

MASTER PLAN · VERSION 0.1

Ocean Discovery Center

Working name · Planned location: South Bethlehem, Pennsylvania · 21 October 2026

Planning phase. An independent plan; nothing is funded or built yet. No opening date, no tickets, no fundraising. No building has been chosen, and no owner or venue has been contacted. Not an official project of, or endorsed by, the City of Bethlehem or ArtsQuest, and not an Aethon facility. Aethon, the ocean data and mapping company founded by the person planning the center, is its data and mapping partner; it does not fund, own, operate or approve the center. All plans, maps and interiors are illustrations of ideas, not designs.

1. Executive summary
2. Geographic context and candidate locations
3. Temporary exhibit plan, center program and interior illustrations
4. Science, media ethics, aquarium feasibility and sustainability
5. Phasing, costs, funding, governance and risks
6. Vision and relationships
7. Research method, sources and credits

EXECUTIVE SUMMARY

Start small, learn, and only then build.

Purpose: help people understand, appreciate and explore Earth's oceans, the seafloor, marine life, underwater technology and, eventually, ocean worlds beyond Earth, with scientific accuracy, accessible education, conservation, community participation and the joy of discovery.

Decisions recorded on 18 and 19 October 2026: the path **Phase 0** → **A** → **B**, with **C** as a gated appendix. The center is in the planning phase: its founder intends to build it, and nothing is built yet. There is no funding and no building. The planned location is **South Bethlehem**: the SteelStacks campus and the East 3rd Street corridor, around LANta's Southside Station. Phase 0 programs and the temporary exhibit are planned in existing venues there, if they agree; the center, in an existing building on the East 3rd Street corridor, if an owner agrees. No building has been chosen, and no owner or venue has been contacted. Lehigh's Mountaintop campus and Easton were studied too; they are now seen as places for possible collaborators, none contacted (Lehigh's researchers, Nurture Nature Center) rather than for the center itself. Downtown Allentown and the former Martin Tower site were looked at but not carried forward. No land or building has been offered or confirmed with an owner. Research found no available land, split ownership and recorded environmental covenants at SteelStacks, heavy festival use, and an ocean-related exhibit ("Finding Titanic") at the Da Vinci Science Center.

Format	Size	What it holds	Status
Phase 0 · Programs	None	Talks, pop-up demonstrations of underwater robots (ROVs), citizen science with existing organizations, if they agree	Possible once a host or organization agrees
A · Temporary exhibit	1,000–3,000 sq ft in a host venue	Depth strip, measured/predicted/filled-in/seen views, video nook, ROV corner, river map, kids' table, quiet corner	Recommended first exhibit, after Phase 0 programs; needs a willing host
B · Discovery center	≈8,300 / 14,300 / 20,200 gross sq ft	Gallery, data lab, theater, ROV lab with test tank, classrooms, library, kids' space, café, quiet room	Planned in an existing building, if an owner agrees; only after a feasibility study, governance and funding
C · Aquarium	Not sized	Only aquacultured or captive-bred species; never deep-sea or rare wild animals	Separate study; default answer is no

Sources, research limits and image credits are on the final pages. Facts come from desk research on 18 October 2026 using search-engine excerpts of the cited pages; re-open a source before relying on it. Each section that follows is printed from the project website, which carries the same status labels.



POTENTIAL LOCATIONS

Planned for South Bethlehem.

The planned location is South Bethlehem: the SteelStacks campus and the East 3rd Street corridor, around LANta's Southside Station. No building has been chosen, and no owner or venue has been contacted. **No land or building has been offered**, and none has been confirmed with an owner, so no building is drawn anywhere. This page shows the plan, the research behind it and what only owners can answer.

PLANNED LOCATION

One area, phase by phase.

Planning phase: nothing is built yet, and there is no funding. Each step needs an existing venue or an owner to agree first.

PHASE 0 · PROGRAMS

Phase 0 programs are planned in existing venues in South Bethlehem, if they agree.

FORMAT A · TEMPORARY EXHIBIT

The temporary exhibit (Format A) is planned in an existing venue in South Bethlehem, if one agrees.

FORMAT B · DISCOVERY CENTER

The center (Format B) is planned in an existing building on the East 3rd Street corridor, if an owner agrees.

No building has been chosen, and no owner or venue has been contacted.
No venue or building is named here as a target until its owner or operator agrees.

GEOGRAPHIC CONTEXT

The Lehigh Valley, river by river.

Bethlehem sits between Allentown and Easton on the Lehigh River, which joins the Delaware at Easton. The dashed circle shows the planned area, approximately; no building or venue is marked.

How to read the tags on this page:

VERIFIED

Said by a primary source: a government record, the owner's or operator's own site, or an agency document.

REPORTED

Said by credible news or a secondary source; not yet confirmed in a primary record.

PROPOSED

Our proposal or our own estimate. Not yet confirmed, and nobody else has agreed to it.

UNKNOWN

Not found in public sources. Only the owner or agency can answer.

Research limits: desk research on 18 October 2026 from search-engine excerpts of the cited pages; no deed or parcel records were reached. Re-open a source before relying on it.



Dashed circle: the planned area, South Bethlehem, drawn approximately. **No building, venue or land is marked**, because none has been offered or confirmed with an owner. Possible hosts and partners are listed below the map, and none has been contacted. Thin blue line: Monocacy Creek. Grey line: I-78. Plane symbol: Lehigh Valley International Airport. The arrow shows the Delaware flowing on to Delaware Bay and the Atlantic. Scale bar: about 5 miles. Simplified rivers and roads; not for navigation.

Possible hosts and partners.

The temporary exhibit (Format A) is planned in an existing venue in South Bethlehem, if one agrees. The places below have published exhibit or event space, or relevant expertise. None has been asked.

POSSIBLE HOST

National Museum of Industrial History

SteelStacks campus, Bethlehem

VERIFIED

Rentable Education Center of about 1,200–1,350 sq ft (100 people classroom-style). [NMIH \(Host an Event, undated\)](#)

VERIFIED

"Next Level" capital campaign building out the museum's previously undeveloped second floor (about 17,000 sq ft, per the museum), including flexible event space. [NMIH \(Next Level: Raising Industrial History to New Heights, undated\)](#)

REPORTED

The museum says the second-floor build-out is expected to be finished in 2026, with the new space opening in 2027. [NMIH \(National Museum of Industrial History Celebrates 10 Years of Inspiring Innovation and Preserving America's Industrial Legacy, 16 July 2026\)](#)

Why it could fit: Already a museum on the campus. The story from machines and steel to robots and exploration technology is a natural bridge.

Caution: Not an official project of, or endorsed by, the National Museum of Industrial History. Whether it hosts non-industrial temporary exhibits, how the new second floor will be used, its calendar and its rates are unknown.

POSSIBLE PROGRAM PARTNER

Nurture Nature Center

Easton

VERIFIED

Has had a NOAA Science On a Sphere globe since 2011. [NNC \(Science On a Sphere, undated\)](#)

Why it could fit: A strong subject fit for programs: flood, watershed and climate science for the public, with ocean data shown on its globe, in the city where the Lehigh meets the Delaware.

Caution: Not an official project of, or endorsed by, Nurture Nature Center. Better as a partner for programs than as a place for an exhibit. Whether programs like this fit, and its calendar, are unknown.

POSSIBLE SCIENCE PARTNER

Lehigh University Oceans Research Center

South Bethlehem

VERIFIED

Launched in 2024 by Lehigh's College of Arts & Sciences. [Lehigh \(Oceans Research Center \(Catalog 2025–26\), 2025–26\)](#)

Why it could fit: Scientific review of content, talks and student involvement, more than exhibit space.

Caution: Not an official project of, or endorsed by, Lehigh University. No public or K-12 programs were found. Any role is Lehigh's own decision.

POSSIBLE VENUE TO BOOK ONCE IT OPENS (ARTSQUEST EXPECTS 2027)

Turn & Grind Shop “Festival Hall”

SteelStacks campus, Bethlehem

VERIFIED

Owned and being redeveloped by ArtsQuest; about 27,000 sq ft. [ArtsQuest \(Turn & Grind Shop \(Re-Imagine That! campaign\), undated\)](#)

VERIFIED

Planned for festivals, traveling exhibitions and rentals. ArtsQuest held a beam signing on 18 September 2026 and expects to open in 2027 (its 21 September 2026 release says “next summer”). [ArtsQuest \(ArtsQuest celebrates next construction milestone for Turn & Grind Shop with beam signing, 21 September 2026\)](#)

Why it could fit: The obvious exhibit hall on the campus once it opens, with no new construction needed.

Caution: Not an official project of, or endorsed by, ArtsQuest. Any use would be an ordinary booking ArtsQuest is free to decline, around festival blackout dates.

POSSIBLE COLLABORATOR

Da Vinci Science Center

Downtown Allentown

VERIFIED

Opened in downtown Allentown on 22 May 2024. [NIZ \(Da Vinci Science Center at PPL Pavilion opens in downtown Allentown, 22 May 2024\)](#)

VERIFIED

Showing “Finding Titanic: The Secret Mission” from 29 September 2026 to 19 January 2027. [Da Vinci \(Finding Titanic: The Secret Mission, 2026\)](#)

Why it could fit: A major regional science center already showing an ocean-related exhibit (“Finding Titanic”), a sign the subject can be programmed in the region, though not by itself proof of demand.

Caution: Not an official project of, or endorsed by, the Da Vinci Science Center. Also the main competitor for school groups and traveling exhibits.

Also checked: public libraries (good for talks and pop-ups, usually too small or too short for a full exhibit run) and the National Canal Museum (closed for the 2026 season).

FORMAT B · DISCOVERY CENTER

Areas studied, not parcels.

The center (Format B) is planned in an existing building on the East 3rd Street corridor, if an owner agrees. No building has been chosen, and no owner or venue has been contacted. Lehigh's Mountaintop campus and Easton were studied too. They are now seen as places for possible collaborators, none contacted (Lehigh's researchers, Nurture Nature Center) rather than for the center itself. Downtown Allentown and the former Martin Tower site were looked at but not carried forward.

• RESEARCH COMPARISON · PLANNING PHASE · NO BUILDING CHOSEN

Side by side

The same questions for each area, with no scores. Every cell has its own tag. “Not checked” means this research did not look. The former Martin Tower site is left out because no cultural use was found there.

CRITERION	SteelStacks Planned location	Southside Planned location	Mountaintop Collaborator area	Easton Collaborator area	Allentown Not carried forward
Evidence of available space	UNKNOWN None found in public sources	UNKNOWN None confirmed with any owner	PROPOSED Not assessed: not a site for the center	UNKNOWN Not checked	UNKNOWN Not checked

CRITERION	SteelStacks Planned location	Southside Planned location	Mountaintop Collaborator area	Easton Collaborator area	Allentown Not carried forward
Who owns it	REPORTED Split among several owners (four named in a case study from about 2014–2015, plus City-owned streets); deeds not checked ULI (SteelStacks Arts and Cultural Campus (case study), undated (about 2014–2015)) LVS (Las Vegas Sands agrees to \$1.3 billion sale of Sands Bethlehem, 8 March 2018)	PROPOSED Probably many small owners	PROPOSED Not assessed: not a site for the center	UNKNOWN Not checked	UNKNOWN Not checked
Visitors nearby	VERIFIED Very high: Musikfest 2026 recorded attendance of 1,260,630, and the National Museum of Industrial History is on the campus ArtsQuest (Musikfest 2026 ranks among top three most attended festivals in its history, 12 August 2026) NMIH (Host an Event, undated)	PROPOSED High: an arts district next to Lehigh University (our reading)	PROPOSED Low today (our reading)	PROPOSED Medium: Nurture Nature Center and other downtown attractions (our reading)	VERIFIED High: the Da Vinci Science Center opened downtown in May 2024 NIZ (Da Vinci Science Center at PPL Pavilion opens in downtown Allentown, 22 May 2024)
Public transit	VERIFIED Enhanced Bus Service Green Line to Southside Station and Wind Creek LANta (Enhanced Bus Service (EBS), undated)	VERIFIED Both Enhanced Bus Service lines (Green and Blue) run to Southside Bethlehem LANta (Enhanced Bus Service (EBS), undated)	UNKNOWN Not checked	VERIFIED Enhanced Bus Service Blue Line from Trexlertown to Easton LANta (Enhanced Bus Service (EBS), undated)	VERIFIED Both Enhanced Bus Service lines run through downtown LANta (Enhanced Bus Service (EBS), undated)

