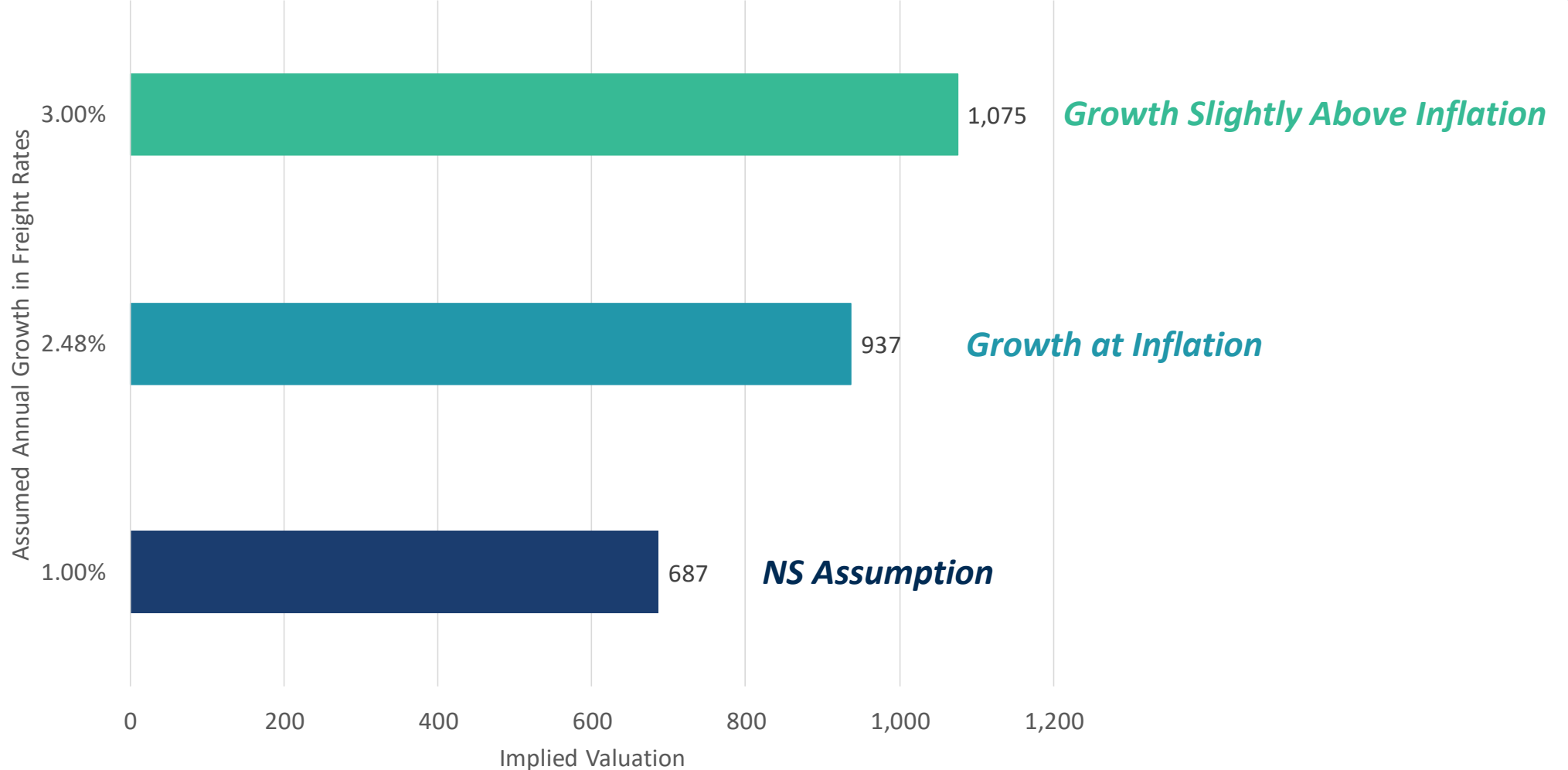
---

NS assumes traffic (cars/year) and rates each grow at 1% per year, but this may be low

- The 1% volume growth may be understated, but we lack sufficient data to test this:
  - While US rail ton-mile movements have been somewhat stagnant in recent years, DOT projected higher growth in freight volumes (averaging 2% per year) through 2050
  - However, NS expects some online coal traffic to disappear as coal-fired generators close
  - Conventional wisdom suggests a short-line might be more effective at generating online traffic, but the potential impact is difficult to estimate
- The 1% price growth appears understated
  - Well below long-term inflation projections of ~2.5%
  - Rail prices grew faster than inflation over the past 25 years, particularly in the last 5 years

# NS Model Value Increases Significantly at Higher Price Growth

Impact of Increased Price Growth on NS Valuation Model (\$ Millions)





## The NS Cost Structure Assumption Is Likely Unreliable

---

*NS approach:* Third-party CSR owner would earn same 25% operating margin as G&W did in 2017–18 (before it went private in 2019)

