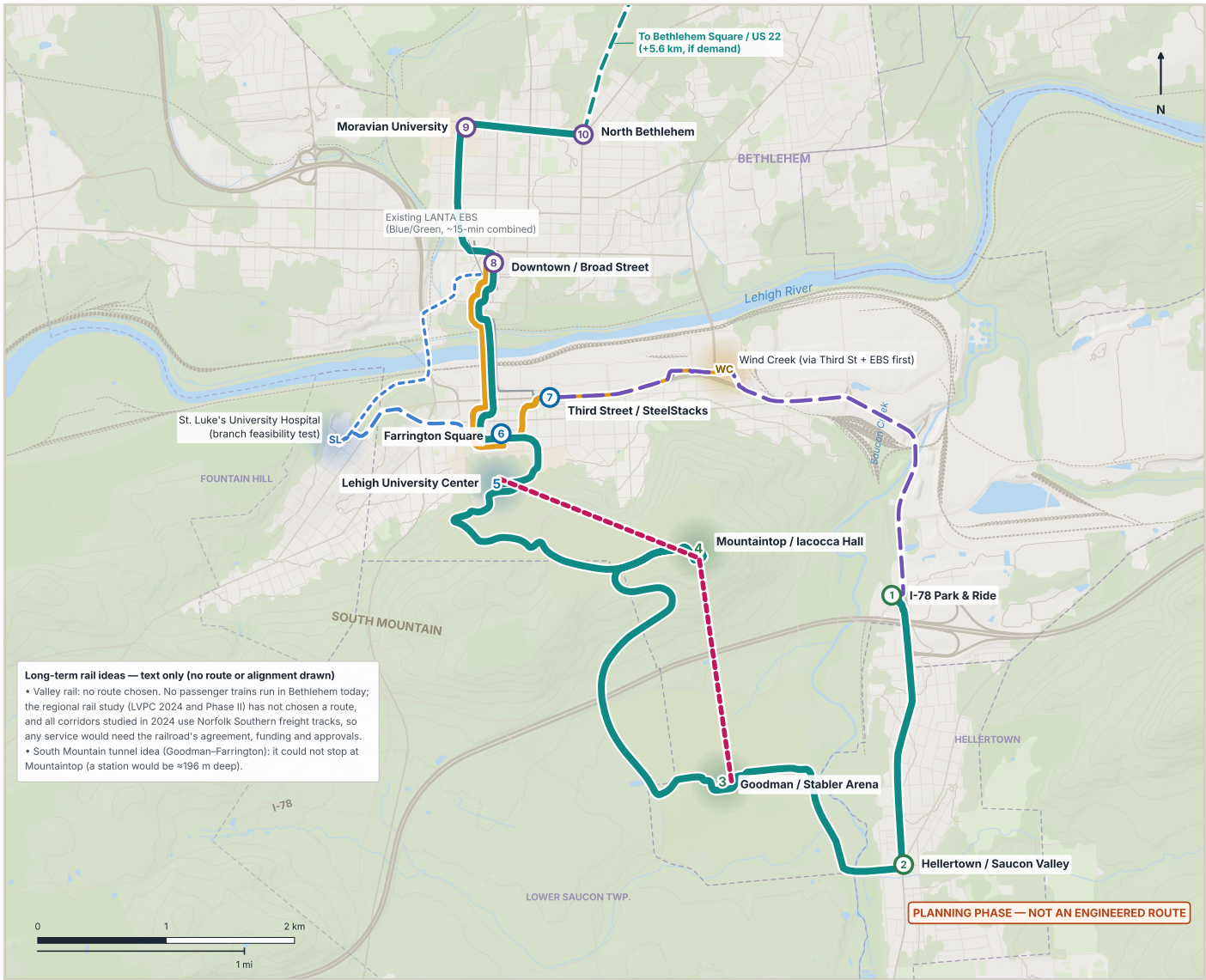


Prepared by David Fischbarg · contact via the project website

Bethlehem Connect

A hybrid, high-frequency electric transit vision for Saucon Valley, Lehigh University's three campuses, the Southside, Downtown, Moravian University and North Bethlehem.

Planning phase. An independent plan; nothing is funded or built yet. Lines are corridors on existing streets, not engineered routes.