CRITERION	SteelStacks Planned location	Southside Planned location	Mountaintop Collaborator area	Easton Collaborator area	Allentown Not carried forward
Environmental limits	VERIFIED Significant: EPA corrective action and recorded covenants; no groundwater use on the Sands parcels EPA 1 (Documents, reports and photographs: ISG / Tecumseh Redevelopment (formerly Bethlehem Steel), undated) 2 (Final Decision and Response to Comments, Sands Gaming parcel, 2023) 3 (Final Decision and Response to Comments, Sands BethWorks Retail parcels, 2023)	UNKNOWN Not checked	UNKNOWN Not checked	UNKNOWN Not checked	UNKNOWN Not checked
Fit with the ocean story	PROPOSED From steel and machines to robots and exploration technology	PROPOSED Arts and science side by side	PROPOSED A research story with Lehigh University	PROPOSED River to ocean: the Lehigh meets the Delaware here	PROPOSED Overlaps the Da Vinci Science Center
Biggest risk	PROPOSED Festival peaks, covenants and no land found	PROPOSED Few buildings large enough; historic review	PROPOSED None as a site; any collaboration is Lehigh's own decision	PROPOSED Distance from Bethlehem	PROPOSED Competing with Da Vinci for the same visitors

Each area in detail

PLANNED LOCATION

SteelStacks and Bethlehem Works

- REPORTED

An Urban Land Institute (ULI) case study from about 2014–2015 describes control split among the Bethlehem Redevelopment Authority, ArtsQuest, PBS39 (now Lehigh Valley Public Media) and the Sands casino, which Las Vegas Sands agreed in 2018 to sell to Wind Creek. Current ownership was not checked in deed records. [ULI \(SteelStacks Arts and Cultural Campus \(case study\), undated \(about 2014–2015\)\)](#) [LVS \(Las Vegas Sands agrees to \\$1.3 billion sale of Sands Bethlehem, 8 March 2018\)](#)
- VERIFIED

The City issues ArtsQuest use permits for the ice rink and summer concerts on the campus streets. [City 1 \(City Council agenda attachment: Approve Use Permit Agreement, ArtsQuest 2024 Ice Rink at SteelStacks, 1 October 2024\)](#) [2 \(City Council attachment: Approve Resolution, ArtsQuest 2025 SteelStacks Concert Series, 2025\)](#)
- UNKNOWN

No available land or building was found in public sources.
- VERIFIED

Musikfest 2026, whose venues include SteelStacks, recorded attendance of 1,260,630 over ten days and a preview night (30 July to 9 August). ArtsQuest ranks it among the three highest totals in the festival's history. [ArtsQuest \(Musikfest 2026 ranks among top three most attended festivals in its history, 12 August 2026\)](#)
- PROPOSED

Other ArtsQuest festivals would add busy periods on the campus; dates would need checking against ArtsQuest's calendar.

- REPORTED

Wind Creek Bethlehem owns the blast furnaces and is responsible for their lighting. The casino's first owners promised in a short letter to preserve them; no recorded preservation easement or funded maintenance plan was found. [LVN \(Iconic Bethlehem blast furnaces at SteelStacks go dark. But why?, 2024\)](#) [WHYY \(How Bethlehem played industrial redevelopment's waiting game, undated \(about 2010s\)\)](#)
- REPORTED

The National Trust for Historic Preservation named the Bethlehem Steel plant one of America's 11 Most Endangered Historic Places in 2004. [Lehigh \(BethWorks now, undated\)](#)
- UNKNOWN

No National Register or National Historic Landmark listing was found for the blast furnaces. Whether the campus is inside a local Historic Conservation District is also unknown.
- VERIFIED

Bethlehem's zoning ordinance has an Industrial Redevelopment (IR) district for former industrial land, mainly for commercial, office, research and light industrial uses. [City \(Zoning Ordinance \(current PDF\), undated\)](#)
- VERIFIED

An archived copy of the ordinance lets the city allow, in IR, a use “of the same general character” as the listed ones. Whether that wording is still in force was not confirmed. [City \(Zoning Ordinance \(archived copy\), Section 1305.05, undated\)](#)
- UNKNOWN

Whether a museum or education use is allowed by right on the campus, and the zoning of each parcel, were not confirmed. The city's Planning and Zoning Bureau could answer.

VERIFIED

The former Bethlehem Steel plant is under EPA corrective action; recorded covenants prohibit groundwater use (other than monitoring) on the Sands parcels. [EPA 1 \(Documents, reports and photographs: ISG / Tecumseh Redevelopment \(formerly Bethlehem Steel\), undated\)](#) [2 \(Final Decision and Response to Comments, Sands Gaming parcel, 2023\)](#) [3 \(Final Decision and Response to Comments, Sands BethWorks Retail parcels, 2023\)](#)

VERIFIED

EPA issued a Statement of Basis (its proposed remedy) for four ArtsQuest parcels (about 2.3 acres); whether a final decision followed, and what controls it sets, was not determined. [EPA \(Statement of Basis, ArtsQuest parcels, 2023\)](#)

VERIFIED

City floodplain rules follow FEMA maps effective 16 July 2014. The Lehigh at Bethlehem has a flood stage of 16 ft and a record crest of 25.9 ft (May 1942). [City \(City Council minutes: Article 1317 floodplain amendment \(FIRM effective 16 July 2014\), 1 July 2014\)](#) [NWS \(Historical floods: Lehigh River at Bethlehem, undated\)](#)

UNKNOWN

The FEMA flood zone and the bedrock beneath the campus were not determined.

VERIFIED

Bethlehem is in PPL Electric Utilities' service area and in UGI's gas service area (UGI's tariff lists "Bethlehem (part)"). [PPL \(Territory covered, undated\)](#) [UGI 1 \(Natural Gas Bethlehem and Northampton County PA, undated\)](#) [2 \(Gas Division tariff \(current tariffs\), January 2026 \(per URL\)\)](#)

UNKNOWN

Water, sewer, electric and gas capacity at any site on the campus is unknown. It would need will-serve letters from the city's water and sewer department, PPL and UGI.

REPORTED

Polk Street Garage, 731 spaces, opened in 2023. [LVN \(Huge new Bethlehem parking garage opening just in time for Musikfest, 2023\)](#)

VERIFIED

Parking at SteelStacks is free except during Musikfest, when it is generally not available on site. [ArtsQuest \(Directions/Parking - SteelStacks, undated\)](#)

VERIFIED

The Lehigh and Northampton Transportation Authority (LANta) runs Enhanced Bus Service to Southside Station and Wind Creek, and its EBS page lists service seven days a week. LANta cut trips on a number of routes on 26 January and 15 June 2026 and raised fares in 2026, so check current timetables before relying on them. [LANta 1 \(Enhanced Bus Service \(EBS\), undated\)](#) [2 \(Board of Directors meeting minutes, 10 February 2026, 10 February 2026\)](#) [3 \(2026 June Service Changes, June 2026\)](#)

VERIFIED

The Hoover-Mason Trestle has one elevator, between the Visitor Center and the Levitt Pavilion; with it, the whole walkway is wheelchair accessible. Its two ends have stairs only. [SteelStacks \(Hoover Mason Trestle, undated\)](#)

UNKNOWN

Step-free routes across the campus, and where school buses could drop off and wait, are unknown. ArtsQuest, the Bethlehem Redevelopment Authority or the Bethlehem Parking Authority could answer.

PROPOSED

Weekday school visits from January to May would avoid festival peaks.

PROPOSED

Part of the planned location: Phase 0 programs and the temporary exhibit would use venues that already exist here, if they agree. No new building is planned on the campus. No venue has been contacted.

PLANNED LOCATION

South Side corridor (East 3rd and 4th Streets, Southside Arts District)

VERIFIED

The South Bethlehem Downtown Historic District is on the National Register. [NPS \(South Bethlehem Downtown Historic District \(NRIS 05001500\), 2006\)](#)

VERIFIED

A local Historic Conservation Commission reviews exterior changes and advises City Council. [City \(Historic and Conservation Districts, undated\)](#)

VERIFIED

Historic Moravian Bethlehem, on the north side of the river, was inscribed as UNESCO World Heritage in July 2024. [Interior \(Interior Department celebrates selection of Pennsylvania's Historic Moravian Bethlehem, July 2024\)](#) [UNESCO \(Moravian Church Settlements \(ref. 1468\), maps, 2024\)](#)

UNKNOWN

Whether the World Heritage buffer zone affects any South Side site is not known.

PROPOSED

Mostly small storefronts, with some larger existing buildings. Part of the planned location: the center (Format B) is planned in an existing building on the East 3rd Street corridor, a short walk from SteelStacks, Lehigh and South Side schools, if an owner agrees.

UNKNOWN

Which buildings are available, step-free and suitable for public use is unknown. No building has been chosen, no owner has been contacted and no building is offered.

POSSIBLE COLLABORATOR AREA, NOT A SITE FOR THE CENTER

Lehigh University Mountaintop Campus

VERIFIED

Lehigh's "Transform Mountaintop" initiative aims to "fully activate" the campus as a "destination and resource for the Lehigh community and beyond". [Lehigh \(Transform Mountaintop, undated\)](#)

PROPOSED

A place for possible science collaborators, not a site for the center. Any role is Lehigh's own decision.

POSSIBLE COLLABORATOR AREA, NOT A SITE FOR THE CENTER

Easton, where the Lehigh meets the Delaware

VERIFIED

The Lehigh River runs about 103 miles from the Poconos to Easton, where it joins the Delaware River. [PA DCNR \(Lehigh Gorge State Park \(Lehigh River, 103 miles to Easton\), undated\)](#)

VERIFIED

The National Canal Museum in Hugh Moore Park, with the Delaware & Lehigh National Heritage Corridor (D&L) offices and archives, is closed for the 2026 season, and canal boat rides are not running. The Glendon Hill Road Bridge, the only public vehicle access to the park island, is being repaired. [D&L \(Hugh Moore Park and National Canal Museum, 2026\)](#)

PROPOSED

The clearest physical setting for a river-to-ocean story.

NOT CARRIED FORWARD

Downtown Allentown

VERIFIED

The Da Vinci Science Center opened in downtown Allentown on 22 May 2024. [NIZ \(Da Vinci Science Center at PPL Pavilion opens in downtown Allentown, 22 May 2024\)](#)

VERIFIED

Both LANta Enhanced Bus Service lines run through downtown Allentown. [LANta \(Enhanced Bus Service \(EBS\), undated\)](#)

PROPOSED

A second science attraction here would compete directly with Da Vinci for the same visitors and school groups, so it is a lower fit.

NOT CARRIED FORWARD

Former Martin Tower site, west Bethlehem

REPORTED

Redevelopment is under way with medical buildings and a housing plan the city has already signed off on; no cultural use was found. [LVN \(6 years after Martin Tower demolition, developer seeks \\$9M in public funds for new medical facilities on site, 2025\)](#)

OPEN QUESTIONS

What only owners and agencies can answer.

1 Bethlehem Redevelopment Authority: is there any land it would consider for a cultural or educational use?

2 Possible hosts: is an ocean exhibit or program of interest at all, and on what terms?

3 ArtsQuest: Turn & Grind Shop booking terms and festival blackout dates once it opens.

4 City Planning & Zoning: is a museum or education use allowed in the Industrial Redevelopment district? What are the parking rules?

5 City of Bethlehem and the Pennsylvania State Historic Preservation Office: is the campus inside a local Historic Conservation District, and would federal or state money trigger a historic review (for example under Section 106)?

6 Wind Creek Bethlehem and the City: does the preservation promise for the blast furnaces bind Wind Creek, and is there a maintenance plan?

7 EPA Region III and PA DEP: what do the recorded covenants allow for excavation, foundations and ground-source wells?

8 City of Bethlehem: which parcels are inside its City Revitalization and Improvement Zone (CRIZ)? A project there that is eligible for CRIZ benefits cannot also receive the state's Redevelopment Assistance Capital Program (RACP) grants.

9 City water and sewer, PPL and UGI: is there capacity for a center on a given parcel (will-serve letters)?

10 Bethlehem Parking Authority, ArtsQuest and LANta: school-bus drop-off and waiting, step-free routes, garage capacity outside festivals, current stop locations.