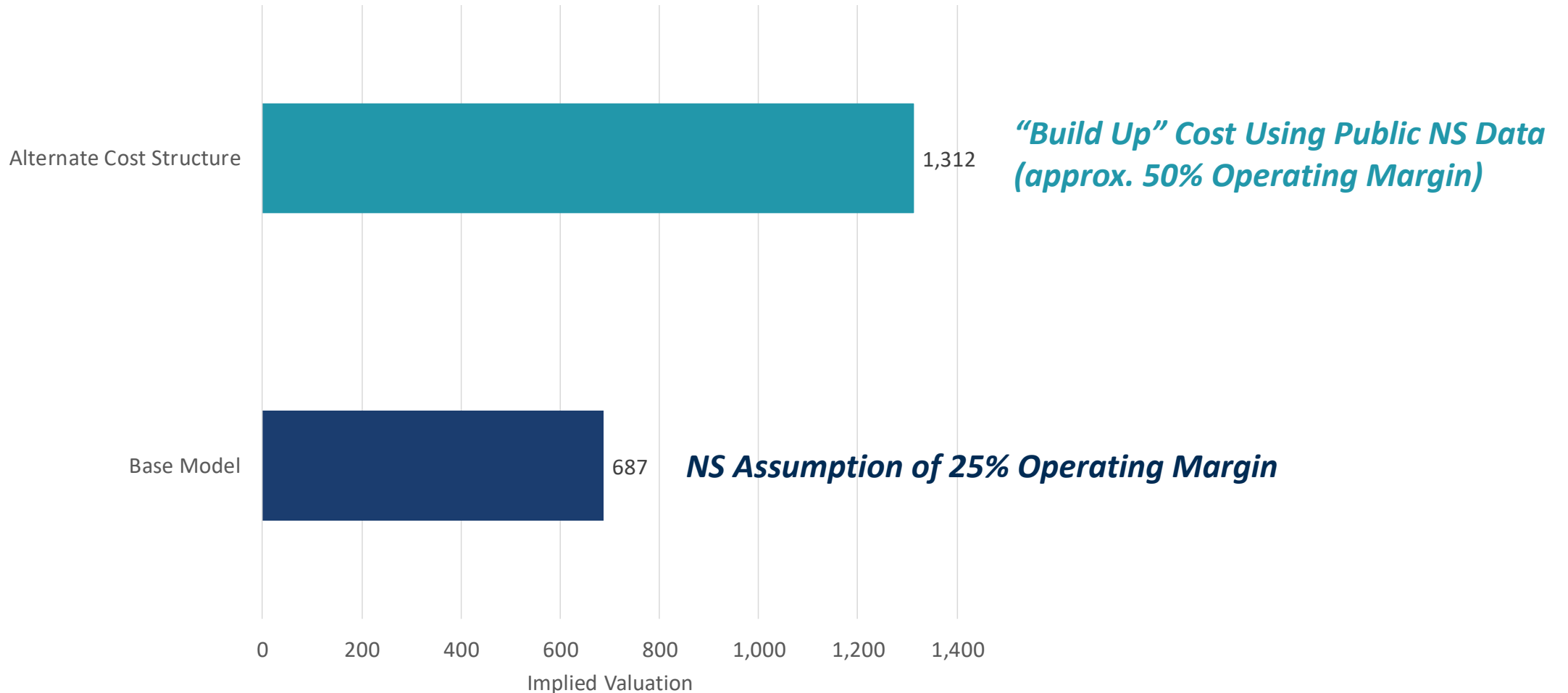
However, the business model implied by the NS valuation does not appear to be consistent with G&W's business model, which likely skews the operating margin

We use data from NS and its public R-1 data (filed annually with the STB) to build up estimated operating costs that imply an operating margin of roughly 50%

- We classify each NS account as fixed, driven by road/track miles, or driven by traffic levels
- We follow NS in assuming that overhead traffic moves on a trackage rights/toll basis while the new CSR operator would incur added expenses associated with on-line traffic and G&A
- We allow for the likelihood that road-related costs for the CSR may be higher on a per-mile basis than for the NS network as a whole, due to higher traffic density and double-tracking
- ***Resulting figures are estimates that would be adjusted based on document/data requests***

# A Build-Up Cost Structure Estimate Yields a Higher Valuation

Impact of “Build-Up” Cost Structure on NS Valuation Model (\$ Millions)



# Combining These Changes Increases Valuation Further

		Assumed Freight Rate Growth		
		1% (NS Assumption)	2.48% (Growth at Inflation)	3.00% (Growth Slightly Above Inflation)
<b>How Are Costs Modeled?</b>	25% Operating Margin Assumed	<b>\$687M</b>	<b>\$937M</b>	<b>\$1,075M</b>
	"Build-up" Cost Estimate	<b>\$1,311M</b>	<b>\$1,922M</b>	<b>\$2,257M</b>

These scenarios appear to be most reasonable based on the limited information we have now

## Caveats

---

We do not yet have the data we need in order to vet several other NS model assumptions

- For example, trackage rights agreements between Class I's and short lines can differ dramatically, and are generally not public information
- Similarly, the revenues that the new CSR operator would gain from on-line traffic were specified by NS. These in turn depend on length of haul, competitive conditions, and other factors we do not yet have the data to fully assess
- NS may have made other assumptions that could artificially lower the valuation

# Replacement Cost Methodology



# Replacement Cost Methodology: Refresher

---

Replacement cost is the amount NS would have to spend to replicate CSR functionality

- Replacement cost new (“RCN”) is cost to buy land and build a new line, *but NS would never pay RCN for partially depreciated CSR facilities*
- RCN less depreciation (“RCNLD”) is RCN reduced for “used” status of CSR facilities
- Both are adjusted for inflation to 2026 and amount of double-tracking

Bases for rough estimation of RCNLD:

- RCN: NS’s own estimate of cost to acquire CSR right-of-way and build a **new** line, from a 2009 DuPont rate proceeding. Adjusted for inflation to 2026 and amount of double tracking.
- RCNLD Method #1: Starts with RCN from DuPont, then assumes CSR facilities are half-way through their life given that CSR has been in a largely steady state over long periods, so on average assets are mid-life
- *RCNLD Method #2: Based on NS system-wide RCNLD/mile calc’d from NS financial statements (**dropped**)*
- RCNLD Method #3: Similar to Method #1, but incorporates one potential corridor factor to account for the difference between the sum of the value of individual parcels and the value of the entire corridor.

