



LLM Squared

NEOSHO SPACE MUSEUM • NEOSHO, MISSOURI

Museum Feasibility Study

Institutional, audience, program, collection, facility and planetarium feasibility, two options evaluated: museum only, and museum with planetarium.

1.53M21-COUNTY CATCHMENT
POPULATION (2025)**~208K**PUBLIC K-12 STUDENTS IN
CATCHMENT**29,000**MUSEUM-ONLY BASE ANNUAL
VISITS**41,000**WITH-PLANETARIUM BASE
ANNUAL VISITS

BOTTOM-LINE FINDING

A space museum on downtown Neosho's confirmed Canopy campus, a 13,500-gross-square-foot main building with collections storage in the 2,200-square-foot second building beside it, is **feasible** as a regional education and tourism institution, and the May 2026 agreement to relocate the Space Museum & Grissom Center collection from Bonne Terre resolves the concept's single hardest problem: a credible, exhibit-ready collection. The evidence supports a stabilized planning range of 17,800–36,000 annual visits, with 29,000 as the defensible base; the high case is set by the building's capacity ceiling rather than by the market. A planetarium would be the only facility of its kind within roughly 60 miles and strengthens differentiation, repeat visitation and earned coverage; it proceeds as a fully funded enhancement on a capital pathway that current vendor guidance has materially repriced downward. The recommendation of the 28 August 2026 decision brief: proceed.

TWO OPTIONS EVALUATED

VERIFIED 2026 EVIDENCE BASE

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THE EVIDENCE BASE AT A GLANCE

This study rests on current, independently verified evidence: **(1)** the announced relocation of the Space Museum & Grissom Center and its collection from Bonne Terre to Neosho (May 2026), which fundamentally changes the collection-readiness picture; **(2)** Census Bureau Vintage 2025 county estimates, the 21-county catchment now counts 1,527,138 residents; **(3)** ACS-based K-12 counts roughly two-thirds larger than the sponsor's original premise, with the ACS private category correctly labeled as combined private and home-school enrollment; **(4)** a corrected, defensible Northwest Arkansas growth claim; **(5)** an as-built planetarium cost comparable at essentially the proposed spec (University of Alaska Fairbanks, opened April 2026, \$9.5M total project cost per UAF's February 2026 construction report); **(6)** verified MoDOT signage eligibility rules and 2025 traffic counts; **(7)** the 2026 Route 66 centennial marketing window; and **(8)** sector headwinds from the AAM's November 2025 national survey, which argue for the conservative posture this study takes.

HOW TO USE THIS STUDY

Read the executive finding first, then test the assumptions most likely to change the decision: school commitments, the collection relocation agreement's final terms, gross-versus-net building area, capital funding, and recurring operating support. The companion Business Feasibility Study carries the financial model; the two documents share one evidence base and one set of planning ranges.

01 Executive finding and decision

1.53M

 21-COUNTY POPULATION,
VINTAGE 2025

~\$40M

 ANNOUNCED VALUE OF
RELOCATING COLLECTION

29,000

 MUSEUM-ONLY BASE ANNUAL
VISITS

41,000

 WITH-PLANETARIUM BASE
ANNUAL VISITS

Decision. Proceed. The museum concept clears this study's feasibility tests: the collection is real and committed, the market is sufficient, and the operating economics match the sector's proven mixed-revenue model. The May 2026 announcement that the Space Museum & Grissom Center will relocate from Bonne Terre to Neosho with a collection publicly valued at roughly \$40 million converts the study's largest open risk, collection readiness, into a negotiable, documentable asset [S9, S10]. What remains before construction (final relocation terms, school commitments, site condition, building-area definition, capital assembly and the recurring support line) is the launch phase's checklist, sequenced in Section 15 in the order successful capital projects share.

The recommended build posture is a **museum-first program with a planetarium-ready site plan**, and the dome's pathway is now live: current vendor guidance indicates its capital increment can price materially below the benchmark this study carries, with a written proposal pending. Construct the planetarium at opening once its incremental capital is funded without operating debt, three years of incremental operating support are committed, school demand is evidenced in signed letters of intent, and the dome, as a 40-foot exterior addition, preserves the 4,700-net-square-foot gallery program: conditions the repriced pathway brings within reach rather than barriers that defer it.

OPTION	MUSEUM FINDING	ATTENDANCE FINDING	DECISION POSTURE
A. Museum only	Strongest institutional fit at lowest complexity; collection relocation supplies authentic artifacts a startup could never assemble	17,800 low / 29,000 base / 36,000 high	GO , launch phase first
B. Museum + planetarium	Stronger differentiation and program renewal, the only public dome within ~60 miles, at higher technical and operating risk	27,000 low / 41,000 base / 43,000 high	GO WHEN FUNDED , pathway live

THREE FACTS THAT ANCHOR THE CASE

Three things. First, the collection: Neosho no longer has to invent a museum; it has to **re-house a real one**, founded in 1999 by Earl Mullins, with Mercury, Gemini, Apollo, Skylab and shuttle artifacts and an advisory board that includes Lowell Grissom [S9-S12]. Second, the market: Vintage 2025 estimates confirm a growing 1.53-million-person catchment anchored by the 9th-fastest-growing metro in the United States [S1, S5]. Third, the caution: the AAM's November 2025 national survey found 55% of U.S. museums still below 2019 attendance and a third reporting cancelled government grants, the strongest argument yet for the conservative base case and the fully funded planetarium sequencing this study recommends [S16]. The yes is strong precisely because the numbers under it are careful.

WHAT THIS IS, AND IS NOT

This is a desktop feasibility study using sponsor inputs and current public evidence, intentionally decision-grade rather than bank-grade. A bankable study still requires a drive-time GIS model, household willingness-to-pay research, executed school commitments, a collection audit and relocation agreement, site/MEP/structural due diligence, schematic design, and independent cost estimates. Section 15 prices that validation phase; the companion Business Feasibility Study carries the full financial model.

02 Study scope, evidence and limitations

The study separates museum feasibility from business feasibility. This report asks whether the institution can credibly serve audiences, care for collections, deliver education, operate the proposed space, and remain fresh enough to earn repeat visits. The companion business study tests capital, operating economics, price, revenue, fundraising and financial risk. Both evaluate the same two options independently.

EVIDENCE HIERARCHY

- **Verified market evidence.** Census Bureau Vintage 2025 county and city estimates; ACS 2024 five-year school-enrollment tables; state homeschool registries and academic estimates; Fall 2025 college enrollments; 2025 MoDOT traffic counts; current museum and planetarium pricing across the four-state region; ASTC 2023/2024 sector statistics; AAM 2025 national survey; NPS visitation statistics [S1–S8, S14–S25, S35].
- **Reported but unexecuted.** The relocation of the Space Museum & Grissom Center was announced by the Newton County Tourism Council in May 2026 with a 1–2 year timeline and sites "near the town square" under negotiation. At publication of the announcement, the museum itself had not formally confirmed, and the ~\$40M collection valuation is sponsor-repeated, not independently appraised. This study treats the relocation as a high-probability planning fact and a mandatory validation item, not a closed transaction [S9, S10].
- **Sponsor assumptions.** Downtown Neosho location, six-day schedule, the adopted 8 August 2026 prices (\$14 adult / \$8 student museum; \$22/\$16/\$20 combos), 16,000–18,000 square feet of exhibit space (since resolved: the sponsor has confirmed a 13,500 gsf main building plus a 2,200 gsf second building, with no further wing available, so the figure is read as a gross-building aspiration and the exhibit program is set at 4,700 net gallery square feet, Section 7.1), and the proposed geographic reach [S45].
- **Forecast convention.** Annual attendance means onsite visits, not unique people. Planetarium users are included within total museum visits and never double-counted.
- **Conservative boundary.** Tulsa, Branson pass-through traffic, Route 66 centennial lift and future highway-sign conversion are excluded from the base case; they are upside opportunities to be measured, not assumed.

CLAIMS IN CIRCULATION, CORRECTED

CLAIM IN CIRCULATION	WHAT THE EVIDENCE SUPPORTS
"Northwest Arkansas will double in 12–15 years"	NWA has roughly doubled since 2000 and is projected to grow another +74% by 2050 (587,750 → 1,024,464 for Benton + Washington counties, NWARPC February 2026 table). Doubling in 12–15 years would require ~5% annual growth; the actual rate is ~2.4% [S4, S5]
"About 100,000 public and 25,000 home-school students"	Conservative. ACS 2024 counts ~208,400 public plus ~30,300 private and home-school students ages 5–17 in the 21-county ring. The ACS reports private school and home school as one combined category, so the two must never be added separately [S3, S6–S8]
"Bonne Terre draws ~3,000 visitors a year"	Unverifiable but plausible: the museum publishes no count, and its FY2023 revenue of \$68,219 is consistent with a micro-scale operation open three public days a week at \$15 adult / \$10 student admission [S12, S13]
"16,000–18,000 square feet of exhibit space"	RESOLVED 27 August 2026. The sponsor confirmed a 13,500 gsf main building and a 2,200 gsf second building, 15,700 in all, with no further wing available. The figure is read as a gross-building aspiration; the exhibit program is 4,700 net gallery square feet with collections storage in the second building (Section 7.1)

The forecast should be updated whenever a decision-critical fact changes, above all when the relocation agreement is executed and its terms (ownership, loan structure, conditions, naming) become documentable. The companion workbook makes every attendance, yield, operating and capital assumption visible rather than burying a single-point prediction.

03 The Neosho moment: collection, heritage and timing

Feasibility studies usually ask whether a community can build an institution from nothing. Neosho's question is different and better: can it successfully **re-house and scale an existing museum** whose collection took 25 years to assemble? Three converging facts define the moment.