Getting there, today and maybe tomorrow

Local buses: LANta (the Lehigh and Northampton Transportation Authority) runs Enhanced Bus Service (EBS) to Southside Station and Wind Creek, and its EBS page lists service seven days a week. LANta cut trips on a number of routes on 26 January and 15 June 2026 and raised fares in 2026, so check current timetables before relying on them. [LANta 1 \(Enhanced Bus Service \(EBS\), undated\)](#) [2 \(Board of Directors meeting minutes, 10 February 2026, 10 February 2026\)](#) [3 \(2026 June Service Changes, June 2026\)](#)

Intercity buses: Trans-Bridge Lines (to New York from the north-side Bethlehem Transportation Center, and on a separate schedule from Wind Creek Bethlehem on the South Side) and OurBus (a stop on Packer Avenue near Lehigh University; its route page lists one or two departures a day, so check the live schedule). [Trans-Bridge \(Schedules and stops, 2026\)](#) [OurBus \(Bethlehem, PA to New York, NY, undated\)](#)

Passenger rail: not funded. A March 2024 feasibility study for the Lehigh Valley Planning Commission and PennDOT estimated passenger-rail capital costs of roughly \$450–740 million, depending on the corridor, with service at least 10–12 years away. [LVPC \(Lehigh Valley Passenger Rail Feasibility Analysis, Final Report, March 2024\)](#) A further \$400,000 study of passenger rail in the Lehigh Valley was announced in December 2025. [LVN \(\\$400K study will take 'deeper look' at passenger rail in the Lehigh Valley, December 2025\)](#)

Bethlehem Connect: a separate proposed project for future connections. It is not an existing transit project, and nothing in this plan depends on it.

PLACES

Where a center is planned.

Adding a town or city means adding one entry to the site's settings. Today there is one. The areas studied above are options weighed for this one place,

not other places. Other towns are added only when there is a real reason, and then as ideas; none is chosen.

PLANNING PHASE

South Bethlehem

Bethlehem, Pennsylvania, United States

Programs in existing venues first, if they agree, then a temporary exhibit, then a small center in a reused building, each step only if the one before works.

[The plan for South Bethlehem](#) ↑

Connected ideas

Ideas this plan connects to, one line each. Nothing here is agreed unless its line says so.

This plan ↔ Aethon

Aethon is the data and mapping partner, founded by the plan's author. It does not fund, own, operate or approve the center.

[What Aethon does](#) →

This plan ↔ Seaports

Planned links to existing larger seaports for vessel and underwater-robot field work, field trips and data, decided on 19 October 2026 by the person planning the center. No port has agreed or been contacted.

[The planned seaport links](#) →

This plan ↔ Project OS

People, roles and sign-ups would go through Project OS, a shared system for people and work that is itself in its planning phase.

[How taking part would work](#) →



PROPOSED EXPERIENCES

Ideas to test with visitors, teachers and scientists.

Everything here is in the planning phase: exhibit ideas, a reference plan for a temporary exhibit, and a planned program for a small center. Each idea carries the rule that keeps it honest.

EXHIBIT IDEAS

What visitors could do.

Each idea shows the formats that include it: A = temporary exhibit, B = discovery center.

Ocean Exploration Gallery A · B

A walk from the sunlit surface to the trenches, with light, sound and scale changing as the depth increases.

Kept honest: Depths, pressures and zone names follow NOAA. Animals shown are identified from their source footage, never invented.

Seafloor Data Lab A · B

Interactive 2D and 3D seafloor views that show how each depth is known: measured by sonar, predicted from satellites, filled in by computer, or seen by a camera.

Kept honest: Real public data with attribution (for example GEBCO, "not for navigation"). Maps and data from Aethon, the data and mapping partner, would carry Aethon's credit. On this website, Aethon's map viewer is linked, never copied or embedded.

Deep-Sea Theater A · B

Short films of real expeditions, with live talks by scientists and engineers when possible.

Kept honest: Only footage that is public domain (such as NOAA Ocean Exploration) or licensed in writing. No reconstructed "discoveries".

ROV and Robotics Lab

A · B

Build and test small underwater robots, try a pilot simulator, and see how robots work at sea: remotely operated vehicles (ROVs), driven from a ship through a cable, and autonomous underwater vehicles (AUVs), which swim on their own. A discovery center would add a freshwater test tank; a temporary exhibit would have one only if the host allows water.

Kept honest: Education-grade robots, always supervised. No claim that visitors are exploring the deep sea.

Ocean Chemistry, Geology and Habitats

B

Why seawater is salty, how plates build ridges and trenches, how habitats from kelp forests to vents work, and why pH is changing.

Kept honest: Each statement links to its source, with the source's date where it has one; ranges are shown where the science gives ranges.

Citizen Science and Monitoring

A · B

Join stream checks, species surveys and data projects with the watershed groups that already run them.

Kept honest: Any watershed group's programs would stay theirs and be credited; the center would connect people rather than duplicate work. Nothing alive is collected or brought back for display.

River to Ocean

A · B

Follow water from Bethlehem down the Lehigh, into the Delaware at Easton, through the estuary and out to the Atlantic.

Kept honest: Distances and basin figures come from PA DCNR, USGS and the Delaware River Basin Commission.

Conservation Starts Upstream

A · B

How water use, stormwater and litter in the Lehigh watershed reach the Atlantic, and what families can do about them. It could share the River to Ocean space.

Kept honest: Figures only from the Delaware River Basin Commission, PA DEP or watershed groups, each with its source; actions credited to the groups that run them.

Little Explorers

A · B

A hands-on space for younger children: sorting, building, water-free play and story time.

Kept honest: To be designed with early-years educators, with quiet hours and sensory-friendly sessions planned from the start.

Ocean Worlds

A · B

Europa, Enceladus, Ganymede and Titan: what the evidence says about water beyond Earth, the spacecraft now traveling to Jupiter's moons, and the Dragonfly rotorcraft being built for Titan.

Kept honest: Careful wording: evidence suggests subsurface oceans; no life has been detected. Titan's ocean is debated.

Rocks and Exploration Objects

B

Real samples and tools that tell exploration stories, from seafloor rocks to sonar parts.

Kept honest: Only lawfully held material with documented provenance; loans and gifts recorded in writing.

Small Library, Classes and Talks

B

A reading corner, evening talks, teacher workshops and school classes.

Kept honest: Programs are free or low-cost where possible; volunteers are credited and never replace paid roles.

Food and Water Hub, Restrooms, Quiet Spaces

B

Free water refill, a small affordable café and a food and water hub with shared fridges and freezers, so good food is saved, not wasted. Modern, accessible restrooms with all-gender and family rooms, and quiet rooms for people of all ages.

Kept honest: A named food-safety lead runs the hub. No bottled water, no single-use giveaways; quiet room available without asking. No store or food partner is named until it agrees in writing.

Ocean Play Area (outdoors)

B

A planned ocean-themed play area beside the center, such as a whale or reef climbing structure, free for everyone. Before it is built, ocean play days with portable pieces would run in an existing outdoor space.

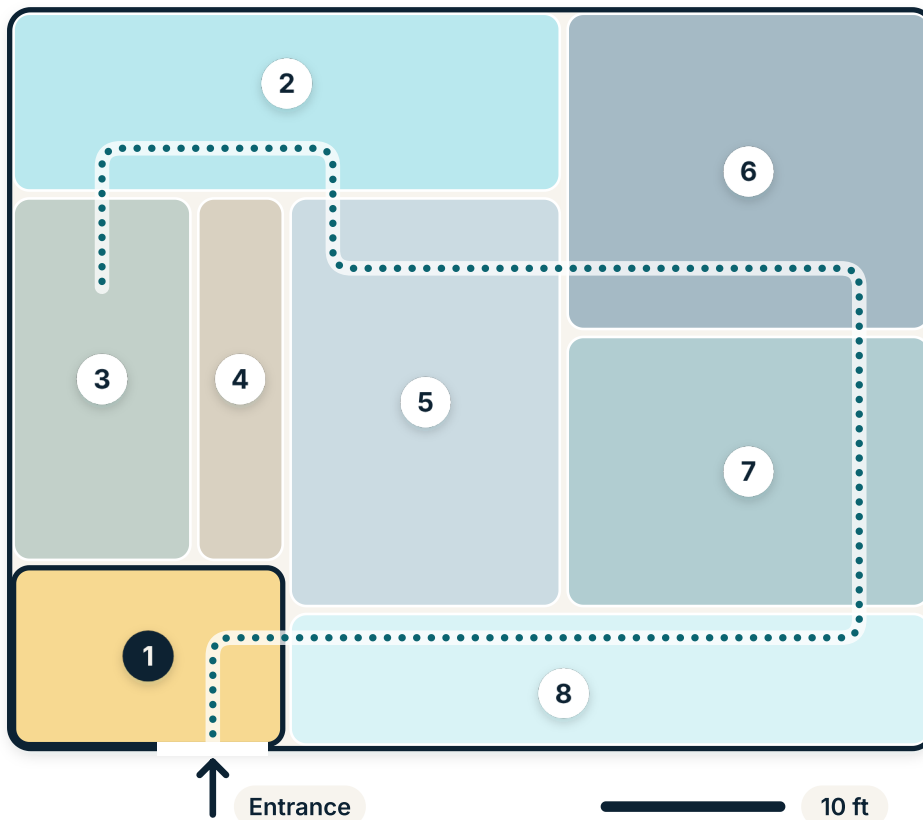
Kept honest: Only on land whose owner agrees in writing. Play days would use portable pieces only, set up and removed the same day and checked by a qualified person before children use them. The permanent play area would be built to public-playground safety standards (the CPSC Public Playground Safety Handbook and ASTM F1487), with accessible play under the ADA, and checked by a certified playground safety inspector before first use and regularly after.

A 2,000 sq ft reference plan.

Designed to fit an existing venue without structural changes, and without water unless the host allows a small test tank.

• REFERENCE PLAN · PLANNING PHASE · VENUE NOT CHOSEN

50 × 40 ft · 2,000 sq ft



Numbers match the zone list. Dotted line: accessible route, at least 60 in. wide with 60 in. turning circles. Open plan: each zone's area includes its share of aisle. Scales to 1,000 or 3,000 sq ft.

1. Welcome and status wall (≈ 150 sq ft)

What this is, what it is not, and how to get involved. The project's status is the first thing visitors read.

2. How deep? (≈ 300 sq ft)

A floor-to-wall depth strip from the sunlight zone to the trenches, using NOAA's zone depths.

3. Little Explorers (≈ 200 sq ft)

Hands-on tasks for ages 3–7, at child height, away from the entrance.

4. Quiet corner (≈ 100 sq ft)

Seating, low light and no audio, for anyone who needs a break.

5. How do we know the depth? (≈ 340 sq ft)

Touchscreen seafloor views with a legend for how each depth is known: measured by sonar, predicted from satellites, filled in by computer, or seen by a camera.

6. Deep-sea video nook (≈ 350 sq ft)

12–15 bench seats; public-domain NOAA expedition footage with original narration.

7. ROV corner (≈ 300 sq ft)

A real education ROV on a stand and a pilot simulator. A small test tank only if the host allows water.

8. River to ocean (≈ 260 sq ft)

A floor map from Bethlehem down the Lehigh and Delaware to the Atlantic, with citizen-science sign-up.

Smaller or larger, to fit the host's room

About 1,000 sq ft

The status wall, the depth strip, the seafloor table, the video nook and a kids' table.

About 2,000 sq ft (reference)

All 8 zones in the plan above.

About 3,000 sq ft

Adds an Ocean Worlds alcove, a 30-seat talk space and, only if the host allows water, a small test tank.

A planned program, in three sizes.

Net areas for each space, the gross building they imply, and its footprint on one story or two. Planning sizes for discussion only, never drawn on a real site.

• PLANNED PROGRAM · PLANNING PHASE · NOT A DESIGN

Net assignable sq ft for each space at the three planning sizes.