# Estimated Replacement Cost New Less Depreciation

Estimated Replacement Costs, 2026 Dollars

Methodology	Across-the-Fence Land Cost (\$M)	Assumed Corridor Factor	ATF Value	Construction		Road Property Investment	Total Replacement Cost (\$M)			
				Assumed Depreciation	Road Property Investment, Unadjusted (\$M/mile)			Road Property Investment, Adjusted for Double-Tracking (\$M/mile)	CSR Route-Miles	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	
<b>RCNLD #1</b>	[A]	\$231.4	1.0	\$231.4	50%	\$3.3	\$3.2	335.7	\$1,076.0	\$1,307.3
<b>RCNLD #1a</b>	[B]	\$231.4	1.0	\$231.4	40%	\$4.0	\$3.8	335.7	\$1,291.1	\$1,522.5
<b>RCNLD #3</b>	[C]	\$231.4	3.3	\$763.6	50%	\$3.3	\$3.2	335.7	\$1,076.0	\$1,839.5
<b>RCNLD #3a</b>	[D]	\$231.4	3.3	\$763.6	40%	\$4.0	\$3.8	335.7	\$1,291.1	\$2,054.7

Incorporates Corridor Factor

Sources and Notes:

- [1]: Across-the-Fence Real Estate (ROW) Cost using DuPont rate case, including assumed appreciation of land value.
- [2]: Assumed corridor factor, to account for differences between single property values and corridor values.
- [3] = [1] x [2]
- [4]: Corresponds to different assumptions regarding the state of the CSR road property investment. Set at different levels to illustrate one possible sensitivity.
- [5]: Calculated using STB values from DuPont Rate case, assuming 50% or 40% depreciation.
- [6] = [5], but taking account of the amount of double-tracking along CSR in relation to the benchmark.
- [7]: From the National Transportation Atlas Database.
- [8]=[6]x[7].
- [9]=[3]+[8].

# Effects on Replacement Cost Calculation

---

Our preliminary estimate using this methodology was in the range of \$1.3B to \$1.5B

There are two new potentially relevant pieces of information from NS

- NS suggests that annual capex/mile is higher for the CSR than for other parts of its network
  - Capex does not directly enter into the RCNLD calculation
  - However, we believe that the higher capex rate reflects the increased investment density on CSR relative to its overall network
- NS has also provided appraisal reports that suggest an appropriate **corridor factor**
  - Factor accounts for the difference in value of a fully assembled corridor vs. individual land parcels
  - Our range is set using corridor factors from 1 (low end) to 3.3 (from NS appraiser)

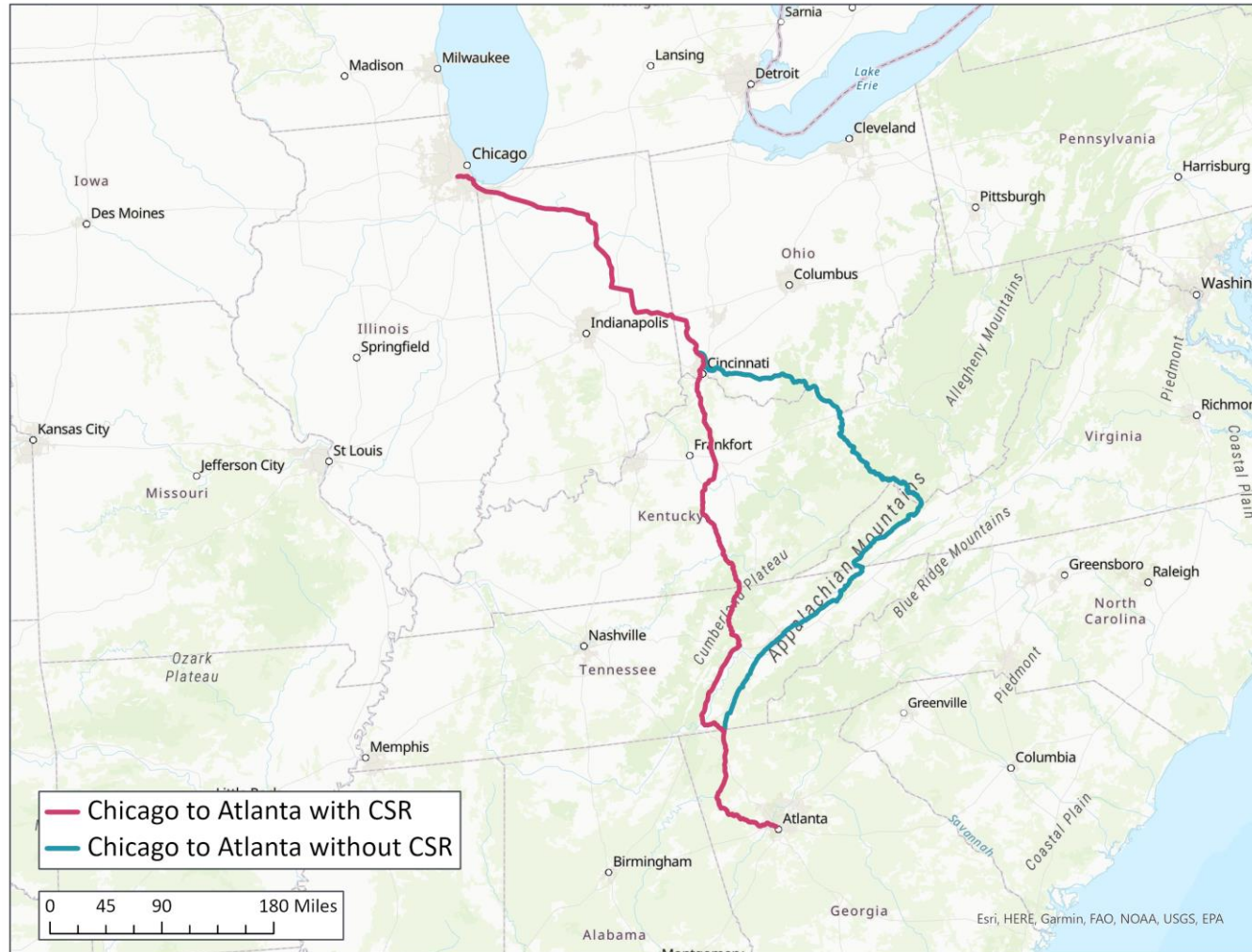
This update increases the value of the land, and therefore increases the overall range to **\$1.3B to \$2.1B** (as reflected on the previous slide)



