

Bethlehem E-Bike Network: Full Plan

Planning phase. An independent plan; nothing is funded or built yet. No agency, township, utility, university or company has agreed to, partnered with or endorsed this project.

Version 0.3 · 21 Oct 2026 · Owner: David Fischbarg. Internal notes (exact spots, contacts, costs) are kept separately and never published. Every summary, visual and PDF is on the [Documents](#) page.

1. What it is

A planned network of solar-powered docking stations across Bethlehem. Riders could take a bike from any station and return it to any other. Stations would charge e-bikes automatically while they're docked. Each station would have a solar canopy and on-site battery storage, with grid power as backup. About **half of the fleet would be e-bikes**, then regular bikes, e-scooters (where state and local rules allow; may start later), mountain bikes, and adaptive, cargo and tandem bikes, with each station's mix set by demand. The network would grow town by town across Pennsylvania. A later phase would add one-seat, then two-seat, small electric vehicles.

2. Station design

Part	Proposed approach
Docks	Modular docks that lock the bike and charge it through the dock contact (no cable to plug in). Docks are sized to the site: about 8–12 at a park station, 16–20 at park hubs and transit stops.
Automatic charging	The dock charges the bike's battery whenever it's docked. With swappable batteries, staff swap packs at stations where docks can't charge.
Energy	A solar canopy over the docks where the site allows, and an on-site battery (LFP chemistry is preferred for thermal stability; to confirm with the vendor and fire marshal). The grid is the backup through a utility service connection. Whether any surplus solar power can be exported depends on PPL's interconnection rules. Nothing is assumed.

Part	Proposed approach
Geothermal (future)	A possible later addition at hub stations and the maintenance depot: ground-source heat pumps to heat and cool the depot, and to keep the battery storage at a safe temperature year-round. It would need a site geology study, drilling permits and a licensed installer.
Energy budget (est.)	Per station, about 5 kWh/day: roughly 10 e-bikes × 3 rides × ~0.1 kWh, plus ~2 kWh for the docks and electronics. Peak draw is ~3–5 kW. A 5–8 kW canopy makes about 20–30 kWh on an average PA day, so solar covers most days; the battery and grid cover winter. For 12 stations, about 60 kWh/day (~22 MWh/yr).
Hub top-up (future)	Clean power from the Lehigh Valley Energy & Logistics Hub could top stations up, but only through a lawful route such as PPL net metering, community solar or renewable-energy credits. The Hub can't send power directly to other sites without counsel and regulators.
Wind and heat recovery (future)	Small wind turbines at open, windy hub sites, and heat recovery at the depot, where they fit; every source stays natural (see §14).
Hydro (future)	Small run-of-river or in-pipe hydro on the Lehigh or Monocacy could add power someday, only where permitted, with fish passage and reviews. It's only an idea, and it would need DEP and federal permits and an environmental review.
Structure	Natural or reused materials where they meet code: glulam or FSC timber canopy posts, reclaimed steel and recycled-content concrete pads. Permeable paving where the soil allows.
Kiosk	Optional. The app and QR codes are primary, and each station has a solar-powered kiosk or phone line for riders without smartphones.
Accessibility	An ADA-compliant route from the nearest sidewalk or path to every station. Accessible kiosk height and reach ranges. Adaptive bikes (trikes, hand-cycles, step-through bikes) can be reserved at hubs.

Building specifications. The detailed specifications for building each station right, and its materials list, come when that station is built. Nothing is designed for construction yet. Once a station site is real, licensed engineers and the bike-share operator write the drawings, specifications and equipment list, with the landowner's permission and the required reviews and permits. Materials follow the plan's rules: reused, local and low-carbon first.

Safety and codes (non-negotiable)

- **Licensed electricians** do all electrical work, under a permit and inspection from the municipality that has jurisdiction.
- Battery storage and charging meet **NFPA 855** (stationary storage) and the **NFPA 70 / NEC** (electrical code). Bikes and their systems are certified to **UL 2849**, batteries to **UL 2271**, and stationary storage to **UL 9540 / 9540A**. The fire marshal reviews each site before it is built.
- Batteries that are damaged, swollen or recalled are taken out of service right away and handled by a certified recycler. Damaged packs are never stored at a station. Any shared battery room, such as the planned Energy & Logistics Hub's, is used only after it passes fire-marshal review.
- Every station has thermal monitoring with remote shut-off.