SPACE	GROUP	SMALL	REFERENCE	LARGE
Welcome, free water, lockers, strollers	Welcome and comfort	450	700	900
Ocean Exploration Gallery	Explore	1,300	2,000	2,800
Seafloor Data Lab	Explore	400	700	1,000
Rocks and exploration objects	Explore	250	400	600
Ocean Worlds alcove	Explore	150	300	450
River-to-Ocean and citizen-science lab	Learn and make	400	700	1,000
Deep-Sea Theater	Explore	700	1,100	1,500
ROV and Robotics Lab with test tank	Learn and make	700	1,200	1,600
Little Explorers	Learn and make	500	800	1,100
Classroom / workshop	Learn and make	500	900	1,400
Small library and reading corner	Learn and make	150	300	450
Quiet / sensory room	Welcome and comfort	120	200	250
Affordable café and seating	Welcome and comfort	250	450	650
Reusable-goods shop	Welcome and comfort	100	200	300
Staff and volunteers	Behind the scenes	250	450	650
Exhibit workshop, storage, loading	Behind the scenes	400	600	900
Net program (≈)		6,600	11,000	15,600
Gross building (≈ net × factor)		8,300 (× 1.25)	14,300 (× 1.3)	20,200 (× 1.3)

TOTALS AND FOOTPRINT AT THE REFERENCE SIZE

NET PROGRAM
≈ **11,000** sq ft

GROSS BUILDING
≈ **14,300** sq ft

Gross = net × 1.3 (planning assumption for walls, corridors, restrooms and plant).

FOOTPRINT

One story of about 130 × 110 ft, or two stories of about 90 × 80 ft each.

Planning sizes only, not drawn on any site.

Clear heights: gallery and theater 18–22 ft; ROV lab 16 ft; classrooms 11–12 ft.

Test tank: about 16 × 10 ft, 5 ft deep, freshwater, about 6,000 gallons (about 50,000 lb), so it sits on a ground slab.

Reuse first: an existing building is preferred to new construction if an owner offers one.

ILLUSTRATIONS

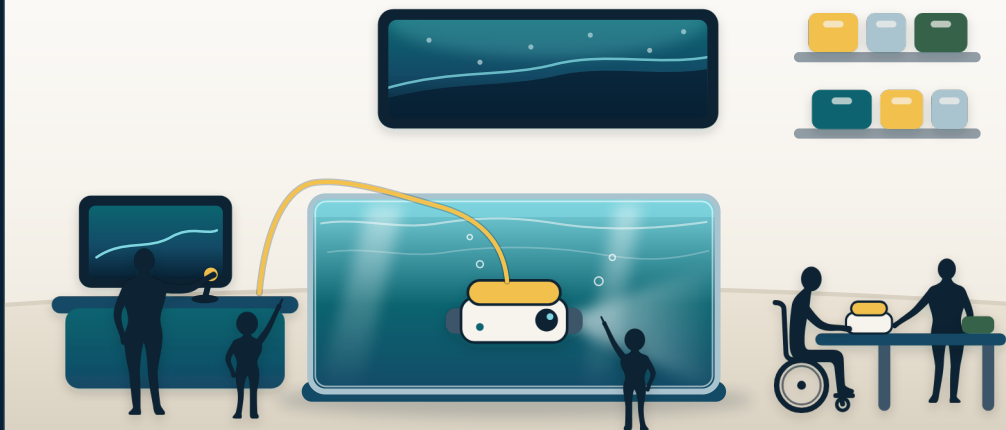
Imagine the rooms.

Stylized drawings to start a conversation. They are not designs, and screens show abstract shapes rather than real or invented data.

• ILLUSTRATION · PLANNING PHASE



Ocean Exploration Gallery: projected light deepens from blue to black as visitors move through the depth zones, each marked on the wall from the sunlit surface down (0, 200, 1,000, 4,000 and 6,000 m, NOAA's zone depths); glowing contours on the floor; benches and step-free routes throughout. [NOAA \(Layers of the Ocean, undated\)](#)



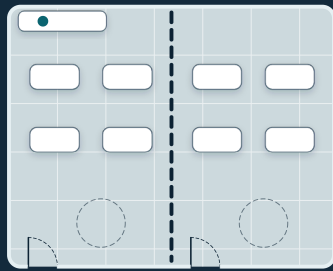
ROV and Robotics Lab, in a discovery center: a glass-sided freshwater test tank, a pilot station with a tether, build benches at accessible heights, and storage.

Deep-Sea Theater

Described here rather than drawn.

- A flat floor, with wheelchair spaces on every row.
- About 70 seats at the reference size.
- Short films of real expeditions, and live talks by scientists and engineers when possible.
- Only footage that is public domain or licensed in writing.

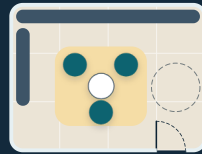
• ILLUSTRATION · PLANNING PHASE



Classroom / workshop

≈ 900 sq ft

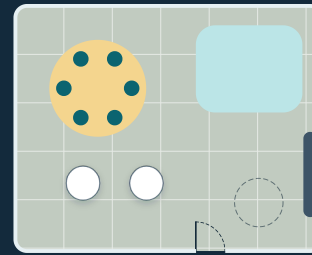
School classes, teacher workshops and evening talks. A folding wall (the dashed line) splits it into two rooms, and a sink counter allows messy making.



Small library and reading corner

≈ 300 sq ft

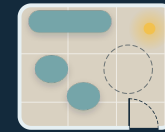
Shelves, soft seats and a low table on a rug, for reading alone or together.



Little Explorers

≈ 800 sq ft

For younger children: a story-time rug with cushions, low tables for sorting and building, cubbies and a soft play mat. Water-free play.



Quiet / sensory room

≈ 200 sq ft

Low light, soft seats and no audio. Open to anyone who needs a break, without asking.

Learning areas, in plan, at one shared scale: each grid square is 5 × 5 ft, and each area is the reference size of the planned program. Door arcs show the swing; dashed circles show 5 ft (60 in.) wheelchair turning space. Room shapes and furniture are illustrative, not a design.

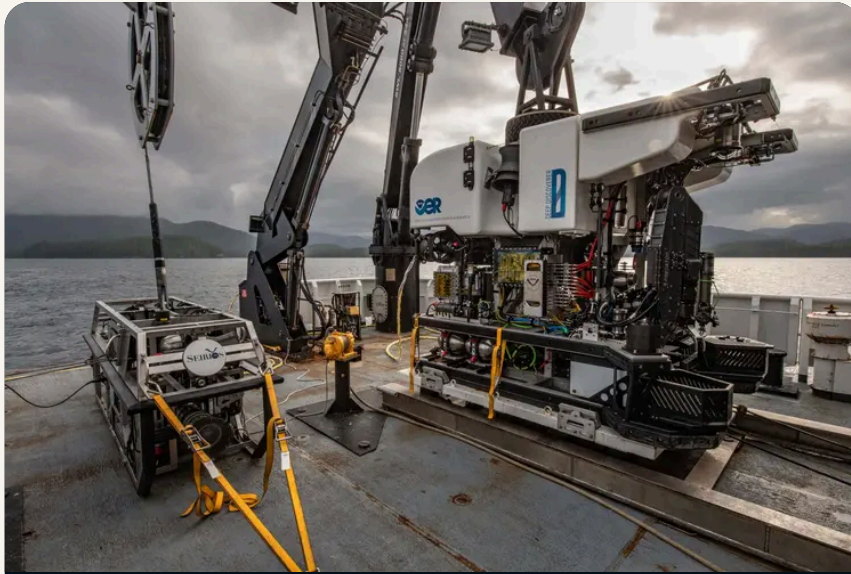
THE REAL THING

How exploration actually works.

The ROV room would connect visitors to how teams at sea work: robots on deck, pilots and scientists in the control room.

Youth robotics is already active here: the FIRST Mid-Atlantic District Championship was held at Lehigh's Stabler Arena in April 2026. [FIRST \(FMA District Championship Event Packet 2026, 11 April 2026\)](#) Robots for learning come in many sizes and prices. SeaPerch build-it-yourself underwater robot kits are listed at about \$175–179 each; a shared tool kit is sold separately. [RoboNation \(SeaPerch kits, undated\)](#) The BlueROV2, a low-cost professional underwater robot that researchers also use, is listed from

\$4,900 for the base package before options; US orders also carry a tariff surcharge. [Blue Robotics 1](#) (BlueROV2, undated) [2](#) (Tariff surcharge, undated)



ROVs Deep Discoverer and Seirios. Secured on the deck of NOAA Ship Okeanos Explorer in the Gulf of Alaska, 2022. They work as a two-body system. Credit: NOAA Ocean Exploration.



ROV engineers at work on deck. Credit: NOAA Ocean Exploration.



The control room, mid-dive. NOAA Ship Okeanos Explorer, 2026 ROV Shakedown. Credit: NOAA Ocean Exploration.



A mural on the USS Yorktown. Imaged by ROV Deep Discoverer, Papahānaumokuākea, 2025. Credit: NOAA Ocean Exploration.



SCIENCE & CONSERVATION

Accurate, careful, and kind to the places it describes.

How the center would get the science right, use data and media fairly, treat live animals, and plan for sustainability without overclaiming.

ACCURACY

House rules for every exhibit and page.

Link every figure to its source

Mapping and species counts change every year. Every figure links to its source, and the Research page lists each source's date (or says it is undated).

Name the method

Say whether a depth was measured by sonar, predicted from satellites, filled in by computer, or seen by a camera.

Keep the ranges

Where science gives a range or sources differ, say so (for example, that estimates of total species vary widely) instead of giving one precise-looking number.

Attribute in the text

"According to NOAA", not "scientists say".

Never invent

No invented observations, species records, footage or discoveries. "Possibly undescribed" is not "new species".

Not for navigation

Every bathymetry product names its data source and says it is not for navigation. GEBCO's terms require the credit and say its grid must not be used for navigation; we add the warning everywhere. [GEBCO \(Terms of use for the GEBCO Grid, undated\)](#)

Built on the Ocean Literacy Principles [NMEA \(Ocean Literacy: The Essential Principles, Version 3, 2020\)](#)

- 1 The Earth has one big ocean with many features.
- 2 The ocean and life in the ocean shape the features of Earth.
- 3 The ocean is a major influence on weather and climate.
- 4 The ocean made Earth habitable.
- 5 The ocean supports a great diversity of life and ecosystems.
- 6 The ocean and humans are inextricably interconnected.
- 7 The ocean is largely unexplored.

Phrases we avoid, and what we say instead

~~"95% of the ocean is unexplored."~~

As of April 2026, 28.7 percent of the global seafloor had been mapped in high resolution with modern sonar. [Seabed 2030 \(Global seabed mapping reaches new milestone as five million square kilometres added in a year, 20 April 2026\)](#) [NOAA \(How much of the ocean has been explored?, April 2026\)](#) People have directly seen, with cameras, robots or crewed submersibles, less than 0.001 percent of the deep seafloor, an area roughly the size of Rhode Island. [NOAA \(How much of the ocean has been explored?, April 2026\)](#) [Bell et al. 2025 \(How little we've seen: A visual coverage estimate of the deep seafloor, 7 May 2025\)](#)

~~"We know more about Mars than our ocean floor."~~

Satellites map the seafloor only coarsely because water blocks the tools used to map other worlds from orbit. [NOAA \(Seafloor Mapping \(explainer\), undated\)](#)

~~"The ocean makes 70% of the oxygen we breathe."~~

The ocean produces at least half of Earth's oxygen, and marine life uses roughly the same amount. [NOAA \(How much oxygen comes from the ocean?, undated\)](#)

~~"The ocean is turning acidic."~~

Average surface-ocean pH has dropped by about 0.1 units since the Industrial Revolution, about a 30 percent increase in acidity. Seawater is still basic, not acidic. [NOAA \(A primer on pH, undated\)](#)

DATA AND MEDIA

Credit everyone, license everything.

Every image, clip and dataset would be logged with its source, license, credit line and permitted uses before it is shown.

NOAA Ocean Exploration

Public domain unless a caption says "copyright"; credit requested; no endorsement implied. [NOAA \(Multimedia Specifications \(public-domain status and credit lines\), undated\)](#)

NASA

Generally not subject to US copyright; no NASA insignia; no endorsement implied. [NASA \(Images and Media Usage Guidelines, undated\)](#)

GEBCO bathymetry

Public domain with required attribution; not for navigation. [GEBCO \(Terms of use for the GEBCO Grid, undated\)](#)

Schmidt Ocean Institute

Creative Commons BY-NC-SA 4.0 (credit, non-commercial, share-alike), requested through SOI's form; uses outside those terms need SOI's written license, and we would treat a ticketed exhibit as outside them. No use for lobbying. [Schmidt Ocean \(Exploring the ocean with Creative Commons, undated\)](#)

MBARI

Copyrighted; requested through its media request form, license fees possible, and no use in strictly commercial projects. [MBARI \(Requesting video and images, undated\)](#)

Other institutions

Assume copyright until a written license says otherwise.