1 · THE COLLECTION IS COMING

On 29 May 2026 the Newton County Tourism Council announced that the Space Museum & Grissom Center, founded in 1999 by Earl Mullins in Bonne Terre, Missouri, has agreed to relocate to Neosho, bringing a collection publicly described at roughly \$40 million: Gus Grissom's Mercury training suit, flown Gemini 3 material, John Young's Gemini suit, Apollo, Skylab and shuttle artifacts, a VR spacewalk and a shuttle launch simulator. The museum's advisory board includes Lowell Grissom, Gus Grissom's brother; its exhibits were built with help from ex-McDonnell Aircraft "Mercury 6" engineers. Sites near the downtown square are under negotiation, on a one-to-two-year timeline. Neosho prevailed over a competing St. Charles option [S9–S12]. Local principals are Steve Roark, president of the Newton County Tourism Council, and board member Pete Hall [S9].

2 · THE HERITAGE IS AUTHENTIC

Neosho is not borrowing a space story. From 1956 to 1968, Rocketdyne's Neosho plant built and tested rocket engines for Cold War and Apollo-era programs, the town was known as "**Spacetown, U.S.A.**" A space museum here is heritage interpretation, not theming, and that authenticity matters to funders (NASA's informal-education programs, IMLS narrative criteria) and to press coverage alike [S11]. It also gives the museum a permanent local gallery no other institution can copy: the people of the Ozarks who built the engines that went to the Moon.

3 · THE REGIONAL WINDOW IS OPEN, AND WILL NOT STAY OPEN

- **No competing dome, no competing space museum.** There is no planetarium of museum grade within ~60 miles (Pittsburg State's ~50-seat academic Kelce Planetarium is the only fixed dome, with a sporadic public schedule) and no space museum between Bonne Terre (290 mi), Tulsa (95 mi), Hutchinson (280 mi) and Weatherford (250 mi) [S26, S32].
- **A declared future competitor exists.** The NWA Space and Science Center, a Rogers, Arkansas 501(c)(3), opened an office and collections space in April 2026 and aspires to build a "world-class center" in the region's wealthiest county. Neosho holds the collection and the head start; the first institution to open at scale will define the category for the four-state region [S33].
- **2026 is the Route 66 centennial.** Springfield is the national kickoff host; Joplin, 20 minutes from Neosho, runs a centennial balloon festival in August 2026 and a year of programming; Missouri's centennial commission has put over \$1M into the corridor. An opening-window museum can ride a once-a-century tourism spotlight [S39].

PLANNING IMPLICATION

The relocation converts this study's hardest gate from "assemble a credible collection" to "execute a sound agreement." Validation must now prioritize: legal title and loan terms for the collection; a condition, insurance and transport plan (artifact-grade logistics from Bonne Terre); the operating relationship with the founding organization and Mr. Mullins; and continuity of the Grissom family association, one of the museum's most marketable assets.

FLAG: TREAT AS PENDING, NOT DONE

At the announcement's publication, the museum itself had not yet formally confirmed the agreement, no site was final, and the \$40M valuation is repeated from sponsors rather than independently appraised. Nothing in this study's base case depends on the valuation being exact; everything in the validation plan depends on the agreement being executed and documented [S9].

04 Market and audience feasibility

4.1 · CATCHMENT SIZE: VINTAGE 2025

A transparent 21-county approximation of the proposed 70–75-mile service area contains **1,527,138 residents** in the Census Bureau's Vintage 2025 estimates, up 7.3% since 2020. A more conservative 19-county cut (dropping the outermost Labette KS and Mayes OK) still counts 1,467,037. Either figure independently validates the sponsor's "about 1.5 million" premise, excluding Tulsa County entirely [S1]. Growth is strikingly bimodal: the Arkansas counties grew +3.5% to +17.0% in five years while the Kansas counties were flat to declining, the market's center of gravity is moving toward Neosho's south [S1].

A four-state catchment, weighted south

2025 population by state within the 21-county ring · population is opportunity, not an attendance guarantee

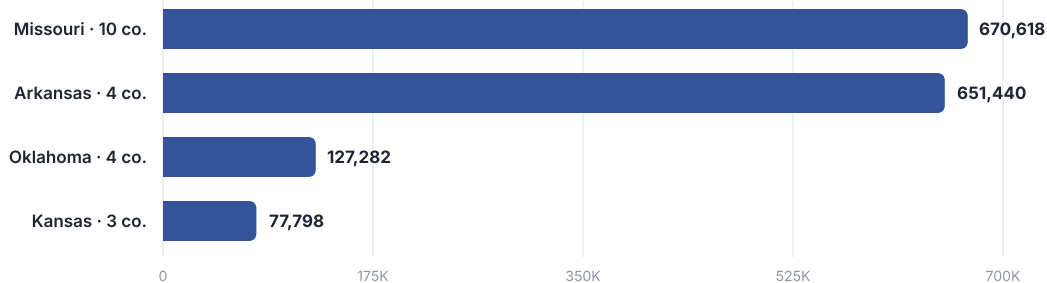


Figure 1. Vintage 2025 population by state within the 21-county catchment. County ring approximates, but does not replace, a travel-time model. Source: S1.

RING	POPULATION 2025	CHANGE 2020 → 25	ANCHOR COUNTIES
Core ~30 minutes (Newton, Jasper, McDonald, Ottawa OK, Cherokee KS)	263,226	+3.5%	Joplin MSA 208,796; Neosho city 14,078 (+10.8%)
21-county / 70–75-mile ring	1,527,138	+7.3%	Greene MO 309,286 · Benton AR 332,554 · Washington AR 271,213
Conservative 19-county cut	1,467,037	+7.5%	Drops Labette KS, Mayes OK

4.2 · THE NORTHWEST ARKANSAS ENGINE: STATED CORRECTLY

The NWA metro (Benton, Washington, Madison counties) reached **622,177 residents in July 2025**, adding ~40 people per day and ranking as the **9th-fastest-growing metro in the nation**; its first top-10 finish this decade [S1, S5]. The Northwest Arkansas Regional Planning Commission's February 2026 tables project Benton + Washington counties growing from 587,750 (2024) to **1,024,464 by 2050 (+74%)**, with Benton County alone up 88% [S4]. The defensible formulation for board and funder documents: *"Northwest Arkansas has doubled since 2000 and is projected to approach one million people by 2050."* Bentonville sits 46 road miles from Neosho's square, closer than Springfield, and the corridor between them is the fastest-appreciating audience this museum will ever have [S1].

GUARDRAIL

Population is a denominator, not a forecast. The base case captures 1.9% of the 21-county ring as annual visits (2.7% with the planetarium), plausible rates that still require execution on schools, families and tourism, tested segment by segment in Section 5.

4.3 · THE K-12 AND HOME-SCHOOL MARKET: LARGER THAN ASSUMED

The 21-county ring contains an estimated **208,420 public-school students** plus **30,256 in the ACS's combined private and home-school category**, ages 5–17 (ACS 2024 five-year data, table B14003), roughly two-thirds more than the sponsor's original 125,000-student premise [S3]. An important methodological note this edition corrects: the ACS questionnaire folds home school into its private category, so home-schoolers must never be added on top of it. State registries confirm the home-school segment inside that combined figure is substantial and organized: Arkansas registers 32,767 statewide with **Benton County first in the state at 4,161**, and SLU's PRiME Center estimates Missouri home-schooling has doubled since 2019 [S6–S8]. The student ticket, pre-booked weekday home-school cohorts and bus-distance geography line up squarely against this base.

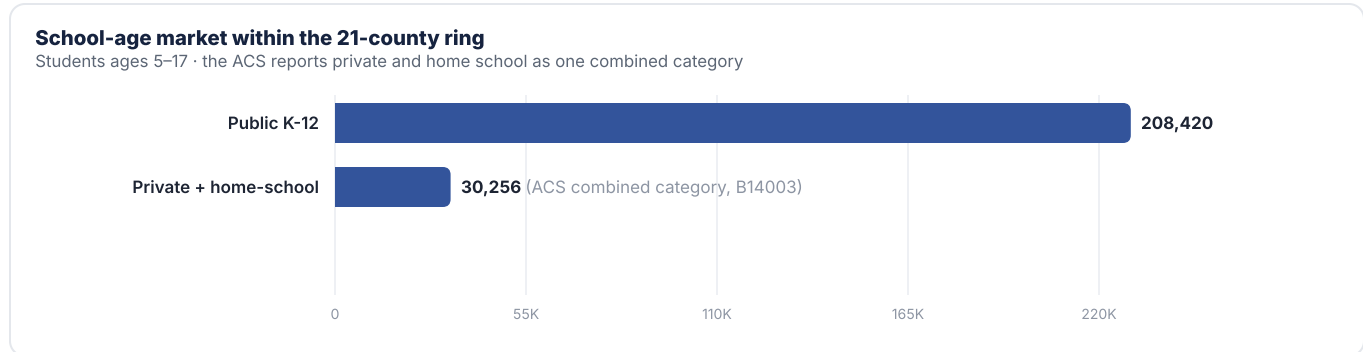


Figure 2. School-age market, 21-county ring. Sources: S3, S6–S8. The base case books 8,500 K-12 visits, 4.1% of the public-school base alone.

4.4 · COLLEGES AND UNIVERSITIES: A 103,000-STUDENT CORRIDOR

INSTITUTION	FALL 2025 ENROLLMENT	NOTE
University of Arkansas, Fayetteville	34,175	Record, fifth straight year of growth
Missouri State University, Springfield	25,238	Record; 7,778 dual-enrollment students
Ozarks Technical CC, Springfield	10,779	Record; feeds from 400+ high schools
NorthWest Arkansas CC, Bentonville	~9,000	Strong dual-credit growth
Pittsburg State University	5,803	Third straight year of growth; Kelce Planetarium partner candidate
Crowder College, Neosho	4,337	+9.6%, the museum's natural academic partner, in town
Missouri Southern State U., Joplin	~4,150	+2% YoY; headcount from IPEDS 2024
Evangel · JBU · Drury · NEO A&M	9,512	2,741 · 2,536 · 2,273 · 1,962
Corridor total	~103,000	Treat as partnership capacity, not a capture denominator

Sources: Fall 2025 institutional enrollment releases, compiled [S2]. The near-term college opportunity is programmatic, guest lectures, astronomy nights, engineering showcases, internships, teacher preparation, co-produced exhibits, Crowder dual-credit tie-ins, with \$8 student admission (valid college ID) as the on-ramp.