3. Fleet mix

Starting split for the whole network (a planning estimate, re-balanced from real use after the pilot):

Type	Starting share	Where it goes most
E-bikes (pedal-assist, see §8 for the legal limits)	about 50%	everywhere, most at transit hubs and hills
Regular bikes	about 20%	flat routes, parks, short trips
E-scooters	about 15%	hub stations only, where state and local rules allow; may start later (§4f)
Mountain bikes, including e-mountain bikes	about 10%	trail parks
Other: adaptive (trikes, hand-cycles), cargo and tandem	about 5%	park hubs; adaptive at least 2–3% of the whole fleet

- **Weighted by demand.** Each station gets its own mix from expected demand: more mountain bikes at trail parks, more e-bikes and scooters at bus stops and downtown, more adaptive and cargo bikes at the big park hubs. After launch, aggregated trip data re-balances the mix every month.

- **If e-scooters can't start yet.** Pennsylvania may have no general law allowing e-scooters on public roads (Pittsburgh's pilot ran under separate state authorization; to confirm), so scooters may be limited to private property or a permitted pilot until state law changes. **Fallback mix without scooters: about 60% e-bikes, 20% regular, 10% mountain, 10% adaptive, cargo and tandem.** The scooters' 15% moves to e-bikes (+10) and adaptive, cargo and tandem bikes (+5), and scooter docks hold e-bikes until scooters are allowed.
- **Trail rules.** E-mountain bikes and e-scooters follow each park owner's trail and path rules and Pennsylvania law. Many parks limit motorized or e-bikes on natural-surface trails, so each trail park's rules are confirmed with its owner before any e-mountain bike is placed there.
- A first-year planning rule of thumb from US systems: **about 1.5–2 docks per bike**, so riders can usually find an open dock to return to. (*Estimate.*)

4. Where stations go

4a. Parks: a station at every park, two at bigger parks

Big park	Owner	Stations
Hanover Township Municipal Park. The township calls it its largest park, at 65.3 acres.	Hanover Twp (Northampton Co.)	Two, one at each end
Bethlehem Township Municipal Park / Recreation Center	Bethlehem Twp (not the City)	Two, one at each end

Every other public park gets a station too (one each, two at bigger parks); see §4d. Small parks get one station.

4b. Transit

- Stations go at **planned Bethlehem Connect stops**. Connect's Phase 1 is electric buses. Rail or "subway" appears in the Connect plans only as a long-term, text-only idea, so **no stations are placed at tracks that don't exist**. If rail is ever planned, its stations get a bike hub too.
- Existing LANTA bus hubs are candidate sites, but only with LANTA's written permission.

4c. Everywhere else

Downtown Main St and the SouthSide, the Lehigh River and D&L Trail access points, and libraries. Campuses and hospitals only with each owner's written permission.

4d. Station list: 120 planned stations (general areas; planning phase)

A station at every park. All 86 public parks found in the service area (the City, Bethlehem Twp, Hanover Twp, Hellertown, Fountain Hill and the parks and trailheads right at their edges) get a station: one at each park, and two at bigger parks and long trails, one at each end. That's 104 park stations, plus 16 at Bethlehem Connect stops, for **120 planned stations**.

A park-by-park list (owner type, demand profile, starting spot and source) is kept internally until each owner agrees. Every station starts on an existing place (a parking edge, path edge or curb); a new pad comes later only where needed. Every station is natural-first: solar canopy, battery, natural or reused materials. Bottle fillers and restrooms: see §4e. Riverside paths and waterway access points (Sand Island, the Monocacy Way, the D&L Trail and the Saucon Rail Trail) all get stations, and anything in a park or waterway needs the owner's permission, review, permits and qualified professionals.

General area	Planned stations
Hanover Twp	14
North / US 22	4
Northeast	8
Bethlehem Twp	20
West Side	8
North Bethlehem	9
Downtown	8
Fountain Hill	6
SouthSide	19
Saucon Park	2
South Mountain	4
Hellertown / Saucon Valley	18

General area	Planned stations
Total	120

As Connect grows: every new Bethlehem Connect stop gets a station beside it, including new stops in nearby Pennsylvania areas. Each one is added to the station data file.

Rollout: the pilot stays at 6–10 stations; the rest come in phases (§9). Some parks are tiny pocket parks or plazas; a station there can be a few docks on the curb. Some parks on the list still need a check against the owner's own park list.

Public label: "Planned location (planning phase)." Show it only after the landowner, public or private, agrees in writing. Until then, stations on private, university, hospital, casino or airport land stay internal, and every other station is shown only as a general area. Every Connect Phase 1 stop, including the extensions, has a station beside it.

4e. Water and restrooms

- **Bottle fillers** at the larger stations where a water line is in reach: both ends of the Hanover Twp, Bethlehem Twp and Saucon Park stations, and Downtown / Broad Street. Each would be an ADA-height filler with a dog bowl, connected by a licensed plumber with the owner's permission.
- **Restrooms** at park-hub stations: first check what's already there (Hanover Twp's Municipal Park has a community center and pool; Bethlehem Twp has its Recreation Center; Saucon Park's facilities are to check). Where there's none within a short walk, plan a modern, accessible restroom with natural materials, solar lighting and low-flow fixtures, built only with the owner's permission and the required permits.