# Opportunity Cost Calculation



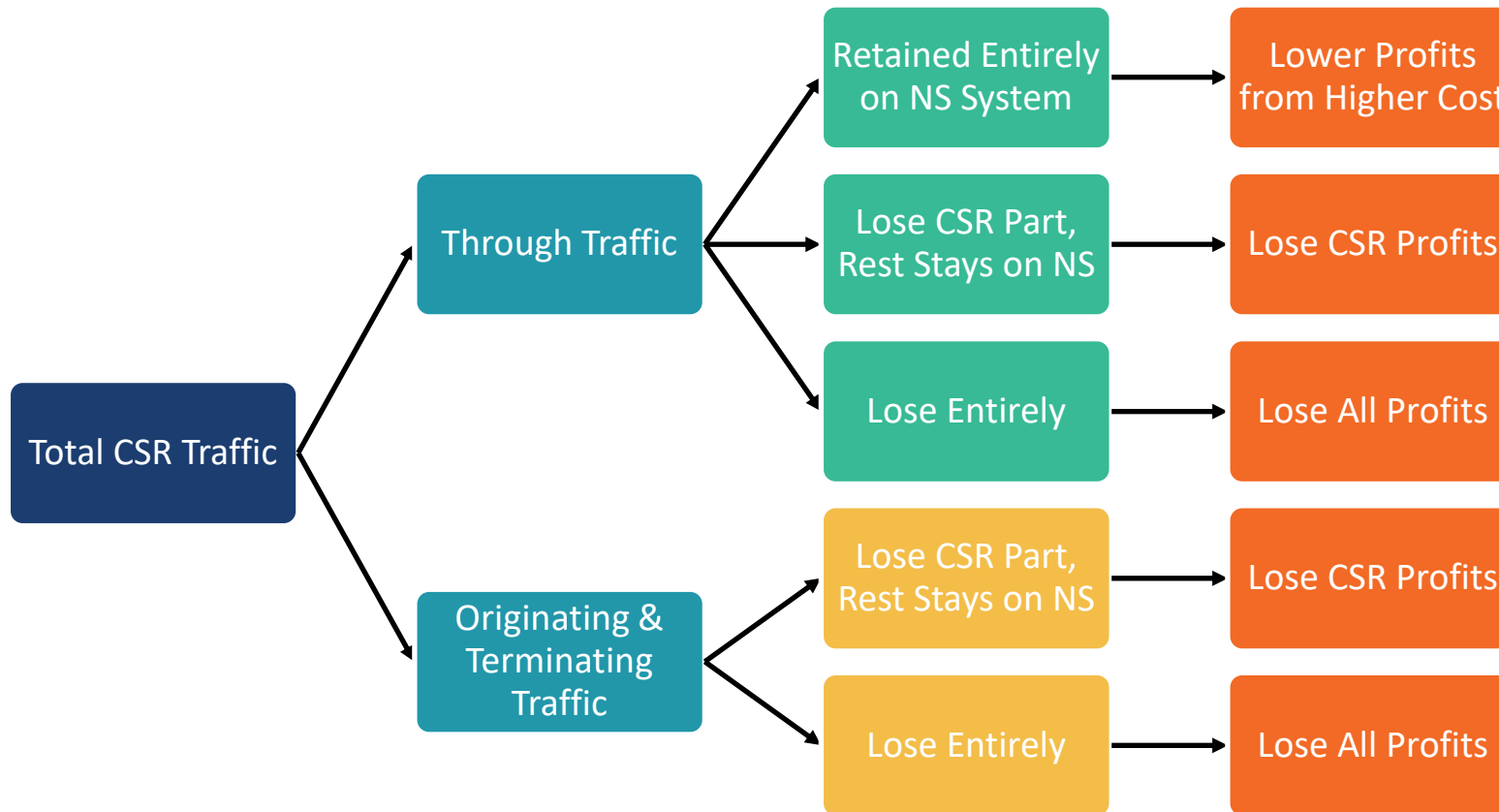
# Loss of CSR Increases NS Mileage on Chicago-Atlanta Route



- Movement is 786 miles with CSR, 1,013 miles without (using the “Peavine” route)
- CSR saves NS 227 miles on this route
  - NS would need to break lease with Cincinnati Eastern and incur investment to restore “Peavine” route
- Longer route means:
  - Higher variable costs
  - Longer haul times
  - CSX becomes more attractive to customers for whom CSX is an option
- Similar problem affects other key NS routes like Chicago-Jacksonville and KC-Atlanta