4.5 · VISITOR-MARKET CONTEXT, THE FOUR-STATE COMPETITIVE SET, VERIFIED 2026

The proposed museum sits between large attractions in Springfield, Northwest Arkansas and Tulsa. These institutions confirm regional appetite for interactive learning; none is a direct comparable, and two of the closest analogues carry cautionary lessons.

INSTITUTION	DISTANCE	SCALE	ADULT PRICE	CURRENT EVIDENCE (2025–26)
Space Museum & Grissom Center , Bonne Terre MO	relocating	~5,000 sf Grissom Ctr + orig. bldg	\$15 / \$10 student	3 public days/week; FY2023 revenue \$68,219, the collection outgrew its host town [S12, S13]
Discovery Center of Springfield	77 mi	60,000 sf	\$17 / \$12 child	FY2023 revenue \$2.63M; no planetarium [S13, S24]
Scott Family Amazeum, Bentonville	46 mi	52,000 sf	\$17 all ages	245,000+ guests latest year; \$25M expansion campaign launched Jan 2025 [S17]
Tulsa Air & Space Museum + Planetarium	95 mi	19,000 sf exhibits	\$11; \$20 combo	Nearly closed in 2023 at Neosho's proposed scale; recovered to \$1.28M revenue FY2023; 30,000+ students/yr [S13, S21]
Cosmosphere, Hutchinson KS	280 mi	105,000 sf	\$18.25; \$32.50 pass	Smithsonian affiliate; \$5.4M revenue FY2023; dome + planetarium priced as add-ons [S13, S22]
Stafford Air & Space, Weatherford OK	250 mi	63,000→75,000 sf	\$14 / \$8 student	Smithsonian affiliate; expansion completing spring 2026; small-town (pop. ~12k) space museum that works [S23]
Exploration Place, Wichita	200 mi	100,000 sf	\$21	Record 409,975 visitors FY2023-24; dome theater included in admission [S18]
George Washington Carver Nat'l Monument, Diamond MO	5 mi	NPS site	Free	31,062 visitors in 2025 (39,081 in 2024; 49,553 in 2019), the local reality check [S19]
Crystal Bridges, Bentonville	46 mi	+114,000 sf June 2026	Free (endowed)	Record ~785,000 (2023); expansion lifts the whole corridor's cultural tourism [S25]

THREE LESSONS THE COMPARABLES TEACH

Bonne Terre is a floor, not a multiplier. Its ~3,000 sponsor-reported annual visitors reflect three open days, a micro budget and a town of 7,000. Neosho's six-day schedule, 1.53M catchment and \$14/\$8 pricing change every one of those variables, which is precisely why this study builds attendance from segments instead of scaling Bonne Terre. **Tulsa is the scale warning.** The nearest air/space museum nearly failed in 2023 at 19,000 exhibit square feet, Neosho's proposed size, before recovering; durable operating support, not square footage, made the difference. **Stafford is the small-town proof.** A Smithsonian-affiliated space museum thrives in an Oklahoma town smaller than Neosho, on the strength of collection authenticity, interstate access and relentless expansion [S13, S21, S23].

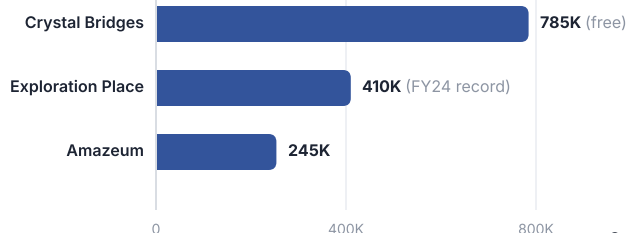
Sector context reinforces conservatism: ASTC's 2024 respondent medians, 167,500 onsite visits, \$14–15 adult admission, 30,000 sf of interior exhibit space, describe institutions larger and longer-established than this project; and the AAM's November 2025 national survey found 55% of museums below 2019 attendance, 34% with cancelled government grants, and the sector's worst financial outlook since the pandemic [S15, S16]. The forecast that follows deliberately sits far below sector medians.

4.6 · WHAT COMPARABLE ATTENDANCE ACTUALLY LOOKS LIKE

Two different leagues, and where Neosho's forecast sits

Latest verifiable annual attendance · note the different scales in each panel

REGIONAL SCIENCE & ART CENTERS



SMALL SPACE & HERITAGE MUSEUMS

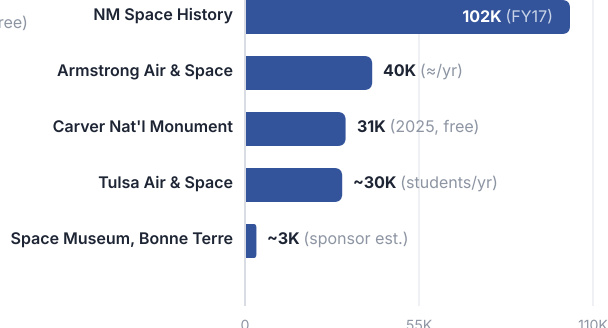


Figure 3. Left panel: large regional centers (scale to 800K). Right panel: the museum's true peer set (scale to 110K). NM Space History figure is FY2017, the latest published; Armstrong is the museum's own current "approximately 40,000 per year." Sources: S17–S21, S25.

4.7 · TRIANGULATING THE PLAUSIBLE BAND

- Visits per square foot.** The sponsor's museum planner benchmarks this on **total building gross square feet**, and its own comparables set puts small space museums in a band of **1.25 to 2.35 annual visits per gross square foot**: Cernan 1.25, New Mexico Museum of Space History 1.28, Cosmosphere 1.43, Stafford 1.59, Wings Over the Rockies 1.60, Coca Cola Space Science Center 1.90, Armstrong 2.35. Against the confirmed campus of 15,700 gross square feet, the museum-only base of **29,000 is 1.85 visits per gross square foot**, between Coca Cola and Stafford and below Armstrong. With the 3,000-square-foot dome addition, **41,000 on 18,700 gross is 2.19**, inside the band. The low case of 17,800 is 1.13, below the band and therefore genuinely conservative. Cross-checked on gallery area, 29,000 visits against 4,700 net gallery square feet is 5.7 per square foot, between Cernan (3.66) and the U.S. Space & Rocket Center (7.22) and alongside Coca Cola (5.33) [S17, S18, S21].
- The Armstrong ceiling.** A nationally famous astronaut-hometown museum on an interstate, open seven days, draws ~40,000 in 17,000 gross square feet, 2.35 visits per square foot, the highest ratio in the comparables set. Neosho's high cases are set at that ratio and no higher: 36,000 museum-only and 43,000 with the dome. The ceiling is now physical rather than commercial, which is a better problem than the reverse, and it is the strongest single argument for building the dome at opening: 3,000 additional gross square feet raise the capacity ceiling by roughly 7,000 annual visits [S20].
- The Carver reality check.** A free, professionally run NPS site five miles away draws 31,000–39,000. A paid museum beating a free national monument requires the school engine and rotating program this study specifies; it will not happen by default [S19].
- Population capture.** 29,000 visits = 1.9% of the 21-county ring; 41,000 = 2.7%. Both sit comfortably below the implied capture of the region's successful institutions.

05 Defensible attendance forecast

The forecast is a segment build-up, not a population-percentage shortcut. Five mutually exclusive audience segments are estimated separately, then tested against total catchment capture, building scale, pricing, program capacity and the regional comparables of Section 4. The base museum-only case captures 1.9% of the 21-county population as annual visits; the planetarium case captures 2.7%. Those rates are plausible but still require execution, above all on schools.

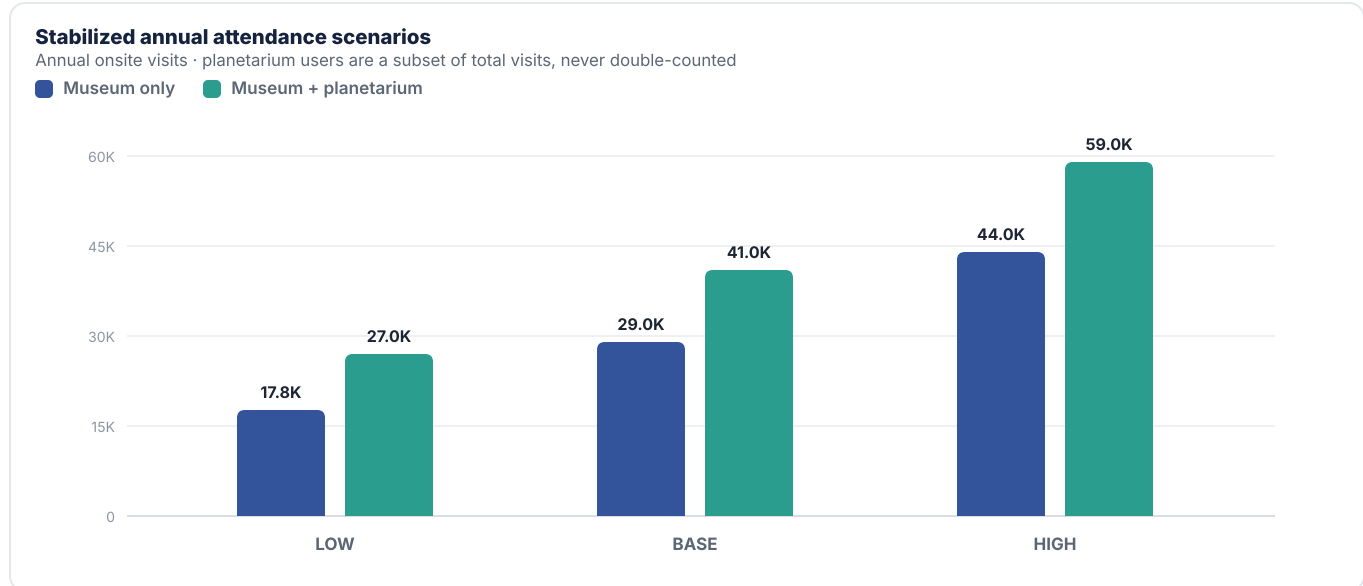


Figure 4. Stabilized annual attendance scenarios. Inputs and formulas live in the companion workbook; the base cases are budget scenarios, not promises.