Aethon Intelligence

Aethon is the data and mapping partner. Its live seafloor map viewer is linked with credit to Aethon Intelligence; nothing of Aethon's is copied, embedded or screenshotted.

[Explore Aethon's seafloor map](#)

LIVE ANIMALS

An aquarium only if every gate is met. Otherwise, no.

The center is planned to be complete without live animals. Deep-sea animals are unsuitable for a center like this one: many do not survive being brought up, and the few aquariums that display them, such as Monterey Bay Aquarium, depend on specialized collection and life-support systems. [MBA \(Taking seawater to the extreme, undated\)](#) [Shillito 2015 \(Long-term maintenance and public exhibition of deep-sea hydrothermal fauna: the AbyssBox project, 2015\)](#) [Churaumi \(Deep-sea fish exhibition \(paper\), undated\)](#)

Accreditation by the Association of Zoos and Aquariums can only be sought once a facility is regularly open, and its standards require welfare assessments, alarms and backups. [AZA 1 \(Accreditation FAQs, undated\)](#) [2 \(The Accreditation Standards & Related Policies, 2026 edition, 2026\)](#)

Pennsylvania prohibits many invasive species. It lists all live crayfish, native or not, as prohibited: possessing, importing, transporting, introducing, buying or selling them is unlawful, with narrow exceptions (for example bait used where it was caught, or scientific use with escape controls and documentation). Anything else needs the Fish and Boat Commission's prior written approval. [Pa. Code 1 \(58 Pa. Code § 71a.11. Prohibited species, effective 1 January 2024\)](#) [2 \(58 Pa. Code Chapter 63 \(§ 63.46, sale, purchase or barter of injurious species\), amended effective 1 January 2024\)](#) [PFBC \(Aquatic invasive species and prohibited species, undated\)](#)

Hard gates (all must be met)

- 1 Binding commitment to Association of Zoos and Aquariums standards, with accreditation sought once open
- 2 Alarms on every tank, tested backups, and a written water-quality program with targets for each species set by a life-support engineer and an aquatic veterinarian
- 3 An aquatic veterinarian with 24/7 emergency cover; written quarantine and isolation procedures, in systems that do not share water with exhibits
- 4 No animal, plant, pathogen or untreated water ever released to local waters; used water treated as the City's pretreatment program requires
- 5 A written animal-welfare program in place before any animal arrives
- 6 Emergency plans, annual drills and engineered backup power
- 7 Ethical sourcing only: aquacultured, captive-bred, in-house cultured, propagated with legal documentation, or transfers and rescues from accredited institutions; no wild capture of rare or deep-sea animals, or of species listed under CITES, the treaty that controls international wildlife trade
- 8 Excluded: deep-sea animals and marine mammals (always); birds and other mammals (at least in any first aquarium stage); and prohibited, injurious or protected species
- 9 Written clearances from the Pennsylvania Fish & Boat Commission, the Department of Agriculture and the City of Bethlehem's industrial pretreatment program

Since 1 January 2026 Pennsylvania has required fish-health certificates for fish imported into the state or stocked in its waters; how that applies to a closed display system would need the Commission's written confirmation. [PFBC \(Fish health certificate requirements, effective 1 January 2026\)](#) The City of Bethlehem's industrial waste ordinance (Article 923) regulates non-domestic discharges to the sewer and can require an Industrial Waste Discharge Permit; whether a saltwater system's discharges would need one is a question for the City's pretreatment program. [City \(Codified Ordinances, Article 923: Disposal and Discharge of Industrial Waste, undated\)](#)

Water quality and biosecurity

The Association of Zoos and Aquariums' standards call for a regular water-quality program, with written records of results and chemical additions, and an alarm on every tank that holds fish or aquatic invertebrates in case life support fails. [AZA 1 \(The Accreditation Standards & Related Policies, 2026 edition, 2026\)](#) [2 \(The Accreditation Standards & Related Policies, 2024 edition \(copy in a US Fish and Wildlife Service docket\), 2024\)](#)

The Virginia Aquarium, for example, runs its own lab that tests its animal habitats for salinity, pH, alkalinity, ammonia, nitrite and nitrate, among other measures. [Virginia Aquarium \(Water Quality Lab, undated\)](#) No authoritative target ranges for public aquariums were found, so they would be set for each species and system by a life-support engineer and an aquatic veterinarian.

Quarantine also means keeping things in. Guidance from the UN Food and Agriculture Organization says quarantine facilities should not release animals, any pathogens they carry, or any organisms in their transport water. The World Organisation for Animal Health says treating the water a facility releases protects the environment. [FAO \(Procedures for the quarantine of live aquatic animals: a manual \(Fisheries Technical Paper 502\), chapter 1: Introduction, 2008\)](#) [WOAH \(Aquatic Animal Health Code, Chapter 4.4 \(disinfection\), 2024\)](#) The Fish and Boat Commission says it is illegal to release into the wild any species not native to Pennsylvania, and releasing a fish species that is not on its own list of allowed species into the state's waters needs the written permission of its Executive Director. [PFBC 1 \(Apply for a permit for amphibian and reptile](#)

10 An independent cost study and committed multi-year funding for animal care

Cautionary cases include a new aquarium that went bankrupt in 2002 under its debt, and a 2024 closure that followed a 2019 state wildlife-license suspension and years of animal-welfare concerns. [GlobeSt \(Colorado's Ocean Journey sinks under debt, 29 March 2002\)](#) [Bond Buyer \(Fish on the menu as Ocean Journey is bought by Houston restaurant chain, 2003\)](#) [CPR \(Interactive aquarium SeaQuest Littleton to close, 28 January 2024\)](#) [Denver7 \(SeaQuest Littleton to close after years of citations, injuries to visitors and animals, January 2024\)](#)

[educator possession, undated](#) [2 \(Fishing Summary \(Pennsylvania fishing laws and regulations\), 2026 edition\)](#) State rules treat a fish-breeding system as “closed” only if it is indoors, recycles all its water in normal use and never drains to the state's waters. Whether that test applies to a display aquarium that does not breed animals is unknown. [Pa. Code \(58 Pa. Code § 71a.4 \(closed systems\), current through November 2024\)](#)

Learning from live animals without owning them is possible: Pennsylvania's Trout in the Classroom program, stream sampling with watershed groups, and outreach from accredited aquariums. [PA TIC \(Program fact sheet, 16 December 2025\)](#)

Use less. Claim only what is true.

Efficiency first

Pennsylvania adopted the 2021 International Codes from January 2026. Aim to beat code with good envelope, heat recovery and right-sized ventilation. [PA UCC \(Code Bulletin B-2501: Implementation of 2021 International Codes \(Pennsylvania UCC\), October 2025\)](#)

Natural energy only

Any energy source the center adds would be natural: solar where the roof allows; wind, geothermal or heat recovery where they fit; hydro only where permitted, with fish passage and environmental reviews. The grid would stay as backup. A regional energy and logistics hub, a separate proposed project, could one day supply natural energy; nothing is agreed.

Solar where the roof allows

Reduces bills and emissions; it would not make the building energy-independent. Under the July 2025 federal law (P.L. 119-21), wind and solar projects that had not begun construction by 4 July 2026 can claim the main federal clean-electricity credits only if placed in service by 31 December 2027, so this plan assumes no federal solar credit. A June 2026 court ruling on the IRS rules for proving when construction began does not help a project that has not started. [P.L. 119-21 \(Public Law 119-21 \(H.R. 1, One Big Beautiful Bill Act\), §§ 70512–70513, 4 July 2025\)](#) [IRS \(Notice 2025-42: Sections 45Y and 48E beginning of construction, 15 August 2025\)](#) [Jones Day \(IRS issues new guidelines for wind and solar tax credits, August 2025\)](#) [Foley Hoag \(Federal court vacates IRS Notice 2025-42, June 2026\)](#)

Heat pumps; ground-source only if the ground allows

Carbonate (karst) bedrock and any brownfield cap or environmental covenant may rule out boreholes or need a regulator's permission. [PA DCNR \(Open-File Report 87-02 \(sinkholes, Northampton County\), 1987\)](#) [EPA \(Documents, reports and photographs: ISG / Tecumseh Redevelopment \(formerly Bethlehem Steel\), undated\)](#)

Grid-backed storage

Batteries or thermal storage sized by an engineer for resilience, with the grid as backup. Any connection to the grid, including sending solar power back to it, would follow the utility's and the state's rules.

No assumed tax breaks

Several federal incentives changed in 2025–2026; for example, the §179D efficiency deduction is not available for construction starting after 30 June 2026. [CRS \(IF12862: The Section 179D Energy Efficient Commercial Buildings Deduction, 8 April 2026\)](#)

Water

Free drinking water and no bottled water.
Rainwater or greywater reuse only where code
and the City allow it.

Waste

Reusable-goods shop, no single-use
giveaways, modular exhibits that can be
reused or passed to other museums.



PHASES

Gates, not dates.

Each phase starts only when the one before has earned it. No phase has a date, because none can honestly be promised yet.

THE PATH

From programs to a place.

0

Planning and programs

STARTS WHEN

Now

- This website and its research
- Advisors from science, education and accessibility
- Talks, pop-up demonstrations of underwater robots (ROVs) and citizen-science days with existing local organizations, if they agree

FINISHED WHEN

A fiscal sponsor or nonprofit in place, and at least one venue willing to host

1

Temporary exhibit (Format A)

STARTS WHEN

A host agreement, insurance and licensed content

- 1,000–3,000 sq ft exhibit for one or more seasons
- Visitor evaluation: who comes, what they learn, what they ask for

FINISHED WHEN

Evidence of demand and audiences

2

Feasibility study

STARTS WHEN

An independent nonprofit board and Phase 1 results

- Market, site, cost and operating study by independent consultants
- Conversations with owners about land or buildings

FINISHED WHEN

A board decision with a funding plan

3

Discovery center (Format B)

STARTS WHEN

Land or a building offered, and capital plus operating funding committed

- Design, permits and construction or adaptive reuse
- Opening only when governance, staff and funding are in place

FINISHED WHEN

Opening

4

Aquarium decision (Format C)

STARTS WHEN

A board decision to study live animals, once the discovery center is open and stable

- A separate, independent study

FINISHED WHEN

Go only if every hard gate on the Science & Conservation page is met; otherwise (the default) no-go

Detailed specifications for adapting a building, and its materials list, come only when there is a real building. Nothing is designed for construction yet. Once an owner agrees to a space, a licensed architect and engineers would write the drawings, specifications and materials list, with the owner's permission and the required reviews and permits. Materials would follow the plan's rules: reused, local and low-carbon first.

COSTS

Benchmarks, not estimates.

Real figures from comparable projects, so nobody underestimates what each format means. None is an estimate for this project, and none is a request for money.

A • Temporary exhibit

Rent an existing ocean exhibit **VERIFIED**

\$48,000 per 3½ months

Sciencenter's NOAA-funded Ocean Bound; needs 2,500–3,500 sq ft; plus freight [Sciencenter \(Ocean Bound \(exhibition rental\), undated\)](#)

Small modular exhibits **VERIFIED**

\$50,000–75,000

Science Museum of Minnesota, 400 sq ft exhibitions; purchase or lease not stated [SMM \(Big Impact, Small Footprint, undated\)](#)

Custom fabrication **REPORTED**

\$300–650 per sq ft

Pre-COVID consultant range; likely higher now [Museum Planner \(How much do museum exhibits cost, undated \(pre-COVID figures\)\)](#)

B • Discovery center

Local project comparator (all-in)

REPORTED

≈ \$1,190 per sq ft
Da Vinci Science Center, Allentown: about \$80M total project cost reported before opening (building, exhibits and theater) for about 67,300 sq ft (derived) [LVN \(Final steel beam starts countdown to opening of downtown Allentown Da Vinci Center, undated \(about 2023\)\)](#)

Small center operating cost **REPORTED**

≈ \$1.5M a year
Discovery Space, State College (2024 Form 990 summary) [ProPublica \(Discovery Space of Central Pennsylvania \(Form 990 summaries\), 2024 filing\)](#)

Larger center operating cost **REPORTED**

≈ \$3.4M a year
Sciencenter, Ithaca (2024 Form 990 summary, total expenses) [ProPublica \(Sciencenter, Ithaca \(Form 990 summaries\), 2024 filing\)](#)

C • Aquarium

Aquarium wing at a science center

REPORTED

\$8.7–10M (2013)
Greensboro Science Center [CPL \(Greensboro Science Center, undated\)](#)

Aquarium in a reused power plant

REPORTED

\$33M (2012)
Greater Cleveland Aquarium [Ideastream \(Cleveland aquarium makes a splash, 19 January 2012\)](#)

Annual operating cost, established aquarium

REPORTED

≈ \$16.1M a year
Maritime Aquarium at Norwalk (2024) [ProPublica \(The Maritime Aquarium at Norwalk \(Form 990 summaries\), 2024 filing\)](#)

Children's museum size tier

VERIFIED

\$0.49–2.3M a year

ACM "Medium" tier, 12,000–44,000 sq ft (2016 data, ACM Trends 1.7) [ACM \(ACM Trends 1.7: Using Museum Size & Locale to Understand Capacity, 2016 ACM Membership Survey data\)](#)

Revenue mix

VERIFIED

51% earned · 30% public · 19% private

ASTC 2024 global average [ASTC \(The 2024 Annual Statistics Summary Report, 2024 data\)](#)

What this implies (our reading, not a sourced fact): the illustrative reference center on the Experiences page, about 14,300 sq ft gross, would likely need on the order of \$1–2 million a year to run, with roughly half from public and private support rather than earned income such as admissions, programs and rentals, before free or low-cost access is added. Testing that is the main job of a feasibility study.