# Impact from Loss of CSR Access on NS

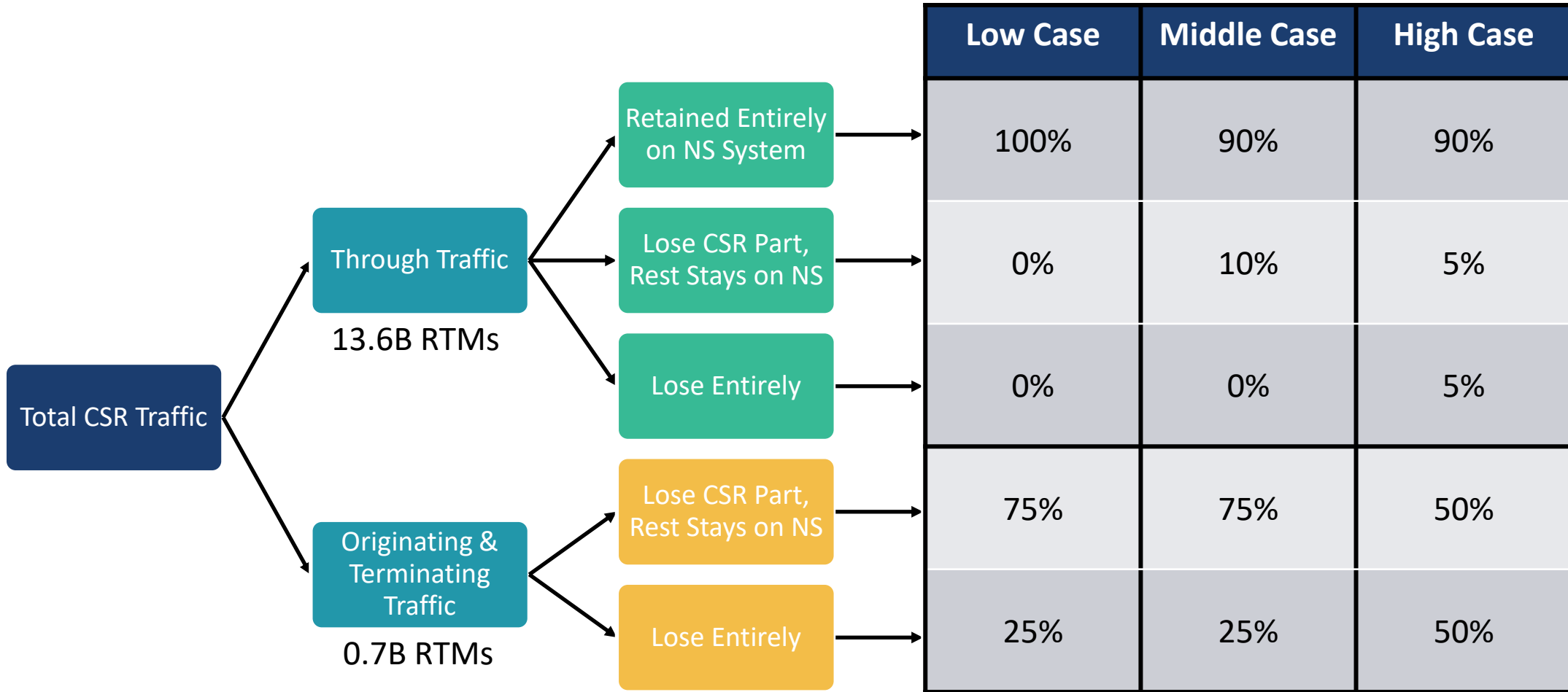
## #1: Lose Profits on CSR-Related Traffic



## #2: Avoid CSR-Related Costs

- Costs to operate, repair, and maintain the CSR line
- Capex required to maintain the CSR line
- Property taxes on the line
- Income taxes on the profits

# Scenarios Analyzed



# Basis for Scenarios

Use of CSR	Low	Middle	High
Through Traffic	<p>New CSR owner charges a rate equal to what it would cost NS to reroute the traffic on other parts of its system assuming:</p> <ul style="list-style-type: none"> <li>• No lost customers</li> <li>• No pass through of higher costs</li> <li>• No capacity constraints on alternative NS routes</li> </ul>	<ul style="list-style-type: none"> <li>• For 90% of traffic, new CSR owner charges a rate equal to NS cost to reroute on NS system</li> <li>• 10% of traffic would be lost if rerouted, so new owner of CSR can capture half the NS system profit/mile on CSR miles</li> </ul>	<ul style="list-style-type: none"> <li>• For 90% of traffic, new CSR owner charges a rate equal to NS cost to reroute on NS system</li> <li>• 10% of traffic lost if rerouted, so:                             <ul style="list-style-type: none"> <li>▪ 5% stays on CSR, with new owner capturing half of NS profit/mile on CSR miles</li> <li>▪ Other 5% is lost entirely, losing all NS profits</li> </ul> </li> </ul>
Originating/ Terminating on Line	<ul style="list-style-type: none"> <li>• CSR owner captures share of current NS profits on traffic originating or terminating on CSR</li> <li>• NS can maintain 75% of traffic connecting to/from CSR, retaining all off-CSR profits on this traffic</li> </ul>	Same as low	<ul style="list-style-type: none"> <li>• CSR owner captures share of current NS profits on traffic originating or terminating on CSR (same as low)</li> <li>• NS can maintain 50% of traffic connecting to/from CSR, retaining all off-CSR profits on this traffic</li> </ul>