AUDIENCE SEGMENT	MUSEUM LOW	MUSEUM BASE	MUSEUM HIGH	DOMES LOW	DOMES BASE	DOMES HIGH
K-12 field trips	5,000	8,500	11,000	7,000	11,000	12,000
College / scout / youth	1,000	1,800	2,400	2,000	3,000	3,300
Independent residents	8,000	12,500	14,500	11,000	16,000	16,800
Destination / tourist / festivals	3,000	5,000	6,500	5,000	8,000	8,200
Private events / outreach-linked	800	1,200	1,600	2,000	3,000	2,700
TOTAL	17,800	29,000	36,000	27,000	41,000	43,000

Segment basis: sponsor inputs [S45]; Census S1–S3; comparables S17–S23; author model. K-12 base = 4.1% of the 21-county public-school population (5.3% in the dome case), rates that must be pre-sold through district letters of intent, not assumed. **The high cases are capacity ceilings, not demand ceilings.** They are set at 2.32 annual visits per gross building square foot, the top of the small-museum band in the comparables set (Armstrong, 2.35), applied to the confirmed 15,700-square-foot campus and to 18,700 gross with the dome addition. Earlier editions carried 44,000 and 59,000 against a 24,650-square-foot concept program that no longer exists.

5.1 · OPENING RAMP: PLAN FOR THE NOVELTY CURVE

YEAR	MUSEUM-ONLY BASE	MUSEUM + PLANETARIUM BASE	INTERPRETATION
Opening year	31,900	45,100	10% opening curiosity premium; Route 66 centennial spillover if opening lands in the window
Year 2	29,000	41,000	Novelty normalizes; stabilized base
Year 3	29,870	43,050	Partnership and program maturation
Year 4	30,885	45,100	Requires disciplined refresh and retention
Year 5	31,900	47,150	Planetarium case assumes stronger repeat cadence

ATTENDANCE GUARDRAIL

Do not use 29,000 or 41,000 as a promise. Use them as base operating scenarios. Board decisions should survive the low cases of 17,800 and 27,000 visits. The high cases should not support debt or fixed staffing until two full operating years establish demand. And the AAM's 2025 finding, a majority of U.S. museums still below 2019 attendance, is a sector-wide caution against assuming the ramp climbs on its own [S16].

5.2 · WHAT SIX DAYS A WEEK DOES, AND DOES NOT, DO

Neosho's six-day schedule removes the single largest access barrier in the Bonne Terre model, whose three public days cap school and family availability. But doubling open days does not double demand; it doubles **capacity to say yes**, to a Tuesday school booking, a Saturday family, a Thursday home-school cohort. The forecast monetizes the schedule through the segment mix, not through a blanket multiplier. Six days also triggers real staffing consequences, priced in the companion study, and comfortably clears the IMLS eligibility threshold of 120 public days per year [S40].

5.3 · HOW 13,500 SQUARE FEET DRIVES ATTENDANCE

Square footage does not create attendance; it creates **dwelt time, capacity and content credibility**. The confirmed main building carries 4,700 net square feet of gallery inside 13,500 gross (Section 7.1). That is 1.65 times the 2,845 net square feet the collection occupies in Bonne Terre today, and it reaches 94 percent of the 5,000-net-square-foot gallery target the sponsor's museum planner sets as the threshold for attracting the visitation the museum should aspire to. It holds a 90-minute to two-hour visit, enough for a 60-minute drive to be rational for a family and for a teacher to justify a field-trip morning; with the dome, the visit extends past two hours and the field-trip day becomes whole. It devotes 1,000 to 1,500 square feet to rotation, the repeat-visit engine of Section 11, without cannibalizing the core galleries.

Neosho opens well below the ASTC 2024 median of 30,000 interior square feet, which is the correct side of the line for a first building: the forecast, not the architecture, should carry the ambition [S15]. It also opens larger than Cernan (12,000 gross, 15,000 visits) and just under Armstrong (17,000 gross, 40,000 visits), the two closest analogues in the comparables set. The building is not the constraint on whether this museum works. It is the constraint on how far it can grow before it needs more room, and that is a problem to have in year eight, not year one.

06 Museum concept and exhibit program

A strong museum is not a warehouse of space artifacts. It is a repeatable learning system combining authentic objects, human stories, live interpretation, hands-on investigation and a rotating window onto current missions. The relocating collection supplies what money can barely buy, flown and training hardware with provenance, and the concept should answer one memorable question: **how do people from this region understand, build, navigate and participate in humanity's movement into space?**

EXHIBIT ZONE	NET SF	CORE VISITOR PROMISE	RENEWAL CADENCE
Launch, flight and the space race	1,809	The Grissom Mercury suit, Gemini 3 flown material, John Young's Gemini suit, iconic objects, propulsion, risk and human stories	Stable core; annual artifact/story swaps from the relocated collection
Spacetown, U.S.A., Rocketdyne in Neosho	750	The Ozarks workers who built Apollo-era engines, 1956–68; oral histories, plant artifacts, regional aerospace today	University/community co-curation; ties to Camp Crowder heritage
Living and working in space	700	Microgravity, life support, medicine, communications; VR spacewalk and shuttle simulator from the collection	Program and media refresh twice yearly
Moon-to-Mars design lab	500	Hands-on engineering and mission decisions keyed to Artemis-era missions	Challenges rotate quarterly
Rotating special exhibition	1,000	A new reason to return	One major + two light changes annually
Visible collections / flexible interactive	300	Behind-the-scenes care and close looking	Object rotations every 3–6 months
TOTAL NET GALLERY	4,700	Balanced artifact + interactive experience, sized to the confirmed building (Section 7.1)	At least 20% visibly renewed each year

The program is sized to the confirmed 13,500-gross-square-foot building. It is a curated museum rather than a comprehensive one, and that is the correct first building for this collection: the flagship objects lead, the Spacetown story is given a gallery of its own, and depth is bought with rotation rather than with floor area. The 1,000-square-foot rotating zone is 20 percent of the gallery program, inside the 1,000 to 1,500 square feet the sponsor's museum planner recommends, and it is the most important repeat-visitation investment in the museum-only option: it prevents the permanent collection from carrying the full burden of novelty, and it creates sponsor inventory, school rebooking reasons and media moments. The Spacetown gallery is the concept's signature move: it is the one gallery no competitor can replicate, the natural home for local oral history partnerships with Crowder College and the Newton County Historical Society, and the strongest possible answer to a funder's "why Neosho?" question [S11].

DESIGN PRINCIPLE

Design galleries around the documented collection, not around renderings. The relocation agreement's inventory, legal title, loan terms, condition, conservation needs, must precede schematic design, so the museum opens with the objects it advertises (Section 9).

07 Space, site and visitor-flow feasibility

7.1 · THE BUILDING CONSTRAINT, RESOLVED

The area ambiguity earlier editions of this study flagged as the project's highest-consequence unresolved definition is now closed. The sponsor has confirmed the campus, as measured: **a main building of 13,500 gross square feet and a second building of 2,200 gross square feet**, 15,700 gross square feet in all, on a 1.12-acre assembled site. **No further wing is available.** A planetarium can be added as an exterior addition, and nothing larger. The resolution vindicates this study's own rent test, which inferred a building "near 15,000 gross square feet" from the \$180,000 annual lease (Section 7.2), and it retires the 24,650-square-foot concept program.

The second building is the answer to the storage problem. At roughly 1,700 net square feet it houses collections storage, conservation, quarantine and the balance of administration, fifty feet from the main entrance and on the same campus, so it carries none of the redundant security and operating costs that make a genuinely remote facility a poor idea. Fitted with high-density mobile shelving it holds what the 2,626 net square feet of static shelving holds in Bonne Terre today.

That releases the main building to be the museum. The program below allocates its 13,500 gross square feet at a gross-to-net ratio of **1.305**, which is discussed and defended immediately after the table.

PROGRAM COMPONENT	NET SF	FEASIBILITY NOTE
Galleries, permanent and changing	4,700	1,000–1,500 of it changing exhibition, the driver of repeat visitation; 94 percent of the 5,000 net-sf gallery target the sponsor's planner sets, and 1.65 times the 2,845 net sf the collection occupies in Bonne Terre today
Entry and lobby	823	Must absorb bus groups without blocking public flow
Gift shop / museum store	375	Retail net contribution line in the financial model
Cafe / snack bar and catering kitchen	889	Dwell-time extension; supports the two-to-three-hour visit
Small meeting / multipurpose room	170	Reduced from four classrooms; school programming runs in the galleries and the annex
Gallery and installation prep	225	On-site staging only; conservation and quarantine sit in the annex
Chair and table storage	425	Rentals and special events
Staff office core	1,000	77 net square feet per position at the adopted 13-FTE opening staff, a normal open-plan allowance. The sponsor's planner sizes offices at 1,905 net sf, but against a 29-position Option One staffing plan, not this one; the balance of administration sits in the second building
Restrooms, men, ladies and family	560	Sized to bus-group peaks
Janitor, supplies, security control	327	High-value collection on public display
Loading and receiving, interior	400	Artifact-grade access; large-object routes must be verified in test-fit
Mechanical / electrical	450	Humidity control is the binding requirement
TOTAL NET, MAIN BUILDING	10,345	13,500 gross at the 1.305 factor
Second building, collections annex	2,200 gross	Roughly 1,700 net. Collections storage on high-density mobile shelving, plus conservation, quarantine and the balance of administration. Requires climate control, security envelope and a loading approach; priced in Business Study Section 7
Planetarium, exterior addition	+3,000 gross	A 40-foot dome seating roughly 100 , with queue, control, egress and support (Section 8). The dome floor itself is 1,257 square feet; the enclosed addition runs 2.2 to 2.5 times that. Gross footprint to be confirmed in test-fit
CAMPUS TOTAL WITH THE DOME	18,700 gross	13,500 main + 2,200 second + 3,000 planetarium addition

7.1A · GROSS VERSUS NET, AND WHY THE RATIO DECIDES THE GALLERY

Every building has two square-footage numbers, and the gap between them is the single largest remaining uncertainty in this study. **Gross** is the whole building measured to the outside of the walls: 13,500. **Net** is only the usable floor inside the rooms, everything you can furnish. The difference is space you own but cannot use: wall thickness, corridors, stairwells, structural columns, mechanical and electrical chases. **Gross divided by net is the ratio**, and it simply states how much of the building you get to use. At 1.24 that is 81 percent; at 1.305, 77 percent; at 1.49, 67 percent. It is the same arithmetic as a house listed at 2,000 square feet whose rooms add up to 1,650.