— Connect Spine — electric BRT (Phase 1)
 — River Line — upgraded EBS core (Phase 1)
 Gondola mountain link (Phase 1 option)
 - - - Valley Express option
 - - - St. Luke's branch options
 - - - North expansion if demand

Long-term rail ideas: text only, no route drawn (note on map) Shaded areas mark station areas, not sites; the gondola is drawn without towers

10 proposed stations + 3 tested candidates	16.5 km Spine, I-78 P&R → Linden & Elizabeth, ~35 min	~12 min gondola Goodman ↔ Asa Packer via Mountaintop / Iacocca Hall	~\$11.2M/yr screening operating cost of the Phase 1 core lines (Spine, River Line) at LANTA's 2024 bus cost per hour; options not costed
--	---	---	--

Map: Overture Maps 2026-09-23.1 (© OpenStreetMap contributors; land cover ESA WorldCover, CC BY 4.0); terrain USGS 3DEP (2022); rail note: LVPC passenger rail study (2024) and Phase II, retrieved 2026-10-18. Lines are corridors on existing streets; station dots mark areas, not sites. v1.1 (18 Oct 2026): rail ideas as text only; v1.2 (20 Oct): planning-phase wording; v1.3 (20 Oct): re-phased, Phase 1 in Bethlehem and Hellertown, Phase 2 past Bethlehem (conditional targets 2029 and 2030); v1.4 (21 Oct): research-check wording; v1.5 (21 Oct): a battery-electric 2028 pilot, no fossil-fuel fallback; v1.6 (21 Oct): shaded station areas and no gondola towers on the map; page 3 clears its footer. Independent plan by David Fischbarg, in the planning phase — not an official project of, or endorsed by, LANTA, LVPC, Lehigh, Moravian, St. Luke's, Wind Creek or the City of Bethlehem.

The idea in brief

- **Terrain decides the mode.** Mountaintop (≈275 m) sits ~180 m above Goodman and ~153 m above Asa Packer; campus mountain roads reach 11–13% grades. Buses can serve the mountain today, a gondola fits the slope best, and surface rail does not fit it at all. A South Mountain tunnel could not stop at Mountaintop (≈196 m deep).
- **Build on LANTA's Enhanced Bus Service.** EBS already runs about every 15 minutes Downtown–Fahy Bridge–Southside. Phase 1 extends and electrifies it rather than duplicating it.
- **Serve everyone, not just Lehigh:** residents of Hellertown, the Southside and North Bethlehem; students at Lehigh, Moravian and Liberty High School; workers at St. Luke's, Wind Creek and Lehigh; visitors to SteelStacks and Stabler/Goodman; and regional travelers through the I-78 Park & Ride.

Proposed phases (indicative)

Phase	What	When*
0	Conversations and data with LVPC, LANTA, Lehigh and the City; align with the FutureLV long-range plan update	now – mid-2027
1	In and around Bethlehem and Hellertown: Connect Spine and River Line; one brand and fare with LANTA and campus shuttles if they agree; options (Valley Express, St. Luke's in Fountain Hill, Airport Link to ABE, gondola after studies) and extensions if demand	target 2029
2	Past Bethlehem: corridor options on existing streets to Allentown, Easton, Nazareth, Bath, Saucon Valley south and Coopersburg, coordinated with LANTA, which decides	target 2030
Later	Full bus lanes where data support them; express tiers only if triggers are met; rail or subway only behind ridership, funding and engineering gates	after 2030

*Conditional targets, not commitments: they depend on a sponsor adopting the route, funding and operating partners, and comparable projects often slipped 1–2 years. The **Bethlehem 2030** path is on page 3.

Which mode where

Corridor	Practical now	Long term
I-78 P&R – Hellertown – Goodman	Electric BRT	Valley rail
Goodman – Mountaintop / Iacocca Hall – Asa Packer	Bus; gondola candidate	Gondola
UC – Farrington – Third St – Downtown	Electric BRT	Street LRT
Downtown – Moravian – Linden & Elizabeth	Electric BRT	Extension north
Fountain Hill (St. Luke's)	Bus branch (~10% grades)	—

Gondola vs. bus on the mountain

Time Goodman → UC	~12 min vs ~14 min
Wait	<1 min vs up to 10 min
Capacity	2,000–3,000 vs ~500–740 pphpd
Weather	wind holds vs ice on 11–13% grades
Capital	~\$0.05–0.35B (low confidence) vs low
Open issues	PA regulatory path, evacuation, towers over forest and campus

Findings on specific places

- **Wind Creek:** the walk from 3rd & Polk is 1,666 m (~21 min), so Third St alone does not give station access. But Wind Creek is already the EBS Green Line terminus. No duplicate station is needed now; start with timed transfers, Greenway improvements and shift-time trips, and extend the River Line (+1.46 km) if demand supports it.
- **St. Luke's (Fountain Hill):** a bus branch is feasible (option A from Farrington, 1.67 km; option B from Downtown via the Hill-to-Hill Bridge, 2.30 km; both ~10% grades). Rail is not recommended. Local LANTA service is thin and shrinking.
- **North:** Linden & Elizabeth (Liberty HS) as the initial terminus; Broad St as an intermediate stop; Moravian served at Main & Elizabeth; expansion to Bethlehem Square / US 22 (+5.6 km) if demand supports it.
- **South:** the I-78 Park & Ride as terminus (site and capacity to confirm) plus a Hellertown Main St stop.