# Estimated Annual Losses to NS Before Avoided Costs by Case

		Low Case	Middle Case	High Case	Notes
<b>Added Costs on Retained, Rerouted Traffic</b>					
Estimated Number of Rerouted Cars/Year ('000s)	[1]	513	462	462	Brattle estimate based on NS data provided to CSR.
Added Miles from Rerouting	[2]	228	228	228	Brattle estimate from network analysis.
Estimated Variable Cost per Car-Mile (\$)	[3]	\$0.78	\$0.78	\$0.78	Brattle estimate from 2019 NS R-1.
Total Added Costs (\$ millions)	[4]	\$91	\$82	\$82	[1]x[2]x[3]/1,000.
<b>Profits Ceded to New Operator of CSR</b>					
RTMs Continuing to Operate on CSR (millions)	[5]	527	1,887	1,031	Brattle estimate based on NS data provided to CSR.
Operating Margin/RTM (\$)	[6]	0.04	0.04	0.04	Brattle estimate based on 2019 NS R-1.
Percent of NS Margin Captured by CSR	[7]	50%	50%	50%	Brattle assumption.
Forgone Profits on Traffic Staying on CSR (\$ millions)	[8]	\$10	\$37	\$20	[5]x[6]x[7].
<b>Profits Lost from Traffic No Longer Travelling on NS</b>					
Tonnage Lost to NS System ('000s)	[9]	1,046	1,046	4,118	Brattle estimate based on NS data provided to CSR.
Average Miles/Ton on NS System	[10]	541	541	541	Brattle estimate from 2019 NS R-1.
Operating Margin/RTM (\$)	[11]	\$0.04	\$0.04	\$0.04	Brattle estimate from 2019 NS R-1.
Losses Due to Lost NS System Traffic (\$ millions)	[12]	\$22	\$22	\$88	[9]x[10]x[11]/1,000.

Minor differences due to rounding.

# Translating Annual NS Loss into a Value of CSR to NS

		Low Case	Middle Case	High Case	Notes
Added Costs on Retained, Rerouted Traffic (\$ millions)	[1]	\$91	\$82	\$82	See prior slide.
Profits Ceded to New Operator of CSR (\$millions)	[2]	\$10	\$37	\$20	See prior slide.
Profits Lost from Traffic No Longer Travelling on NS (\$millions)	[3]	\$22	\$22	\$88	See prior slide.
<b>Total Lost Profits from Lost or Rerouted Traffic (\$ millions)</b>	[4]	<b>\$124</b>	<b>\$142</b>	<b>\$191</b>	Sum of [1]-[3].
Opex Savings Because CSR Is No Longer Being Operated (\$ millions)	[5]	(\$52)	(\$52)	(\$52)	Brattle estimate from 2019 NS R-1 (Road Opex/Road-Mile).
Pre-Tax Losses without CSR (\$ millions)	[6]	\$72	\$90	\$139	[4]+[5].
Income Taxes at Marginal Corporate Tax Rate (\$ millions)	[7]	(\$17)	(\$21)	(\$33)	Taxed at a rate of 23.51%.
After-Tax Losses without CSR (\$ millions)	[8]	\$55	\$69	\$106	[6]+[7].
Addback of Depreciation (Non-Cash Expense) (\$ millions)	[9]	\$40	\$40	\$40	NS representation
Capex Savings Because CSR Is No Longer Being Operated (\$ millions)	[10]	(\$40)	(\$40)	(\$40)	NS representation
After-Tax Cash Flows (\$ millions)	[11]	\$55	\$69	\$106	Sum of [8]-[10].
Discount Rate in Real Terms	[12]	5.3%	5.3%	5.3%	Based on STB 2020 Cost of Capital net of inflation.
<b>Implied Value (Millions of 2019 \$)</b>	[13]	<b>\$1,044</b>	<b>\$1,302</b>	<b>\$2,009</b>	[11]/[12]; assumes no growth beyond inflation.
Inflation Rate	[14]	2.5%	2.5%	2.5%	10-Year Breakeven Inflation Rate on 12/22/2021. <a href="https://fred.stlouisfed.org/series/T10YIE">https://fred.stlouisfed.org/series/T10YIE</a>
<b>Implied Value (Millions of 2026 \$)</b>	[15]	<b>\$1,254</b>	<b>\$1,563</b>	<b>\$2,412</b>	[13]x(1+0.025)^7.5.

Minor differences due to rounding.

# Effects on Opportunity Cost Calculation

---

In negotiations, NS has **represented** the following potentially relevant information:

- Charges for trackage rights are limited by NS's ability to use MidAmerica Corridor (trackage rights on CN system) or "Peavine route" as alternatives for some current CSR traffic
  - However, there is little evidence that MidAmerica Corridor has been used to date; presumably NS would pay CN a trackage rights fee that may mean the CSR would still be preferred
  - NS may need to pay Cincinnati Eastern (short line) to break lease, and would need to incur some investment to use Peavine route; this is the route we had previously used to calculate the longer distances
- CSR requires higher capex/mile than the rest of the NS system.
  - This may be reasonable given higher traffic density on CSR, so we have adjusted for this
- Overhead and on-line traffic may use fewer CSR miles (on average) than we had previously assumed
  - We have adjusted for this
- NS struggles to compete with CSX on Chicago-Atlanta and other O-D pairs involving the CSR, suggesting that some NS moves using CSR may have thinner margins than NS traffic as a whole
  - In the coming slides, we test how this change affects the valuation