The ratio runs both ways, and the direction matters. **Gross divided by the ratio answers "how much room is inside the building I have."** **Net multiplied by the ratio answers "how large a building must I construct."** The sponsor's museum planner used the second: an 11,207-net-square-foot room list multiplied by 1.49 gives 16,698 gross, which exceeds 13,500, and from that arithmetic follows the conclusion that the building is insufficient and a second structure is required.

Two things weigh against that 1.49. First, it is a factor for *sizing new construction*, where the walls and corridors have not been drawn yet and a safe allowance must be carried. An existing building's ratio was fixed the day it was built; the only way to know it is to measure the rooms. Second, the same report is not consistent about the figure: page 14 states that "MGMP uses 1.59 times the net building square footage," while both of its space programs are built at 1.49 (Review, Finding 14).

The report also supplies the better comparator, without noticing it. Page 14 gives the museum's current Bonne Terre building as **7,390 gross against 5,960 usable net**. That is a measured ratio of **1.24**, for a real, older, adapted building housing this exact collection. It is a plausible figure for a former church or hall, because most of the floor area is one large open room carrying very little wall and corridor.

GROSS-TO-NET RATIO	PLANNER'S FACTOR 1.49	THIS STUDY 1.305	BONNE TERRE MEASURED 1.24
Where the figure comes from	Assumed, for new construction	Midpoint, pending measurement	Measured, 7,390 ÷ 5,960
Share of the building that is usable	67%	77%	81%
Net square feet inside 13,500 gross	9,060	10,345	10,887
Less support program (this section)	5,644	5,644	5,644
RESULTING GALLERY PROGRAM	3,416	4,700	5,243
Against Bonne Terre's 2,845 nsf of gallery today	1.20x	1.65x	1.84x
Against the planner's 5,000 nsf gallery target	68%	94%	105%

This study adopts **1.305**: the Canopy building is a former church like Bonne Terre and should run efficiently, but it has not been measured, so the study does not claim Bonne Terre's figure outright. **The swing is 1,827 net square feet of gallery**, which is 64 percent of everything the collection occupies in Bonne Terre today, and it is larger than the swing between any two of the building-size estimates this project has worked from. Note also that the museum grows in every column: even at the planner's own pessimistic 1.49, the gallery program is 1.2 times what the collection occupies now.

This is closed by measurement, not by study. Someone walks both buildings with a laser measure, records the inside dimensions of every room, adds them up and divides. Half a day of work. The planetarium vendor's technician is already scheduled to photograph the buildings and produce drawings, and adding measured room areas to that visit costs nothing. It is carried as a named launch-phase deliverable (Section 13) and it should be the first item executed, because every downstream figure in this section depends on it.

Two configurations were tested and rejected. Holding collections storage and the full 1,905 net square feet of staff office program inside the main building leaves **1,170 net square feet** of gallery, less than half of what the collection occupies in Bonne Terre today. Moving storage to the second building but keeping the full 1,905-square-foot office program in the main building leaves **3,796**. Only the configuration above reaches the gallery target. Using the second building for collections is therefore not a convenience; it is the condition on which the campus works, and its fit-out is priced as a named capital line rather than deferred.

The new building was never necessary, and the answer was already on the site.

The sponsor's museum planner concluded that the Canopy building "is insufficient" and that a combined scheme of roughly 30,000 square feet "appears to be the sole option." The entire case for a new 15,503-square-foot structure rests on a collections-storage shortfall the planner puts at **1,163 net square feet**. The second building on the campus is 2,200 gross square feet, roughly 1,700 net, and covers that shortfall with margin. The planner saw it and wrote: "we do not have any information about this building: footprint size, building height, total square footage, number of floors, or current use." A building fifty feet from the front door was left unmeasured, and a new one recommended in its place.

7.2 · DOWNTOWN SITE TESTS

A candidate building has emerged: a downtown structure owned by NABIFI, on lease terms under negotiation in which **the first two years of lease payments are forgiven, followed by \$15,000 a month (\$180,000 a year), with the landlord carrying property taxes, building insurance and general maintenance and repairs** [S45]. If that rent reflects the market's roughly \$1-per-square-foot norm, it implies a building near 15,000 gross square feet. The sponsor has since confirmed a 15,700-square-foot campus, within five percent of that inference and well below the retired 24,650-square-foot concept program. The test-fit question is closed: the program compresses and the second building on the campus absorbs collections storage (Section 7.1). Downtown delivers walkable pairing with Big Spring Park, the historic district (with potential historic tax-credit value), festival foot traffic, the Fall Festival alone brings ~18,000 people to the square each October, and civic visibility. It also concentrates the risks that kill adaptive-reuse museum budgets [S42]:

- **Arrival and buses.** A protected bus drop, staging for at least two school groups, and a route that does not conflict with square parking or downtown deliveries.
- **Parking.** Count peak school, weekend, evening and festival demand separately; document shared-parking agreements before design.
- **Building systems.** Test roof, structure, floor loading (flown artifacts and simulators are heavy), fire separation, egress, power, HVAC, humidity control, security and loading before accepting a donated or historic shell.
- **Collections environment.** Separate gallery, storage and prep conditions; objects on loan, including any NASA-loaned material, may impose stricter light, humidity and security requirements.
- **Visitor flow.** Groups must orient, store coats and bags, use restrooms and enter galleries without stopping independent visitors.
- **Future dome.** Reserve structural volume, utility capacity, acoustic separation, queue space and an independent after-hours path even if Phase 1 omits the planetarium.

BENCHMARK

ASTC's 2024 U.S. respondent median was about 30,000 square feet of interior exhibit space, larger than the proposed museum. That comparison reinforces a sub-median attendance forecast and warns against treating square footage as a demand generator. Size enables content and dwell time; it does not create attendance by itself [S15].

08 Planetarium option: uniqueness, sizing and gates

A planetarium is more than a projection system. It is a scheduled theater, a curriculum platform, an evening venue and a technology lifecycle. Its strongest justification in Neosho is not additional square footage; it is the ability to change the museum's program rapidly without rebuilding exhibits, and a genuinely open competitive lane.

8.1 · THE UNIQUENESS CASE, VERIFIED

- The only fixed dome within roughly 60 miles is Pittsburg State's ~50-seat academic Kelce Planetarium, single-projector, \$2–3 admission, sporadic public schedule [S32].
- Springfield's Discovery Center has **no planetarium**; the University of Arkansas operates only an inflatable outreach dome; Missouri's four permanent planetariums are in Kansas City, St. Joseph, Columbia and St. Louis, none in the southwest quadrant [S24, S26].
- The nearest museum-grade domes are Tulsa (95 mi), Union Station Kansas City, St. Louis and OKC's new Love's Planetarium (2024), all 95+ miles away [S21, S27].
- Small-venue benchmarks confirm school-driven throughput at exactly this scale: Madison's 60-seat district planetarium serves ~20,000 visitors a year; Mankato's school dome ~15,000 [S31].

PROS	CONS / EXPOSURE
Fast content renewal: live sky, current missions, seasonal astronomy, custom local programs	Incremental capital planning range of \$6.5–\$9.5M; UAF's as-built 2026 benchmark is \$9.5M total project cost (\$6.65M construction contract, \$1.0M FF&E, plus soft and other costs) for a 65-seat, 36-foot dome [S26]
Clear differentiation from artifact-only museums and a strong school-group scheduling anchor	Specialist operators, show licensing, maintenance, calibration, acoustic and HVAC demands
Premium add-on, bundle, member benefit, after-hours rental and sponsor inventory	Technology lifecycle: projector systems refresh every 10–15 years at \$250K–\$500K (Bellevue \$450K; Toledo \$320K; Wyoming \$250K) [S28]
Weatherproof capacity and precise control over program length and throughput	Fixed showtimes can create queues, missed starts and group-flow bottlenecks
University partnerships, live presenters, data visualization and public-science events	Sensory, mobility, hearing, captioning and motion-sickness accommodations must be designed in
A reason to return monthly rather than annually	Not all dome users are incremental museum visitors; attachment is not the same as new demand, and no published industry attachment-rate data exists to lean on [S30]

THE FIRST-MOVER CLOCK

The NWA Space and Science Center in Rogers, organized, funded enough to open an office in April 2026, and located in the region's richest county, intends to build exactly this kind of facility. Neosho's dome decision is therefore not only "can we afford it?" but "is the differentiation worth defending before someone else builds it 45 minutes south?" The gates below keep the decision honest either way [S33].