4f. E-scooters (a small fleet, some stations only)

- **Fleet:** an all-electric stand-up scooter fleet, about 15% of vehicles, at **hub stations only**, starting with a few hubs such as Downtown / Broad Street, Third Street / SteelStacks, Farrington Square and the two township park hubs. Scooters dock and charge like the e-bikes.
- **Rules:** helmets encouraged, scooter speed capped at about 15 mph and slower in parks, no sidewalk riding (enforced by geofence), and riders 18+ (a project choice).

- **Pennsylvania law: to confirm.** Sources suggest PA has no general law allowing e-scooters on public roads; Pittsburgh's pilot ran under separate state authorization. This is a flag to check, not a legal answer. Scooters may be limited to private property or park paths until the law allows more. Check this against the PA statute and PennDOT before any scooter goes on a public road.

4g. Skate gear to borrow

- Wherever a station sits next to a skate park, it gets a **lending locker**: skateboards, quad and inline skates, helmets, and knee, elbow and wrist pads, in kid and adult sizes. Riders sign out through the app or a QR code, with a guardian's OK for minors.
- **Hygiene**: helmets and pads are cleaned between uses (a UV-C cabinet and a wipe-down log), checked weekly, and replaced on a schedule or after any impact.
- **Candidates**: the City's SkatePlaza on the SouthSide, and a helmet-only locker by Hanover Twp's pump track. New skate areas planned by related projects would get a locker too.

4h. Bus-friendly and pet-friendly

- **Bus-friendly**: every station is at or beside a bus stop wherever one exists. Station pads keep the bus loading zone and shelter clear, and the app shows the next bus. Bikes can also go on bus front racks where LANTA allows it.
- **Pet-friendly**: the bigger hubs lend front pet-carrier baskets (for small pets, with a weight limit) and a few rear pet trailers. They're cleaned between uses. A water bowl sits at each bottle filler.
- **Reusable**: these amenities are fields in `data/station-template.json`, so any town can switch them on.

4i. For people and the planet

- **Who it helps**: commuters and students without a car, families, riders on low incomes (reduced-fare pass, cash payment), people with disabilities and older adults (adaptive bikes and trikes), bus riders who need the last mile, visitors, and the workers who will build Bethlehem's new projects.
- **What it protects**: clean air and the climate (fewer short car trips), rider safety (speed caps, codes, lighting), privacy (no sale of data), and green space (no healthy trees removed; permeable paving and native plantings at stations).

- **Recycle, compost, reuse:** every station and launch event has a sorting point (recycling, landfill and compost at park hubs), mapped as recycling. Redeveloped sites salvage and reuse materials (pavers, steel, timber). Garden waste from station plantings is composted. Worn bike parts are refurbished or recycled, and every lithium-ion battery goes to a certified battery recycler.

Map rule

Public maps show general areas only. A station gets its own marker only after its landowner, public or private, agrees in writing, and then it's labeled "Planned location (planning phase)".

5. Rides and pricing (proposed)

- Station to station: unlock with the app, a QR code, or a card at the kiosk, and return to any dock. With no free docks, the app shows the nearest open dock and adds time credit.
- Pricing ideas: pay per ride, a monthly pass, and a **low-income pass** (most US systems offer one, e.g. Indego Access in Philadelphia and Citi Bike Reduced Fare).
- Cash and unbanked access: pay with cash at partner stores. *(Exact price points to be set after the pilot.)*

6. Analytics and chats (privacy first)

- **Analytics:** station availability, aggregated trip counts by station pair, dock fill levels, solar generated versus energy used, battery health. Dashboards show aggregates only, with a k-anonymity threshold (no cell with fewer than 10 trips is shown).
- **Data rules:** private by default. GPS traces are deleted after **30 days**, and only aggregates are kept. **No sale of data, ever.** The location-data policy follows the Mobility Data Specification (MDS) privacy guidance used by US cities. Records go to law enforcement only with a warrant or subpoena.
- **Chats:** the community chat (ride meetups, station feedback, lost and found) lives in Project OS's shared chat, with e-bike channels; this project never builds its own chat. Every chat has human moderators plus automated filters, a published code of conduct, a report and block button, and no stranger-to-minor messaging.
- **Support chat:** an automated assistant answers first, with a human always one tap away.

Rider app (future)

Planned features only; none of this is built yet. Everything here follows the data rules above.