# Effects on Opportunity Cost Calculation

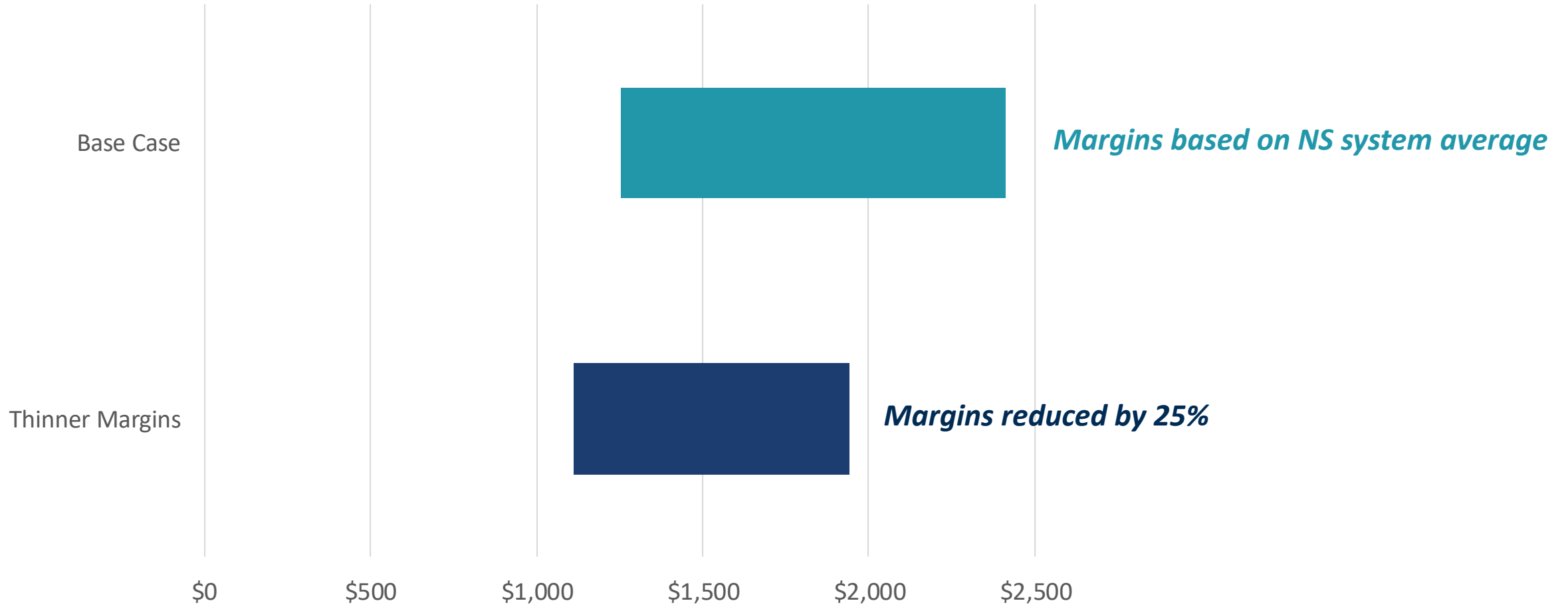
---

We have incorporated this new information when possible:

- CSR requires higher capex per mile than the rest of the NS system
  - This has been implemented in the preceding slides, through both capex and depreciation
  - The resulting range of **\$1.3B to \$2.4B** is slightly lower than our previous range (\$1.4B–\$2.5B)
- Thinner margins
  - Without actual data on NS margins on CSR moves, we have estimated them for NS as a whole using public R-1 data
  - One example assumption—that margins are 25% lower—further lowers the range to **\$1.1B to \$1.9B**

# Valuation is Reduced Due to Increased Capex and Lower Margins

Opportunity Cost: Sensitivity to Norfolk Southern Margins on CSR Traffic



# Opportunity Cost Caveats

---

Scenarios modeled are intended to approximate the loss to NS, but the losses may materialize in ways different from the specific assumptions modeled.

Results are highly sensitive to key factors:

- Competitive alternatives to NS for shippers. This in turn affects:
  - the ability for NS to pass on higher costs to shippers
  - negotiating position between NS and new owner/operator of CSR
- Ability to retain traffic due to longer transit times and/or trackage rights fees on alternative routes
- NS willingness or ability to shed low margin traffic
- Discount rate
- Capacity constraints on alternative routes that may require significant capex or opex for NS to alleviate, which we have not modelled

Significant, often confidential, NS data and analysis is still required to test the reasonableness of these scenarios

# 2009 Offer Letter



# 2009 NS Offer Provides Insight into Value

On 12/7/09, NS offered to buy CSR for \$500m

Value to NS is avoided lease payments to 2026 plus ownership thereafter

$$\begin{array}{ccccc} \boxed{\$500m} & = & \boxed{\text{PV of Lease Payments to 2026}} & \textit{plus} & \boxed{\text{Implied PV of Line at EOY 2026}} \end{array}$$

Formula can be rearranged to back out the implied 2026 value of the line from this offer:

$$\begin{array}{ccccc} \boxed{\$500m} & \textit{minus} & \boxed{\text{PV of Lease Payments to 2026}} & = & \boxed{\text{Implied PV of Line at EOY 2026}} \\ \textit{Known} & & \textit{Easy to Estimate} & & \end{array}$$