FUNDING ROUTES

What exists, and the catches.

Not applied for. Listed so the plan is realistic. Status as found in October 2026. Each tag shows how sure we are of the status.

- VERIFIED

Said by a primary source: a government record, the owner's or operator's own site, or an agency document.
- REPORTED

Said by credible news or a secondary source; not yet confirmed in a primary record.
- PROPOSED

Our proposal or our own estimate. Not yet confirmed, and nobody else has agreed to it.
- UNKNOWN

Not found in public sources. Only the owner or agency can answer.

GOVERNANCE

Who would be responsible.

- Start under a fiscal sponsor or form a Pennsylvania nonprofit.
- Register with the Pennsylvania Department of State before soliciting if anyone is paid to solicit. If all fundraising is done by unpaid volunteers or officers, register within 30 days after gross contributions exceed \$25,000 in a fiscal year.
- An independent board with a science and education advisory council, an accessibility advisor, and community members from South Bethlehem.

PA DEP Environmental Education Grants

VERIFIED

Phase 0–1 programs such as a watershed-to-ocean curriculum, applied for by an eligible partner or a fiscal sponsor (nonprofit, school or conservation district); paid as reimbursement

Status: Current round open until 13 November 2026, for projects running 1 July 2027 to 30 June 2028 [PA DEP 1 \(Shapiro Administration invests more than \\$400K in environmental education grants, 6 October 2026\)](#) [2 \(Environmental Education Grants, undated\)](#)

Pennsylvania RACP capital grants

VERIFIED

Format B only: at least \$1M total cost and a 50% non-state match

Status: Excluded if the project is in a CRIZ and eligible for CRIZ benefits; next round to be determined [PA Budget \(RACP at a Glance, undated\)](#) [RACP FAQ \(RACP Frequently Asked Questions, October 2023 version\)](#) [RACP grantees \(RACP: For Grantees and Subrecipients, updated 31 July 2026\)](#) [PA Revenue \(City Revitalization and Improvement Zone \(CRIZ\), undated\)](#)

Gaming Local Share Account (Northampton/Lehigh)

REPORTED

Needs a municipality, county, economic development agency or redevelopment authority in Northampton or Lehigh County as applicant

Status: Window reported as 1 July–30 September; 2026 window reported closed [PA DCED \(Local Share Account: Northampton and Lehigh Counties, undated\)](#)

Harry C. Trexler Trust

REPORTED

Grantees must be domiciled in Lehigh County (Bethlehem straddles two counties)

Status: Annual cycle [Trexler Trust \(Grantseekers, undated\)](#)

- Aethon is the data and mapping partner, agreed on 19 October 2026. Aethon supplies the maps and data; the center does public education. Aethon does not fund, own, operate or approve the center. The same person founded Aethon and is planning the center, so a future board must manage that conflict of interest with a conflict-of-interest policy, an independent board majority, arm's-length written agreements and credit for any data or equipment.
- No construction fundraising, ticket sales or opening dates until governance, a site and permits are in place.

Charity registration rules: [PA DOS \(Charitable Organizations \(registration\), undated\)](#) [Harbor Compliance \(Pennsylvania Charitable Registration, undated\)](#)

IMLS (federal museum grants)

VERIFIED

For an established museum; cost share depends on the program (Inspire! Grants for Small Museums: none for requests of \$5,000–\$25,000, 1:1 above that)

Status: FY2026 appropriation of \$291.8M enacted (P.L. 119-75); FY2027 Inspire! deadline 13 November 2026, for eligible established museums only [CRS \(R48958: FY2026 appropriations for the arts, humanities and IMLS, 27 May 2026\)](#) [IMLS \(Inspire! Grants for Small Museums, undated \(FY2027 round\)\)](#)

Museums for All

REPORTED

Access: admission from free to \$5 a person for people showing an EBT card, for up to four people per card

Status: Continuing in 2026 [Museums for All 1 \(About Museums for All, 2026\)](#) [2 \(Museum FAQs, undated\)](#)

MAJOR RISKS

What could go wrong, and what we would do.

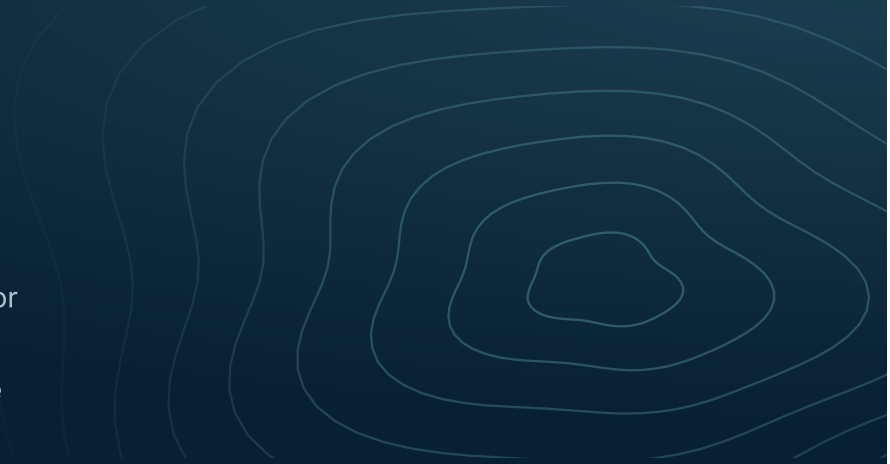
RISK	LIKELIHOOD	IMPACT	MITIGATION	OWNER (ONCE AN ORGANIZATION EXISTS)
No land or building is offered	High	High	Start with hosted exhibits; prefer adaptive reuse; never assume donated land.	Board
Operating deficits after opening	High	High	Feasibility study first; multi-year operating commitments before construction; modest size.	Board
Competing for the same audiences as Da Vinci and others	Medium	Medium	Collaborate; specialize in ocean exploration and data; share programs rather than duplicate.	Executive director
Brownfield, flood or karst conditions on a site	Medium	High	Covenant review, FEMA check and geotechnical study before any design.	Board
Licensing or attribution mistakes	Low	Medium	Asset register for every image, clip and dataset; public-domain first; written permissions.	Exhibits lead
Overstated science or invented discoveries	Low	High	Sources on every figure; scientific review; no reconstructed footage.	Science advisory council
Animal welfare failure (Format C)	Medium	High	Hard gates; default no-go; no animals until every gate is met.	Board
Confusion with Aethon, the City or ArtsQuest	Medium	Medium	Status labels on every page. The Aethon partnership is recorded with its date, its limits and the founder's conflict of interest; a conflict-of-interest policy, an independent board majority and arm's-length written agreements would manage it. Other partnerships described only once written.	Executive director



VISION

A place where anyone can explore the ocean.

The ocean shapes our weather, our water and our food, and most of its floor has never been seen. An Ocean Discovery Center would help people understand it, appreciate it and explore it, starting with the river outside the door.



PURPOSE

Understand, appreciate, explore.

Help people understand and enjoy Earth's oceans, the seafloor, marine life and underwater technology, and eventually the ocean worlds beyond Earth, with scientific accuracy, accessible education, conservation and the joy of discovery.

Curiosity

Start from questions people actually ask: how deep, how do we know, what lives there, how do robots get there.

Accuracy

Every figure links to its source, and the Research page lists each source's date (or says it is undated). We say whether a depth was measured, predicted, filled in by computer or actually seen, and we never invent discoveries.

Access

Free or low-cost wherever possible, sponsored school visits, step-free design, quiet rooms and sensory-friendly hours. See how others do it, below.

Conservation

Use less, waste less, and connect visitors with the people already caring for our rivers and the ocean.

Community

To be built with South Bethlehem and the wider Valley: educators, scientists, families, students and existing institutions.

PEOPLE AND THE PLANET

For people, and careful with the planet.

Everything here is planned for the people who come and for the water and wildlife beyond the door. These are the plan's own commitments; nothing is built yet.

Our long-term aim is a future where money matters much less, and what counts is people and the work they do together. It is an aim, not a promise. For now money is a tool: work that should be paid would be paid, and volunteers would add to paid staff, never replace them.

PROPOSED

Who it helps

Schools, families, future engineers and scientists, curious adults, and anyone who needs a calm space or step-free access. Free or low-cost access is the aim.

PROPOSED

What it protects

Rivers, the ocean and the life in them. No live animals on display and nothing taken from the wild, no bottled water or single-use giveaways, and rainwater reused where the building allows.

PROPOSED

Sort, recycle, compost

Sorting points for recycling, compost and trash at the center, the play area and every program or event. Food and garden waste is composted, and good leftover food is saved in the food and water hub.

PROPOSED

Reuse first

An existing building reused and adapted, with its materials salvaged and reused where they can be, and natural energy such as rooftop solar where the owner agrees and the roof allows.

WHO IT IS FOR

Everyone, on purpose.

- School groups and teachers, from early years to high school
- Families and children, including the very young
- Students who might become engineers, scientists or explorers
- Adults who are simply curious, at evening talks and on weekends
- People who need a calm space or step-free access
- Visitors who come for festivals and stay to learn something

WHAT IT WILL NOT DO

Promises we can keep now.

- ✗ Sell tickets, take donations for construction or announce an opening date before governance, a site and permits are in place
- ✗ Capture rare or deep-sea animals for display
- ✗ Show invented observations, species records, footage or discoveries
- ✗ Claim a partnership, endorsement or license that does not exist in writing
- ✗ Assume donated land, machinery, materials or services
- ✗ Claim the building would be energy-independent without engineering evidence

ACCESS

Cost should not decide who gets to learn.

Access is planned from the start, not added later. Below are models already used elsewhere and the rules that would apply.

None of this exists yet: no prices, passes, school programs, volunteer roles, funders or access partners have been agreed or contacted.

VERIFIED

Said by a primary source: a government record, the owner's or operator's own site, or an agency document.

REPORTED

Said by credible news or a secondary source; not yet confirmed in a primary record.

PROPOSED

Our proposal or our own estimate. Not yet confirmed, and nobody else has agreed to it.

Low-cost admission

VERIFIED

Under Museums for All, participating museums charge people showing an EBT card from nothing to \$5 each, for up to four people per card. [Museums for All 1 \(About Museums for All, 2026\)](#) [2 \(Museum FAQs, undated\)](#)

Library museum passes

VERIFIED

The Bethlehem Area and Easton Area public libraries lend museum passes to adult cardholders, and Allentown Public Library's passes include one for the Da Vinci Science Center. [BAPL \(Museum Passes Free With Your Library Card, 9 February 2026\)](#) [Easton Library \(Museum Passes, undated\)](#) [Allentown Library \(Museum Passes, undated\)](#)

School trips

VERIFIED

Pennsylvania's Educational Improvement Tax Credit lets businesses fund education programs on the state's list, and some education nonprofits use it to pay for school trips, buses included. [PA DCED \(Educational Improvement Tax Credit Program \(EITC\), undated\)](#) [Tyler Arboretum \(PA Educational Improvement Tax Credit \(EITC\) Program at Tyler, undated\)](#) [Stroud Center \(Educational Improvement Tax Credit, undated\)](#)

By bus

PROPOSED

The planned area is around LANta's Southside Station, so visitors and school groups could arrive by bus, with a step-free route from the stop. Any new stop or shelter would be LANta's and the City's decision. [LANta \(Enhanced Bus Service \(EBS\), undated\)](#)

Pets where it is safe

PROPOSED

Service animals would be welcome everywhere visitors go. Pets on a leash would be welcome on the outdoor grounds where it is safe for them and for visitors, but not inside the play area.