8.2 · WHAT PLANETARIUM THEATERS ACTUALLY COST: 2024–2026 DATAPPOINTS

Recent planetarium capital projects vs system-only refreshes

Published project costs, 2023–2026 · teal = the comparable at Neosho's exact spec

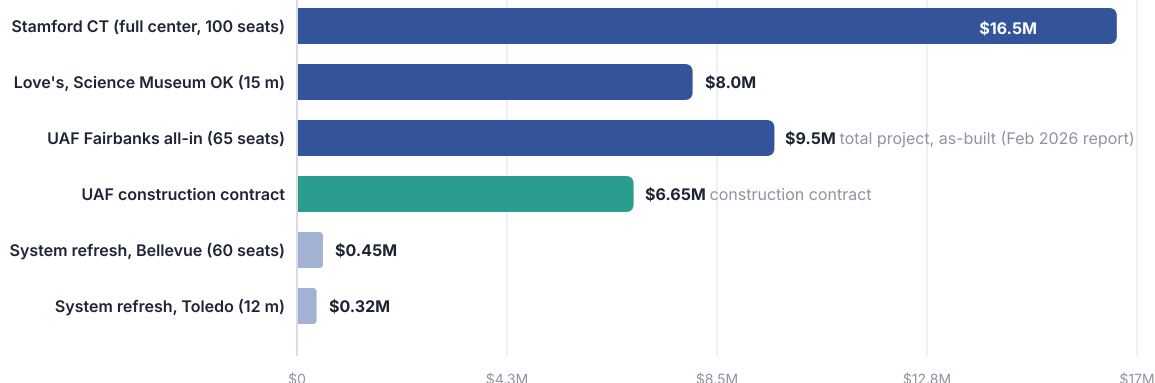


Figure 5. Capital datapoints: Stamford Museum planetarium & astronomy center 2025; Love's Planetarium 2024 (hybrid optical-digital, renovated shell, \$3.5M naming gift); University of Alaska Fairbanks addition, opened April 2026, the direct comp for Neosho's spec at \$9.5M total project cost per UAF's February 2026 construction report (\$6.652M construction contract, \$1.001M FF&E). The earlier \$5.6M figure was the pre-bid estimate. Refresh rows show why a technology reserve is mandatory. Sources: S26–S28.

Recommended planning size. A 60–70-seat, ~10 m forward-facing full-dome theater is enough for one bus group plus chaperones while limiting capital and empty-seat optics. At 41,000 total base-case visits, a 70% combo-uptake rate produces 28,700 dome users. At five shows per day across 300 days, average attendance is ~19 people per show, 27% of seat capacity, leaving school and event headroom without supporting a larger dome. Show licensing is a modest line: perpetual educational licenses run ~\$7,000 per show at this seat tier, or ~\$1,400 per year, a rotating library of six to ten shows costs \$5K–\$15K annually [S29]. A ~\$30–50K portable dome, run as school outreach from year one, is the low-risk bridge that builds the booking network before the fixed theater opens [S26]. Vendor engagement has begun: Seiler Instrument (ZEISS) has quoted a 30–40 ft dome at \$0.9–1.6M optical-mechanical, \$0.95–2.5M digital, \$1.5–2.5M true hybrid, with Seiler custom systems from \$50–275K, and will scan two candidate buildings on a site visit by the end of October 2026 [S46].

PLANETARIUM GATE	OPENING-DAY REQUIREMENT
Capital	100% of incremental capital identified; no operating debt assigned to the dome
Demand	School/group letters supporting at least 11,000 annual K-12 visits and tested family willingness to pay
Operating support	Three years of incremental operating commitments plus an annual technology reserve (~\$35–50K against the 10–15-year refresh)
Scope	A 40-foot dome seating roughly 100 in an exterior addition of roughly 3,000 gross sf; additive only, does not displace the 4,700 net sf gallery program. One hundred seats clears a two-bus school booking in a single show, which a 30-foot dome at 55 to 60 seats cannot
Procurement	In progress: Seiler/ZEISS ranges received, site visit by end of Oct 2026 [S46]; obtain at least two competing ROMs (Cosm/E&S, Sky-Skan, RSA Cosmos-class) incl. content licenses, support and replacement cycle
Programming	Twelve-month calendar, live-presenter capacity and accessibility plan before equipment selection

09 Collections, governance and professional standards

Museum feasibility turns on what the institution will hold in public trust. The relocation changes the question from "can a collection be assembled?" to "can the transfer be executed to professional standards?" Before design, the sponsor and the relocating organization should complete a collection-by-collection inventory covering legal title, provenance, donor restrictions, NASA loan status (flown artifacts are frequently federal property on loan), condition, dimensions, insurance value, intellectual-property rights, hazardous materials, conservation needs, light and humidity limits, mounts, security and transport requirements.

CORE DOCUMENT / CONTROL	WHY IT IS REQUIRED BEFORE OPENING
Mission and institutional plan	Defines what the museum does, and what it declines
Relocation & collection agreement	Critical: ownership vs loan structure, term, insurance, transport, naming, the founding organization's ongoing role, and reversion terms if the project stalls
Scope of Collections	Controls acquisition boundaries and prevents unfunded accumulation
Collections Management Policy	Acquisition, loans, deaccession, access, care, ethics and authority
Emergency / disaster plan	People, collections, fire, water, power and continuity response
Code of ethics and conflicts policy	Donors, appraisals, collecting, sponsorship and board conduct
Security and environmental plan	Protects objects and strengthens lender/insurer confidence, a precondition of NASA and Smithsonian-affiliate loans
Interpretive and education plan	Connects mission, audiences, standards and measurable outcomes
Financial sustainability plan	Documents capital sources, reserves and recurring support

AAM treats collections as held in public trust and expects documentation, care and public access; its Core Documents Verification (mission, ethics, strategic plan, disaster plan, collections policy) is the correct first credentialing target for a young institution, full accreditation requires years of operating history. The NPS Museum Handbook provides detailed operational guidance for environment, storage, fire, security, emergency planning and records. IMLS eligibility requires nonprofit or public status, professional staff, tangible objects, care of those objects, and public exhibition at least 120 days a year, sequencing that matters for the grant strategy in the companion study [S40].

COLLECTION RED FLAG

Do not design galleries around promised artifacts until ownership, loan and transfer terms are documented. A compelling rendering built around unavailable objects is not feasibility; it is a future redesign cost. This warning now applies specifically to the relocation inventory: the ~\$40M valuation is unappraised, and any NASA-owned items in the collection move on NASA's terms, not the museum's [S9].

GOVERNANCE DESIGN

The receiving entity should be a Missouri 501(c)(3) with a board spanning finance, museum practice, education, development, legal, facilities, marketing, technology and community representation, including continuity seats that honor the founding organization and the Grissom family association. Management needs explicit authority limits for contracts, discounts, acquisitions, loans, capital changes and restricted funds.

10 Education, university and community partnerships

The education program should be sold as a repeatable service, not offered as passive access. Two targeted grade bands work when each has standards-aligned outcomes, teacher pre-work, a timed on-site experience and post-visit materials. Recommended initial bands are grades 6–8 and 10–12, with elementary and home-school modules added after operations stabilize. Planetarium-based instruction carries real research support, controlled studies show measurable gains for celestial-motion and spatial concepts when dome visits are integrated with classroom pre- and post-work, which belongs in every district pitch and grant narrative [S44].

PROGRAM	AUDIENCE	FORMAT	DEMAND EVIDENCE TO OBTAIN
Mission Control: systems and tradeoffs	Grades 6–8	90–120 min gallery + lab	District curriculum review and 15 pilot teachers
Design for Moon / Mars	Grades 10–12	Half-day engineering challenge	STEM/CTE commitments and capstone partners
Spacetown oral-history lab	Grades 8–12 + college	Interview, archive and exhibit-build practicum around Rocketdyne veterans and families	Crowder College and historical-society MOUs
College Space Forum	College / graduate	Evening lectures, labs, data jams	Faculty memoranda and annual calendar
Home-school mission days	Mixed ages	Pre-booked weekday cohorts	Association interviews and price test; the home-school segment sits inside the ACS's 30,256 combined private/home category, with Benton County the largest registered cluster in Arkansas [S6–S8]
Scout / youth badges	Organized youth	Weekend program + dome option	Council/leader package sales
Teacher institute	Educators	Summer professional development	University credit or district recognition

The business plan should require signed letters of intent rather than enthusiasm. For the museum-only base case, obtain commitments or well-documented pipelines totaling at least **8,500 K-12 annual visits**; for the planetarium case, the gate rises to at least **11,000**. With ~208,000 public-school students in the ring, those targets represent 4.1% and 5.3% penetration, demanding but real, provided bus logistics (fuel underwriting is a proven sponsor product), district approvals and teacher champions are worked as a sales pipeline with rebooking windows each spring.

THE CROWDER ADVANTAGE

Crowder College, 4,337 students, +9.6% in Fall 2025, in Neosho itself, is the museum's structural partner: dual-credit courses using museum labs, work-study docents and technicians, aerospace/CTE program tie-ins, and a standing pipeline of local families. A formal Crowder MOU belongs in the validation phase, not after opening.

11 Repeat visitation and content renewal

A space museum becomes stale quickly if it presents history as finished. Repeat visitation must be designed into the institution, budget and calendar. A planetarium makes refresh easier, but does not replace rotating exhibits, live interpretation and member programming.

- **Protect 3,000 net square feet for rotation.** One major annual exhibition plus two lighter rotations or object/story changes.
- **Run a mission-news layer.** Artemis-era launches, current missions and regional research updated monthly through low-cost media and presenter content, the museum should feel like a newsroom for space, not an archive.
- **Build a program ladder.** Free community nights → paid family programs → camps → memberships → donor experiences.
- **Create distinct calendars.** School year, summer tourism, university nights, home-school days, scout weekends, senior/veteran events, and festival tie-ins: the square's ~18,000-person Fall Festival is a pop-up marketing day the museum should own [S42].
- **Use CRM, not anecdotes.** Capture source, ZIP, household, school, campaign, first/repeat status, program, spend and consented email from day one.
- **Reward return.** Family membership, mission passport, member previews, bring-a-friend offers and school rebooking windows.

RETENTION KPI	YEAR-2 TARGET	WHY IT MATTERS
School rebooking	>55%	Reduces annual sales reset
Membership renewal	>60%	Tests household value beyond novelty
Known repeat households	>20% of household visits	Measures actual return rather than intent
Rotating-zone penetration	>70%	Confirms visitors notice the refresh investment
Planetarium load	35–50% peak-season average	Balances experience, capacity and economics
Email-to-visit conversion	Campaign-specific baseline	Directly connects marketing to attendance

WHY THIS SECTION CARRIES THE FORECAST

The difference between the low case (17,800) and the base case (29,000) is not awareness; it is return. Independent residents are the largest single segment at 12,500 base visits, and residents only return to what changes. Every dollar of rotating-exhibit and program budget is an attendance dollar, and the first budget line to defend in a downturn.