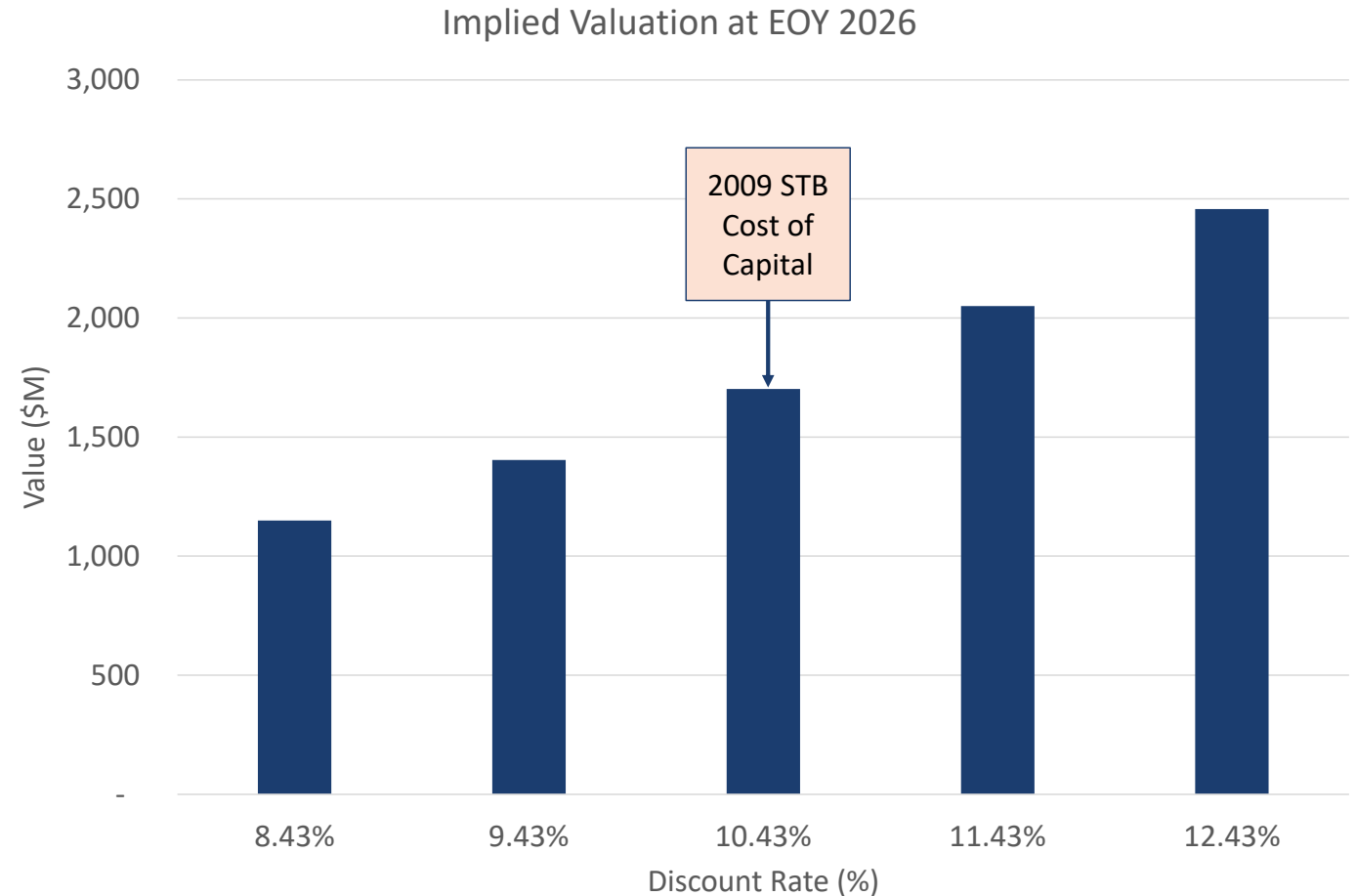
# Calculation Using 2009 STB Cost of Capital as Discount Rate

- Column [1] is the forecast of lease payments through 2026
- PV of these lease payments was \$185m, as calculated in [3] with 10.43% discount rate
  - Discount rate = 2009 STB Cost of Capital
- PV of lease payments implies EOY 2026 purchase price would have a value of \$315m (\$500m – \$185m)
- We solve for the EOY 2026 purchase price that has a PV @ 10.43% of \$315m at EOY 2009—result is **\$1.70B**

	Undiscounted Payment [1]	Years of Discounting [2]	PV of Cash Flows @ 10.43% [3]
2010 Lease Payment	\$19,921,767	0.5	\$18,957,642
2011 Lease Payment	\$20,338,132	1.5	\$17,525,905
2012 Lease Payment	\$20,763,199	2.5	\$16,202,297
2013 Lease Payment	\$21,197,150	3.5	\$14,978,652
2014 Lease Payment	\$21,640,170	4.5	\$13,847,419
2015 Lease Payment	\$22,092,450	5.5	\$12,801,621
2016 Lease Payment	\$22,554,182	6.5	\$11,834,805
2017 Lease Payment	\$23,025,564	7.5	\$10,941,006
2018 Lease Payment	\$23,506,799	8.5	\$10,114,709
2019 Lease Payment	\$23,998,091	9.5	\$9,350,816
2020 Lease Payment	\$24,499,651	10.5	\$8,644,615
2021 Lease Payment	\$25,011,694	11.5	\$7,991,748
2022 Lease Payment	\$25,534,438	12.5	\$7,388,187
2023 Lease Payment	\$26,068,108	13.5	\$6,830,210
2024 Lease Payment	\$26,612,931	14.5	\$6,314,372
2025 Lease Payment	\$27,169,141	15.5	\$5,837,492
2026 Lease Payment	\$27,736,977	16.5	\$5,396,627
Purchase Price 12/31/2026	<b>\$1,701,564,883</b>	17.0	\$315,041,878
<b>Total</b>			<b>\$500,000,000</b>

# Implied Value in 2026 Depends Heavily on Discount Rate

- Purchase price implied depends significantly on discount rate
- Figure presents sensitivity of +/- 1% and 2% around STB cost of capital
- Range of values from sensitivity:
- 8.43% → **\$1.15B**
- 12.43% → **\$2.46B**



## 2009 Offer Is Inconsistent with Current NS Valuation

---

If NS anticipated a value of \$690M to \$760M at the time of the 2009 Offer, it would have made a much lower offer

- The STB WACC at the time was 10.43%
- If the value at the end of 2026 was anticipated to be \$690M to \$760M at the time of the 2009 offer, the expected return would have been far less (6.1% to 6.5%), making the 2009 Offer untenable

Possible implications are that:

- The \$690M to \$760M NS model valuation is understated;
- The value of the line is lower now than it was at the time of the 2009 offer; **and/or**
- A combination of the two

Our analysis suggests that the NS model valuation is understated, but we currently lack the information to assess the extent of any change in value since 2009

- We know of two coal plants along the line that have announced retirements since 2009, but lack data to assess the materiality of this impact