Short volunteer shifts

PROPOSED

Volunteer shifts would last 2 hours at most, and the work would be outdoors where it can be.

Volunteers

VERIFIED

Pennsylvania requires child-protection clearances before an adult volunteers with children, renewed at least every 60 months. Federal rules generally do not let volunteers work in a nonprofit's shop or other commercial activities. [PA DHS 1 \(Volunteers having contact with children: frequently asked questions, 23 August 2024\)](#) [2 \(Child abuse clearances, undated\)](#) [US DOL \(Fact Sheet #14A: Non-Profit Organizations and the Fair Labor Standards Act \(FLSA\), August 2015\)](#)

UNKNOWN

A Lehigh Valley fund for field-trip buses was not found. School district transportation offices, United Way of the Greater Lehigh Valley and local community foundations could answer.

UNKNOWN

School-bus drop-off and step-free routes at a real building are Unknown until a building is chosen. The Bethlehem Parking Authority, LANta, the City and an accessibility consultant could answer.

HOW IT FITS

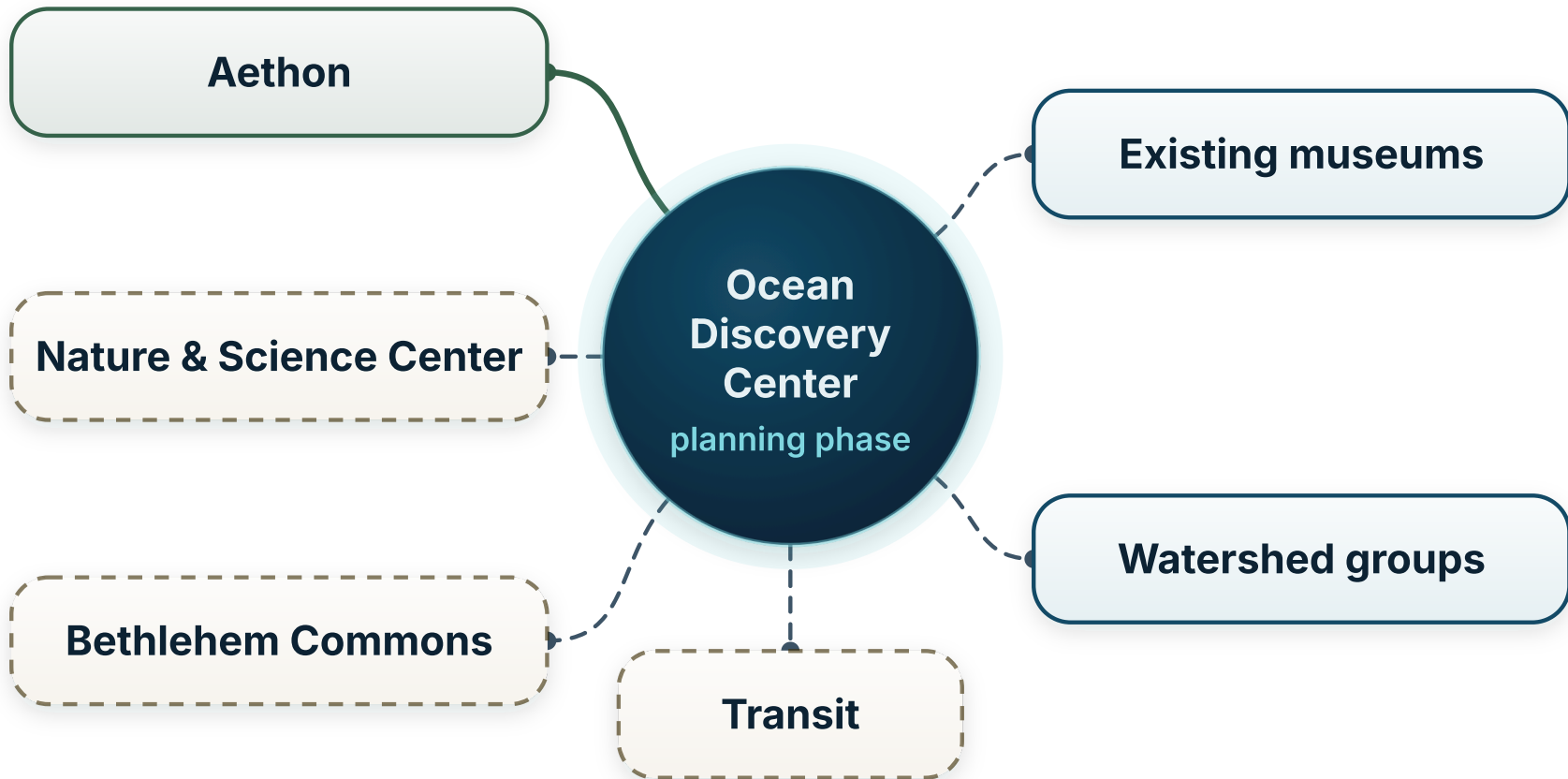
One idea among neighbors.

The center would work alongside museums and watershed groups that already exist, not compete with them. Aethon, a company founded by the person planning the center, is its data and mapping partner: Aethon supplies the maps and data; the center does public education. Aethon does not fund, own, operate or approve the center. No other partner exists. Bethlehem Commons and Bethlehem Connect are separate proposed projects, not existing ones. They could connect with the center one day. The shared campus would be with a different plan, the Bethlehem Nature & Science Center, by the same person.

Watershed education is already strong locally. Wildlands Conservancy says its environmental education programs benefit more than 19,000 school-age children a year; the figure is its own and undated. [Wildlands \(Environmental education, undated\)](#) The center would connect people to that work, not duplicate it.

[Proposed experiences →](#)

[About Commons and Connect →](#)



Aethon

Agreed partner
Data and mapping partner agreed 19 Oct 2026

Existing museums

Exists
NMIH, Nurture Nature Center, Da Vinci:
possible collaborators

Watershed groups

Exists
Wildlands, Lehigh Gap, Jacobsburg: run
programs today

Nature & Science Center

Proposed
Separate plan, same person; would share a lobby

Bethlehem Commons

Proposed
Separate proposed project (not an existing one)

Transit

Proposed
LANta buses today; Bethlehem Connect and
rail: proposed

Solid line and green box: agreed partner. Aethon became the data and mapping partner on 19 October 2026; the same person founded Aethon and is planning the center. Blue solid box: organization exists. Dashed line: no agreement or formal relationship exists. Dashed box: proposed. Bethlehem Commons and Bethlehem Connect are separate proposed projects, not existing ones; we found no other projects with those exact names. The Bethlehem Nature & Science Center is a separate plan by the same person, not an existing organization; nothing is agreed. Not an official project of, or endorsed by, the National Museum of Industrial History, Nurture Nature Center, the Da Vinci Science Center, Wildlands Conservancy, Lehigh Gap Nature Center or Jacobsburg Environmental Education Center. Watershed groups' programs: [Wildlands \(Environmental education, undated\)](#) [LGNC \(Field Trips, undated\)](#) [PA DCNR \(Jacobsburg Environmental Education Center: Education Programs, undated\)](#)

HERE, AND ELSEWHERE

Public education here. Marine operations elsewhere.

The center is for exhibitions, classes and outreach. It would not run boats, field missions or a port. That work belongs to other places, most of which already exist.



NOAA Ship Okeanos Explorer. In port, Honolulu, 2024. Credit: Caitlin Bailey, GFOE, via NOAA Ocean Exploration.

Ocean Discovery Center (this project)

PROPOSED

- Exhibitions and educational programs
- Interactive seafloor maps and data from Aethon, the data and mapping partner, each credited
- Ocean robotics demonstrations (in a freshwater test tank, once there is a center)
- Public outreach, classes and talks

Planning phase. No marine operations, no vessels, no field missions.

Aethon research and engineering

- Ocean data and seafloor mapping, supplied to the center as its data and mapping partner
- Data analysis and science review
- Equipment development and robotics research

Aethon's own work, separate from the center. Aethon supplies the maps and data; the center does public education. Aethon does not fund, own, operate or approve the center.

Future coastal Aethon bases

PROPOSED

- Vessel access and field missions
- Camera deployments and equipment servicing
- Possibly work with remotely operated vehicles (ROVs, driven from a ship through a cable) and autonomous underwater vehicles (AUVs, which swim on their own)

Only if real operating demand justifies them; they need not be commercial seaports.

Planned seaport links

PROPOSED

- Vessel and underwater-robot field work, field trips and data, through existing larger seaports: the Port of Philadelphia, downriver on the Delaware, and the Port of Newark/Elizabeth

Planned links, decided on 19 October 2026 by the person planning the center. No agreement with any port or terminal operator yet, and none has been contacted. Each port's operators decide and set the rules. The center itself runs no boats.

Existing seaports and freight links

VERIFIED

- Freight and marine logistics through the ports of Newark/Elizabeth and Philadelphia
- Rail freight through Bethlehem's intermodal terminal

These exist today. The Lehigh Valley Economic Development Corporation (LVEDC) describes easy access from the Lehigh Valley to the ports of Newark and Philadelphia, and an established rail freight terminal in Bethlehem where containers move between trains and trucks. [LVEDC \(Lehigh Valley's transportation network offers convenient market access for businesses, undated\)](#)

Use existing ports, vessel operators and marine research facilities before building anything new: faster, less wasteful and far cheaper.

PROPOSED If Aethon builds a coastal and international research network one day, the center could show observations from it, each with its source, date and credit to Aethon, and labeled measured, predicted, filled in or seen.

REUSE IT ANYWHERE

Written so another place can copy it.

Another town, campus or country could make its own version. Beyond Bethlehem, the aim is to repeat it in other Pennsylvania towns, across the

US, including the Midwest, and around the world. That is an aim, not a plan or a promise: no other place is chosen, and nothing is funded, here or anywhere else.

What another place copies

- The method, the page templates and the checklists
- The core place names kept in one settings file, which a copy edits first
- Templates with no people, contacts or private data
- A copy starts at “idea”, with every permit and agreement “not requested”

What stays local, and is checked there

- Land and owners
- Permits and laws
- Climate
- Language, currency and units

It shares its methods with other planning-phase projects through Project OS, a shared system for people and work that is also in the planning phase. Aethon is its data and mapping partner.



RESEARCH & SOURCES

Show the work.

152 sources, grouped by topic. Each shows its date (or “undated”) and whether it is a primary or secondary source. Every sourced fact and figure on this site links to its entry here; planning sizes and our own estimates are labeled as such.



METHOD

How the research was done.

Desk research on 18 October 2026, covering sites, institutions and transit, aquarium feasibility, ocean science and media licenses, and funding, governance and sustainability.

Nobody was contacted. No owner, agency or institution has been asked anything, and nothing here implies their interest or agreement. The one partner, Aethon (data and mapping), was founded by the person planning the center.

Pages were not read in full. When this research was done, the cited web pages could not be opened directly, so facts come from search-engine excerpts of them. Re-open a source before relying on it for a decision.

No county deed or parcel records were reached, so no parcel is identified anywhere on this site.

The full research notes, with open questions for each topic, are internal working files and are not published. The main open questions are listed on the [Potential Locations page](#).

TAGS

What the labels mean.

Verified

Said by a primary source: a government record, the owner's or operator's own site, or an agency document.

Reported

Said by credible news or a secondary source; not yet confirmed in a primary record.

Proposed

Our proposal or our own estimate. Not yet confirmed, and nobody else has agreed to it.

Unknown

Not found in public sources. Only the owner or agency can answer.

SOURCES

By topic.