12 Marketing, tourism and highway signage

Marketing should prioritize bookable demand over broad awareness: school and group sales, local family acquisition and retention deserve more weight than general billboards. Highway signage improves wayfinding and credibility; it should not be modeled as if every passing vehicle were a prospect. The companion business study carries budgets and channel costs; the feasibility findings are these:

12.1 · SIGNAGE, THE ACTUAL MISSOURI RULES, VERIFIED

PROGRAM	ELIGIBILITY (7 CSR 10-17)	COST / IMPLICATION
Interstate logo signs (blue "Attraction" panels)	Museums qualify as cultural/educational sites; open ≥4 hrs/day, 5 days/week incl. one weekend day; ≥10 parking spaces; public restrooms; within 15 miles of the interchange	\$1,000/year per direction at Neosho's I-49/US-60 interchange (its ~21,167 AADT sits in the sub-30,000 fee tier) [S34, S35]
TODS (tourist-oriented directional signs)	Within 15 miles of the state route; minimum 2,000 annual visitors , the museum clears this in month one of any scenario	Fees quoted by Missouri Logos (contractor); local-government consent where signs route through city streets [S34]
Freeway "traffic generator" supplemental signs	Requires 200,000 annual visitors (rural threshold)	Not attainable at this scale, exclude from planning [S34]
Billboards, I-49 / I-44	Zoned/unzoned commercial-industrial only; 1,400-ft same-side spacing; permits \$200 + \$100 biennial	Joplin-market bulletins lease at ~\$2,500–\$4,500 per four weeks [S34]

12.2 · THE TRAFFIC AND TOURISM FRAME

- **I-49 at Neosho carries ~21,000 vehicles/day, a third of them trucks.** The net passenger stream (~14,000/day) supports wayfinding and awareness, not a conversion model. I-44 at Joplin runs 36,000–45,000; the corridor explodes to 94,000–108,000 at Bentonville/Rogers, which is where paid awareness should aim [S35].
- **Branson is an itinerary opportunity, not a base assumption.** Branson drew a record 10.29 million visitors in 2023 (roughly flat 2024), 67.7% of them from within 300 miles, a share that includes every western feeder corridor through this region. Earning itinerary placement via hotel/attraction packages and tracked referral codes is the measured path; no unattributed "Branson lift" belongs in the forecast [S36].
- **Southwest Missouri tourism is a real economy.** FY2024: \$314.5M visitor spending in Jasper County, \$138.5M in Newton County; Joplin logged 1.15M visitors. The museum's role is to convert existing regional trips, extend dwell time, and give Joplin's 30-hotel inventory a family reason to add a night [S37, S38].
- **2026–27 is the Route 66 centennial window.** Springfield hosts the national kickoff; Joplin's centennial balloon festival lands August 2026; Missouri's commission has \$1M+ in the corridor. If opening timing allows, launch programming should ride this once-a-century spotlight; if not, the centennial's infrastructure (shield signage, itineraries, international press) persists [S39].

CHANNEL POSTURE (DETAILED IN THE BUSINESS STUDY)

School/group sales + CRM ~30% of launch effort; geo-targeted digital/search/CTV ~25%; outdoor/highway/wayfinding ~15%; tourism, hotel, CVB and attraction partners ~10%; PR, launches and community events ~10%; retention, membership and email ~10%. Missouri's 50% Marketing Matching Grant reimbursements flow only through certified DMOs, a formal partnership with a Newton County DMO entity is the unlock [S37].

13 Staffing, accessibility and operational readiness

FUNCTION	MUSEUM-ONLY PLANNING	PLANETARIUM INCREMENT
Executive / development	1.5–2.0 FTE	0–0.5 FTE if sponsorship/events expand
Curatorial / collections / registrar	1.5–2.0 FTE	No substitution, the relocated collection raises, not lowers, this requirement
Education / group sales	2.0–2.5 FTE	+0.5–1.0 FTE for shows and curriculum
Visitor services / retail	2.5–3.0 FTE equivalent	+0.5 FTE throughput support
Facilities / security / IT	1.5–2.0 FTE or contracts	+0.5–1.0 FTE technical coverage
Marketing / membership / admin	1.5–2.0 FTE	+0.5 FTE program cadence
TOTAL	About 10 blended FTE	About +3 blended FTE

Volunteer enthusiasm is an asset, the Bonne Terre museum was built on it, but it cannot replace professional accountability for collections, safety, education quality, finance or complex projection systems. Staff plans should include two-deep coverage for every safety-critical and revenue-critical role. The founding organization's principals are themselves a staffing asset: continuity roles for the existing team, formalized early, preserve institutional knowledge no hire can replace.

Accessibility must be planned at concept stage: step-free routes, seating variety, captioning, hearing assistance, tactile and large-print alternatives, color contrast, sensory maps, quiet space, family restrooms, service-animal policy, and planetarium alternatives for visitors affected by motion, darkness or intense sound. Accessibility is also a funding narrative: underwritten sensory nights and veteran programs are exactly the outcomes regional funders buy.

14 Risk register and mitigation

RISK	LIKELIHOOD	IMPACT	EARLY WARNING	MITIGATION
Relocation agreement stalls or terms disappoint	Medium	High	No executed agreement within 6 months; site negotiation drift	Dedicated counsel; term sheet with milestones; keep St. Charles-style rival bids visible to all parties
Attendance overreach	Medium	High	Weak school LOIs; low survey conversion	Stage staffing; preserve cash; use low case for commitments
Gross/net area misunderstanding	High	High	Program cannot fit after support spaces	Architectural program before fundraising claims
Hidden building conditions (historic downtown shell)	Medium	High	MEP, structure, floor-loading or environmental findings	Due diligence and ≥20% early contingency
Underfunded operations	High	High	Capital gifts restricted; no annual commitments	Three-year support plan and working-capital gate
Novelty decay	Medium	Medium	Year-2 decline; low member renewal	Rotating zone, calendar and CRM
Planetarium obsolescence	Medium	High	Unsupported system; rising maintenance	Lifecycle reserve, service terms, open content workflow
Competitive preemption (NWA Space & Science Center)	Low-Med	Medium	Rogers capital campaign accelerates	Open first with the real collection; regional partnership posture, not rivalry
Signage / tourism overcount	Medium	Medium	Permits delayed; no referral data	Excluded from base; track source and ZIP

15 Recommendation, gates and validation workplan

DECISION: PROCEED

Authorize the 12–16 week launch phase as Phase 0 of execution: validation and concept definition run as the first phase of doing, not a further study of whether. Advance the museum program with a planetarium-ready plan and the dome's live repricing pathway; execute and document the relocation agreement as the phase's first workstream. Construction, debt, final equipment selection and public attendance promises follow once the checklist below is complete, the same sequence every well-run capital project executes.

WORKSTREAM	DELIVERABLE	PASSING EVIDENCE
Collection / relocation	Executed agreement; object/loan inventory; flagship shortlist; transport & insurance plan	Clear title/terms; feasible care and exhibition; NASA loan status documented
Market	600-household 60/75/90-minute survey + price/planetarium test	Base demand consistent with 29k; low case survivable
Education	25 teacher/admin interviews and group-sales pipeline	LOIs for ≥8,500 museum or ≥11,000 dome-case K-12 visits
Site / facility	Architectural program, downtown site test-fits and due diligence	4,700 net gallery sf protected; measured net areas confirm the grossing ratio; second building conditioned for collections; buses, parking, ADA, floor loads, MEP work
Capital	Three independent ROM estimates + campaign feasibility test	Scope within range; ≥70% of capital committed before build
Operations	Five-year staffing/cash/support plan	12 months working capital; three-year annual support commitments
Planetarium	Vendor concepts, lifecycle and accessibility plan; portable-dome outreach pilot	Fully funded increment and funded refresh reserve
Governance	Entity, board skills, policies and authority matrix	Museum-qualified leadership and public-trust controls

Indicative validation budget. Plan approximately **\$125,000–\$225,000** for research, concept design, collection and relocation assessment, site due diligence, cost planning and campaign feasibility, consistent with current market rates for museum feasibility work (\$40–70K), assessments (from \$18K) and early concept design [S41]. That expenditure is meaningful but small against a poorly scoped \$10–30 million capital project, and most of it is directly reusable in grant applications (IMLS, NASA, USDA) that reward documented planning.

SEQUENCING ADVANTAGE

Run the validation phase to conclude alongside the relocation agreement's execution. Announcing "the collection is secured, the plan is validated, the campaign begins" as one event, ideally inside the Route 66 centennial press window, is worth months of ordinary marketing.

16 Assumptions and source register

ASSUMPTION	CURRENT TREATMENT	REQUIRED CONFIRMATION
Location	Downtown Neosho, near the square	Exact building/site, control, cost and restrictions
Collection	Space Museum & Grissom Center relocation proceeds; ~\$40M valuation treated as unappraised	Executed agreement; independent appraisal; inventory and loan terms
Hours	Six days / about 300 days annually	Staffing, holidays, maintenance and seasonal calendar
Prices	\$14 adult / \$8 student; \$12 senior-military (assumed); \$22/\$16/\$20 combos	Willingness-to-pay survey at \$12/\$14/\$16; senior-military single-attraction prices still open
Gallery area	4,700 net sf in the 13,500 gsf main building	Architectural test-fit; measured net areas confirm the 1.305 grossing ratio
Planetarium	40-ft dome, roughly 100 seats / +3,000 gross sf exterior addition / \$6.5–9.5M (UAF as-built \$9.5M)	Vendor and architect validation
Bonne Terre attendance	~3,000 annual, sponsor-provided	Independent documentation if used publicly
Branson / Tulsa / Route 66	Excluded from base	Measured partnerships and referral conversion
Capital	Class 4 ranges; no acquisition/major site surprises	Independent estimator and site due diligence

SOURCE REGISTER

Citations in square brackets refer to this register. Retrieved 6–13 August 2026 unless noted. Sponsor statements are treated as assumptions until independently documented.