Costs and energy (screening)

Item	Order of magnitude
Core-line BRT "lite" (stations, signal priority, limited lanes)	~\$45–215M + fleet
BRT with full dedicated lanes	~\$320–880M + fleet
Gondola, 3.4 km, 3 stations	~\$0.05–0.35B (low confidence)
Valley light rail / mixed tunnel / metro	~\$0.5–2.0B / \$0.8–3.4B / \$1.6–6.4B
Core-line operations (~71,000 revenue hours; 15 buses)	~\$11.2M/yr (LANTA's 2024 bus rate; more later)
Core-line electricity	2.99–3.53 GWh/yr
Station solar (~600 kWdc, assumed)	0.60–0.75 GWh/yr (17–25% annual equivalence)

AACE Class 5 bands (–20/–50% to +30/+100%), source-year dollars. Core lines: Phase 1's Spine and River Line; its options and extensions are not costed. Solar does not directly power buses; heat pumps move heat and do not generate electricity; batteries shave peaks and back up life-safety loads.

Proposed facilities (ideas)

Level-boarding stations with solar canopies; a gondola angle station at Mountaintop / Iacocca Hall near a separate garden idea, with a factual geology learning pavilion; a **Bethlehem Hub** starting at street level downtown (below-grade only if engineering and finance support it); links to **Bethlehem Commons** and **Lehigh Leagues** — separate projects by the same author (Commons would be coordinated with the City's planned South Side Community Center, which is not built; Lehigh Leagues is student-run, not an official Lehigh program).

Built to expand

- **Capacity ladder:** 10-min buses → 5-min → 60-ft buses → dedicated lanes → rail on the valley corridor only if demand proves out.
- **Extendable ends, branch-ready junctions:** north to Bethlehem Square, south beyond I-78, branches at Farrington, Third St and Downtown; spare bays, conduit and grid capacity; rail-ready valley corridor.
- **Open standards:** GTFS, open data, one brand and fare system that other PA communities can join.
- **Service tiers (long-term vision):** local → Connect all-stop → Express limited-stop (peak park-and-ride or event trips, only if measured triggers are met) → Ultra-express hub-to-hub, including better access to the airports and seaports that already exist, later PA-, US- and worldwide, each region with its own sponsors.

Project OS

Separately planned software for coordinating projects (maps, schedules, approvals, community input) — **in development, not yet live**, not part of this request.

Questions to answer first

1. Who could fund ~71,000 new service hours a year, and in what shares?
2. Can battery buses run all winter on 11–13% grades, and at what energy use?
3. Gondola: South Mountain wind data, Pennsylvania regulatory pathway, evacuation, Lehigh land and forest impacts.
4. I-78 Park & Ride: site, spaces and ownership.
5. St. Luke's and Wind Creek: shift times, employee origins, interest in passes or a branch.
6. Flood elevations at 3rd & Polk; karst at any below-grade element; heritage review downtown.
7. Fahy Bridge / New St bus lanes: traffic counts, bridge rating, Hill-to-Hill staging.
8. Depot, charging and PPL capacity; a ridership forecast with Lehigh and LANTA data.

What we are asking for

- **LVPC:** guidance on how a plan like this could be considered in the FutureLV / long-range plan process.
- **LANTA:** a short conversation on fit with EBS, and access to boardings, GTFS and park-and-ride data.
- **Lehigh University:** views on the mountain link (bus vs. gondola), Mountaintop / Iacocca Hall and Goodman station areas, and shuttle data.
- **City of Bethlehem:** fit with the draft Complete Streets Plan, Broad St and Linden St projects, and the planned South Side Community Center.

Bethlehem 2030 — accelerated path (conditional targets, not commitments)

2026	Partners would need to agree to co-sponsor a corridor study and pilot
2027	Route adoption; operating and capital money and approvals would need to be secured
2028 target	River Line pilot could open: 10-min service with leased battery-electric buses, quick-build lanes
2029 target	Phase 1: Spine BRT-lite opens in phases with the battery-electric fleet; options and extensions where studies and demand support them
2030 target	Phase 2: first corridors past Bethlehem, only if LANTA agrees; rail studies done
After 2030	Full lanes, a later gondola, valley rail, express tiers, PA expansion — each gated

Precedents: Richmond Pulse opened 3.75 yr after its grant; IndyGo Red Line 5 yr after route choice; Pittsburgh about 8 yr. The 2029 and 2030 targets are faster and need early commitments; 1–2 year slips are normal.

A vision, not an engineered route. Nothing has been surveyed, designed or funded.
Contact: David Fischbarg · contact via the project website