Ocean science

Ocean worlds beyond Earth

River to ocean

Places, ownership and constraints

Museums, education and programs

Transit

Aquarium feasibility

Costs, funding and governance

Sustainability

Media and data licenses

Ocean science

Nippon Foundation–GEBCO Seabed 2030 · 20 April 2026 · primary source
[Global seabed mapping reaches new milestone as five million square kilometres added in a year](#)

Science Advances (Bell et al.) · 7 May 2025 · primary source
[How little we've seen: A visual coverage estimate of the deep seafloor](#)

NOAA National Ocean Service · undated · primary source
[How deep is the ocean?](#)

IPCC · 2021 · primary source
[AR6 Working Group I, Summary for Policymakers](#)

NOAA PMEL Carbon Program · undated · primary source
[A primer on pH](#)

World Register of Marine Species · 13 May 2026 · primary source
[250,000 accepted marine species](#)

NOAA Ocean Exploration · undated · primary source
[Seafloor Mapping \(explainer\)](#)

National Marine Educators Association · Version 3, 2020 · primary source
[Ocean Literacy: The Essential Principles](#)

NOAA Ocean Exploration · undated · primary source
[How deep is the ocean?](#)

NOAA Ocean Exploration · April 2026 · primary source
[How much of the ocean has been explored?](#)

NOAA Global Ocean Monitoring and Observing · undated · primary source
[The Ocean](#)

NOAA JetStream · undated · primary source
[Layers of the Ocean](#)

Global Carbon Project · November 2025 · primary source
[The Global Carbon Budget FAQs 2025](#)

NOAA National Ocean Service · undated · primary source
[How much oxygen comes from the ocean?](#)

Woods Hole Oceanographic Institution · undated · primary source
[The Discovery of Hydrothermal Vents: 1977](#)

GEBCO · undated · primary source
[GEBCO Type Identifier \(TID\) Grid](#)

NOAA National Ocean Service · undated · primary source
[How does pressure change with ocean depth?](#)

NOAA Ocean Exploration · 2017 · primary source
[Seamount in the Jarvis Unit, PRIMNM \(EX1705 background image\)](#)

Ocean worlds beyond Earth

NASA Science · undated · primary source

[Europa Clipper mission timeline](#)

ESA · September 2026 · primary source

[Successful Earth flyby improves Juice's course to Jupiter](#)

NASA Science (Dragonfly blog) · 9 July 2026 · primary source

[NASA's Dragonfly clears key tests as Titan rotorcraft takes shape](#)

Nature (Petricca et al.) · December 2025 · primary source

[Titan's strong tidal dissipation precludes a subsurface ocean](#)

NASA JPL · June 2023 · primary source

[NASA Cassini data reveals building block for life in Enceladus' ocean](#)

NASA · 12 March 2015 · primary source

[NASA's Hubble observations suggest underground ocean on Jupiter's largest moon](#)

River to ocean

Pennsylvania DCNR · undated · primary source

[Lehigh Gorge State Park \(Lehigh River, 103 miles to Easton\)](#)

USGS · Water Year 1999 · primary source

[Water-data report, station 01454700, Lehigh River at Glendon, PA](#)

Delaware River Basin Commission · 8 February 2023 · primary source

[Delaware River Basin population update](#)

Delaware River Basin Commission · 2008 · primary source

[2008 Annual Report \(basin area by state\)](#)

Partnership for the Delaware Estuary · undated · primary source

[About Us](#)

Places, ownership and constraints

ArtsQuest · 21 September 2026 · primary source

[ArtsQuest celebrates next construction milestone for Turn & Grind Shop with beam signing](#)

ArtsQuest · undated · primary source

[Turn & Grind Shop \(Re-Imagine That! campaign\)](#)

ArtsQuest · 12 August 2026 · primary source

[Musikfest 2026 ranks among top three most attended festivals in its history](#)

Urban Land Institute · undated (about 2014–2015) · secondary source

[SteelStacks Arts and Cultural Campus \(case study\)](#)

LehighValleyNews.com · 2023 · secondary source

[Huge new Bethlehem parking garage opening just in time for Musikfest](#)

US EPA · undated · primary source

[Documents, reports and photographs: ISG / Tecumseh Redevelopment \(formerly Bethlehem Steel\)](#)

US EPA Region III · 2023 · primary source

[Final Decision and Response to Comments, Sands BethWorks Retail parcels](#)

US EPA Region III · 2023 · primary source

[Final Decision and Response to Comments, Sands Gaming parcel](#)

US EPA Region III · 2023 · primary source

[Statement of Basis, ArtsQuest parcels](#)

National Park Service · 2006 · primary source

[South Bethlehem Downtown Historic District \(NRIS 05001500\)](#)

City of Bethlehem · undated · primary source

[Historic and Conservation Districts](#)

US Department of the Interior · July 2024 · primary source

[Interior Department celebrates selection of Pennsylvania's Historic Moravian Bethlehem](#)

UNESCO World Heritage Centre · 2024 · primary source

[Moravian Church Settlements \(ref. 1468\), maps](#)

City of Bethlehem · 1 July 2014 · primary source

[City Council minutes: Article 1317 floodplain amendment \(FIRM effective 16 July 2014\)](#)

NOAA National Weather Service, MARFC · undated · primary source

[Historical floods: Lehigh River at Bethlehem](#)

PA DCNR Bureau of Geological Survey · 1987 · primary source

[Open-File Report 87-02 \(sinkholes, Northampton County\)](#)

Pennsylvania Department of Revenue · undated · primary source

[City Revitalization and Improvement Zone \(CRIZ\)](#)

LehighValleyNews.com · 2025 · secondary source

[6 years after Martin Tower demolition, developer seeks \\$9M in public funds for new medical facilities on site](#)

Las Vegas Sands Corp. · 8 March 2018 · primary source

[Las Vegas Sands agrees to \\$1.3 billion sale of Sands Bethlehem](#)

City of Bethlehem · 1 October 2024 · primary source

[City Council agenda attachment: Approve Use Permit Agreement, ArtsQuest 2024 Ice Rink at SteelStacks](#)

City of Bethlehem · 2025 · primary source

[City Council attachment: Approve Resolution, ArtsQuest 2025 SteelStacks Concert Series](#)

Lehigh University (OSPI) · undated · primary source

[Transform Mountaintop](#)

ArtsQuest · undated · primary source

[Directions/Parking - SteelStacks](#)

City of Bethlehem · undated · primary source

[Zoning Ordinance \(current PDF\)](#)

City of Bethlehem · undated · primary source

[Zoning Ordinance \(archived copy\), Section 1305.05](#)

Lehigh University News · undated · secondary source

[BethWorks now](#)

LehighValleyNews.com · 2024 · secondary source

[Iconic Bethlehem blast furnaces at SteelStacks go dark. But why?](#)

PPL Electric Utilities · undated · primary source

[Territory covered](#)

SteelStacks (ArtsQuest) · undated · primary source

[Hoover Mason Trestle](#)

UGI Utilities · undated · primary source

[Natural Gas Bethlehem and Northampton County PA](#)

UGI Utilities · January 2026 (per URL) · primary source

[Gas Division tariff \(current tariffs\)](#)

WHYY · undated (about 2010s) · secondary source

[How Bethlehem played industrial redevelopment's waiting game](#)

Museums, education and programs

Allentown NIZ Development Authority · 22 May 2024 · primary source

[Da Vinci Science Center at PPL Pavilion opens in downtown Allentown](#)

Da Vinci Science Center · 2026 · primary source

[Finding Titanic: The Secret Mission](#)

National Museum of Industrial History · undated · primary source

[Next Level: Raising Industrial History to New Heights](#)

National Museum of Industrial History · undated · primary source

[Host an Event](#)

Nurture Nature Center · undated · primary source

[Science On a Sphere](#)

Lehigh University · 2025–26 · primary source

[Oceans Research Center \(Catalog 2025–26\)](#)

Delaware & Lehigh National Heritage Corridor · 2026 · primary source

[Hugh Moore Park and National Canal Museum](#)

Wildlands Conservancy · undated · primary source

[Environmental education](#)

FIRST Mid-Atlantic · 11 April 2026 · primary source

[FMA District Championship Event Packet 2026](#)

RoboNation · undated · primary source

[SeaPerch kits](#)

Blue Robotics · undated · primary source

[BlueROV2](#)

Blue Robotics · undated · primary source

[Tariff surcharge](#)

Allentown Public Library · undated · primary source

[Museum Passes](#)

Bethlehem Area Public Library · 9 February 2026 · primary source

[Museum Passes Free With Your Library Card](#)

Easton Area Public Library · undated · primary source

[Museum Passes](#)

NOAA Gray's Reef National Marine Sanctuary · undated · primary source

[Gray's Reef Ocean Discovery Center](#)

Pennsylvania DCNR · undated · primary source

[Jacobsburg Environmental Education Center: Education Programs](#)

Lehigh Gap Nature Center · undated · primary source

[Field Trips](#)

National Museum of Industrial History · 16 July 2026 · primary source
National Museum of Industrial History Celebrates 10 Years of Inspiring Innovation and Preserving America's Industrial Legacy

Transit

LANta · undated · primary source
Enhanced Bus Service (EBS)

LANta · June 2026 · primary source
2026 June Service Changes

Lehigh Valley Planning Commission (PennDOT / WSP) · March 2024 · primary source
Lehigh Valley Passenger Rail Feasibility Analysis, Final Report

LehighValleyNews.com · December 2025 · secondary source
\$400K study will take 'deeper look' at passenger rail in the Lehigh Valley

Trans-Bridge Lines · 2026 · primary source
Schedules and stops

OurBus · undated · primary source
Bethlehem, PA to New York, NY

City of Bethlehem · 2016 · primary source
BethConnects: A Trail Study

Lehigh Valley Economic Development Corporation · undated · primary source
Lehigh Valley's transportation network offers convenient market access for businesses

LANta · 10 February 2026 · primary source
Board of Directors meeting minutes, 10 February 2026

Aquarium feasibility

Association of Zoos and Aquariums · 2026 · primary source

[The Accreditation Standards & Related Policies, 2026 edition](#)

Association of Zoos and Aquariums · undated · primary source

[Accreditation FAQs](#)

Monterey Bay Aquarium · undated · primary source

[Taking seawater to the extreme](#)

Deep-Sea Research II (Shillito et al.) · 2015 · primary source

[Long-term maintenance and public exhibition of deep-sea hydrothermal fauna: the AbyssBox project](#)

Okinawa Churaumi Aquarium · undated · primary source

[Deep-sea fish exhibition \(paper\)](#)

Pennsylvania Fish & Boat Commission · undated · primary source

[Aquatic invasive species and prohibited species](#)

Pennsylvania Fish & Boat Commission · effective 1 January 2026 · primary source

[Fish health certificate requirements](#)

Pennsylvania Trout in the Classroom · 16 December 2025 · primary source

[Program fact sheet](#)

CPL (architects) · undated · secondary source

[Greensboro Science Center](#)

Ideastream Public Media · 19 January 2012 · secondary source

[Cleveland aquarium makes a splash](#)

ProPublica Nonprofit Explorer · 2024 filing · secondary source

[The Maritime Aquarium at Norwalk \(Form 990 summaries\)](#)

GlobeSt · 29 March 2002 · secondary source

[Colorado's Ocean Journey sinks under debt](#)

Colorado Public Radio · 28 January 2024 · secondary source

[Interactive aquarium SeaQuest Littleton to close](#)

City of Bethlehem · undated · primary source

[Codified Ordinances, Article 923: Disposal and Discharge of Industrial Waste](#)

The Bond Buyer · 2003 · secondary source

[Fish on the menu as Ocean Journey is bought by Houston restaurant chain](#)

Denver7 · January 2024 · secondary source

[SeaQuest Littleton to close after years of citations, injuries to visitors and animals](#)

Association of Zoos and Aquariums · 2024 · primary source

[The Accreditation Standards & Related Policies, 2024 edition \(copy in a US Fish and Wildlife Service docket\)](#)

FAO · 2008 · primary source

[Procedures for the quarantine of live aquatic animals: a manual \(Fisheries Technical Paper 502\), chapter 1: Introduction](#)

Pennsylvania Code · amended effective 1 January 2024 · primary source
[58 Pa. Code Chapter 63 \(§ 63.46, sale, purchase or barter of injurious species\)](#)

Justia (Pennsylvania Code) · current through November 2024 · secondary source
[58 Pa. Code § 71a.4 \(closed systems\)](#)

Pennsylvania Fish & Boat Commission · 2026 edition · primary source
[Fishing Summary \(Pennsylvania fishing laws and regulations\)](#)

World Organisation for Animal Health (WOAH) · 2024 · primary source
[Aquatic Animal Health Code, Chapter 4.4 \(disinfection\)](#)

Pennsylvania Code · effective 1 January 2024 · primary source
[58 Pa. Code § 71a.11. Prohibited species](#)

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