- [S1] U.S. Census Bureau, Vintage 2025 county/city/metro estimates (CO-EST2025; SUB-EST2025). census.gov/programs-surveys/popest
- [S2] Fall 2025 enrollment releases: U. of Arkansas, Missouri State, OTC, NWACC, Pittsburg State, Crowder, MSSU, Evangel, JBU, Drury, NEO A&M (compiled; individual URLs in workbook)
- [S3] U.S. Census Bureau, ACS 2024 5-year, table B14003 (school enrollment by type), 21 catchment counties · data.census.gov
- [S4] NW Arkansas Regional Planning Commission, 2050 Population Projections (Feb 2026)
- [S5] Talk Business & Politics, "Northwest Arkansas ranks 9th-fastest growing U.S. metro" (Apr 2026)
- [S6] SLU PRIME Center, "Missouri Homeschool Rates in 2024"
- [S7] Arkansas DESE, 2023–24 Homeschool Annual Report (32,767 students)
- [S8] Johns Hopkins Homeschool Hub, Oklahoma and Kansas state profiles
- [S9] KOAM, "Bonne Terre Space Museum relocates to Neosho, bringing \$40 million in artifacts" (May 29 / June 1, 2026)
- [S10] Newstalk KZRG, "Space Museum and Gus Grissom Center to move to Neosho" (May 29, 2026)
- [S11] CNHI News / Joplin Globe, "Neosho in running to become new home for space museum" (Spacetown, U.S.A. / Rocketdyne history)
- [S12] The Space Museum & Grissom Center, Bonne Terre, hours, admission, about · space-mo.org
- [S13] IRS Form 990 series via ProPublica Nonprofit Explorer: Space Museum (Bonne Terre), Tulsa Air & Space, Discovery Center of Springfield, Cosmosphere
- [S14] ASTC, 2023 Annual Statistics Summary Report (Sept 2024)
- [S15] ASTC, 2024 Annual Statistics Summary Report (2025)
- [S16] American Alliance of Museums, 2025 Annual National Snapshot of U.S. Museums (Nov 11, 2025)
- [S17] Scott Family Amazeum, "Amazement by the Numbers" (Mar 2025); Amazeum visit/membership pages
- [S18] Exploration Place, "Exploration Place Sets New Attendance Record" (July 2024)
- [S19] National Park Service IRMA visitor-use statistics, unit GWCA (George Washington Carver NM)
- [S20] Armstrong Air & Space Museum, "Our History" (~40,000 visitors/year); WLIO (Apr 2026)
- [S21] Tulsa Air and Space Museum, tulsamuseum.org; TravelOK listing; KTUL (Jan 2023)
- [S22] Cosmosphere, tickets, group tickets, membership (cosmo.org)
- [S23] Stafford Air & Space Museum, about, visit (staffordmuseum.org); TravelOK
- [S24] Discovery Center of Springfield, visit and membership pages
- [S25] Crystal Bridges, 2023 record attendance (Arkansas Business, Nov 2024); expansion opening (June 2026)
- [S26] University of Alaska Fairbanks planetarium: February 2026 construction-in-progress report (\$9.5M total project; \$6.652M construction contract; \$1.001M FF&E; boarddocs.com) and Alaska Public Media opening coverage (Apr 2026); Digitalis pricing (portable domes)
- [S27] Science Museum Oklahoma, Love's Planetarium grand opening (\$8M, Sept 2024); Free Press OKC
- [S28] System refresh datapoints: Bellevue College Digistar 7 (\$450K, 2024); U. Toledo Ritter (\$320K, 2023); U. Wyoming (~\$250K, 2024)
- [S29] Clark Planetarium Productions price list (50-year and annual fulldome licenses by seat tier)
- [S30] Loch Ness Productions, worldwide planetarium census and attendance estimate
- [S31] Madison Metropolitan School District Planetarium (~20,000/yr); Mankato East HS planetarium (~15,000/yr)
- [S32] Pittsburg State University, L. Russell Kelce Planetarium
- [S33] NWA Space and Science Center, Rogers AR (nwa.space)
- [S34] Missouri 7 CSR 10-17 (logo, TODS, traffic-generator signing); Missouri Interstate Logos fee schedule; MoDOT outdoor-advertising rules; BLUELINE Media Joplin billboard rates
- [S35] MoDOT Transportation Management System, 2025 AADT segments (I-49, US-60, LP-49, I-44); ARDOT 2023 county ADT maps
- [S36] H2R Market Research, 2023 Year-End Marketing Report for Branson CVB; Branson Tri-Lakes News (2024 tourism-tax receipts)
- [S37] Missouri Division of Tourism, Economic Impact of Visitors FY2024 (Tourism Economics); MDT Marketing Matching Grant FY26 guidelines
- [S38] Downs & St. Germain for Joplin CVB, visitor study (Apr 2024–Mar 2025)
- [S39] Springfield Business Journal, Route 66 centennial national host city; celebratemo66.com; Visit Joplin centennial events
- [S40] AAM Core Documents Verification; NPS Museum Handbook; IMLS eligibility criteria
- [S41] Museum Planning LLC, museum feasibility study cost and process
- [S42] Newstalk KZRG, 57th Neosho Fall Festival (~18,000 attendees); Neosho Area Chamber annual events
- [S43] USFWS, Neosho National Fish Hatchery (est. 1888)
- [S44] International Planetarium Society education research review ("Where's the data?"); Thornburgh (2017)
- [S45] Project sponsor: proposed location, hours, prices, exhibit area, catchment and Bonne Terre attendance. Correspondence received 6 August 2026
- [S46] Seiler Instrument / ZEISS planetarium correspondence (K. Yager, received 13 August 2026): ZKP-4 optical \$0.9–1.6M; VELVET digital \$0.95–2.5M; hybrid \$1.5–2.5M; Seiler custom \$50–275K; cove lighting \$28–75K; audio \$25–250K; site visit to two candidate buildings by end of October 2026

A Addendum A · Economic impact: what the museum gives back

The Newton County Tourism Council's independent visitor-spending model (Pete Hall, revised August 2026) estimates the museum's annual economic footprint at **\$2,486,365** (\$54.33 per visit) on its own basis of **45,768 annual visits**, a five-segment capture of a 2.98M gross drive market (0–30 mi at 6.5%, 31–70 at 1.5%, 71–120 at 0.35%, schools at 2.0%, tourists already in market at 25%). The revision adds two museum-gate categories, gift shop (\$72,494) and planetarium (\$86,873), raising the stated total from the previously quoted \$2.33M; the seven original spending categories are unchanged to the dollar. Roughly **76% of local business revenue lands outside the museum's own gate**, on the fuel, meal, lodging, retail and attraction operators of Neosho and Newton County.

LOCAL BUSINESS REVENUE BY SEGMENT (NET OF TAX)

SEGMENT	REVENUE	SHARE
Primary (0–30 mi)	\$193,542	8%
Secondary (31–70 mi)	\$481,344	21%
Tertiary (71–120 mi)	\$372,381	16%
School groups	\$161,945	7%
Tourists in market	\$1,068,529	47%
Total (net of tax)	\$2,277,741	100%

IMPACT BY SPENDING CATEGORY (INCL. TAX)

CATEGORY	AMOUNT
Fuel	\$439,292
Admissions	\$439,279
Meals/Food	\$395,648
Lodging	\$390,365
Shopping	\$362,928
Attractions	\$188,871
Entertainment	\$110,614
Planetarium	\$86,873
Gift Shop	\$72,494

TAX RECEIPTS \$208,623, LOCAL SHARE \$112,389 (53.9%) · THE MODEL AT THREE ATTENDANCE BASES

	AS STATED (45,768, WITH DOME)	MUSEUM-ONLY BASE (29,000)*	DOMES BASE (41,000)
Total economic impact	\$2,486,365	~\$1,520,392	~\$2,227,341
Local business revenue	\$2,277,741	~\$1,392,676	~\$2,040,451
Tax receipts (as stated: state \$96,235 / city \$68,332 / county \$37,013 / lodging \$7,043)	\$208,623	~\$127,716	~\$186,889
Local tax (city + county + lodging)	\$112,389	~\$68,875	~\$100,680
Local tax per \$1 of a \$225K CID ask	\$0.50	\$0.31	\$0.45

*The museum-only column excludes the workbook's planetarium spending category (\$52.43/visit vs \$54.33), so each option is priced on its own physical scope. The live calculator on this site computes these figures at any attendance.

Reconciliation: six of seven checklist questions are resolved on the face of the workbook (independent attendance basis; conservative ~6%-overnight day-trip spend profile; locals a small share of impact; explicit tax split; operating-only; no documentary or heritage-tourism demand). The planetarium line now appears explicitly (\$10.00 per participating visit alongside admissions at a flat \$14.00), so the run describes the with-planetarium case. One question remains with the author: whether category spends embed IMPLAN multipliers or are direct spending only; the workbook computes direct spending, so if multipliers were intended the figures are a conservative floor.

Why this matters to institutional feasibility: the community case for the museum no longer rests on cultural value alone. On the tourism council's own model, three-quarters of the museum's economic footprint accrues to businesses other than the museum: the strongest available answer to the question every civic audience asks: what does the town get if the museum never turns a profit? It is also the evidence base for the local funding mechanism (CID / hotel-motel) on which the companion Business Feasibility Study's funding strategy depends.

HOW TO USE THIS NUMBER, AND HOW NOT TO

This is an economic-impact estimate of visitor spending, **not museum revenue**: none of it funds the operating gap, and it must never be presented as offsetting the support requirement. Quote it as stated with the 45,768-visit basis named, or rescaled to a published base, never a hybrid. Source: Space Museum Economic Impact Report.xlsx, Newton County Tourism Council, rev. August 2026.