- **Personal stats (opt-in):** miles ridden, ride time, estimated CO2 saved (compared with making the same trip by car) and estimated calories burned. Off until the rider turns it on. **Private to the rider:** visible only to them in their own account; staff dashboards show aggregates only. Riders can export their stats (a standard file such as CSV) or delete them at any time. **Never sold, and never shared with employers, insurers or advertisers.** CO2 and calorie figures are always labeled as estimates.
- **Ride history:** the rider's own trips (start and end station, date, time, distance, cost). After 30 days the GPS route is deleted, and the trip remains as station to station with distance and time.
- **Goals and badges (optional):** personal goals (for example, miles per month) and milestone badges. Private unless the rider chooses to share one; seasonal leaderboards by category are opt-in, and nobody appears on one by default. Speed and risk are never scored.
- **System analytics (aggregate only):** trips by station pair, dock fill by hour, and network-wide miles and estimated CO2 saved. Used to place new stations, size docks and plan rebalancing. The same $k \geq 10$ threshold applies (no cell with fewer than 10 trips is shown); no individual rider profiles; never used for marketing.
- **Open station data (GBFS):** a free public feed in the General Bikeshare Feed Specification with each live station's location, bikes and e-bikes available, and open docks, so trip-planning apps can show docks. It carries no rider or trip data, and only stations that are live and public (see the Map rule) appear in it.
- **App syncs (later):** riders could link the app to fitness and health apps (miles and ride time), calendars (planned rides) and transit trip planners (bike legs of a bus trip). Every link is **rider-initiated** (off until the rider starts it, never on by default), **secure** (standard secure sign-in, OAuth 2.0, so the project never sees the rider's password for the other app), **scoped** (it shares only what the rider picks, for example distance and time, not the GPS route unless the rider chooses) and **revocable** (the rider can unlink it at any time; sharing stops at once and the stored access token is deleted). No integration is assumed or agreed. Each one needs that company's developer terms, the rider's consent and a privacy review before it launches. Once data reaches another app, that app's own privacy policy applies, and the app says so before the rider links it. For riders under 18, syncs stay off unless a guardian agrees.

- **Data minimization and retention:** collect only what each feature needs. GPS traces are deleted after **30 days**. Mileage totals, ride history, goals and badges are kept only while the account exists, and are deleted when the rider deletes them or closes the account. Aggregates kept for planning hold no account IDs. The law-enforcement rule above (warrant or subpoena only) applies to all app data.

6b. Accounts and data (future; nothing needed now)

The public site is static, with no accounts, database or forms. Every future feature that needs data is listed below. Rider accounts and payments for bike share come from the chosen bike-share platform (it controls unlocking and handles card payments to industry security standards). Any community or member features use the one shared Project OS sign-in and database, never a separate account system.

Feature	Data it holds	Who can see it	Where it lives	Can it wait?
Rider account + unlock	name, email or phone, membership	the rider; limited ops staff	bike-share platform (vendor)	yes, until the pilot
Payments, passes, low-income pass	payment token (no card numbers stored by us), pass type, eligibility flag	the rider; billing staff	vendor platform + its payment processor	yes, until the pilot
Trips and mileage	trip start/end station, time, distance; GPS deleted after 30 days	the rider (own data); aggregates only for staff	vendor platform; aggregates in Project OS	yes
App syncs (later)	revocable sign-in tokens for apps the rider chooses	the rider	vendor platform or Project OS	yes
Community and support chat	messages, reports, moderation log	participants; moderators	Project OS sign-in + database	yes
Lending lockers (skate gear, pet trailers)	sign-out time, item, return	the rider; ops staff	vendor platform or Project OS	yes
Station availability feed (GBFS)	dock and bike counts only, no personal data	public	vendor platform	yes

Feature	Data it holds	Who can see it	Where it lives	Can it wait?
Emails (receipts, notices)	email address, message log	the rider	vendor platform	yes

No setup steps or monthly costs are needed now. Choosing the platform (RFP) decides its monthly cost, which goes into the pilot budget.

7. Small electric vehicles later

- **Phase 4:** one-seat enclosed micro-EVs. **Phase 5:** two-seat micro-EVs.
- Legal status in PA is **unverified**: these are probably motor vehicles that need registration, insurance and a driver's license. A legal review comes before any pilot. They would park in separate, bigger bays at hub stations, not in the bike docks.

8. Pennsylvania rules (to verify)

Rule	What sources say	Status
Definition	A "pedalcycle with electric assist" (75 Pa.C.S. §102) has operable pedals, a motor of ≤ 750 W, a top speed of ≤ 20 mph on motor power alone on level ground, weighs ≤ 100 lb, and has 2–3 wheels over 11 inches across.	Unverified (from secondary sources; to confirm against the official statute).
Classes	PA has no 3-class system yet. HB 2646 (a class system) passed the House Transportation Committee.	Bill status unverified .
Minimum age	Under 16 may not operate one (75 Pa.C.S. §3514).	Unverified . If confirmed, e-bike accounts require age 16+; regular bikes follow the operator's own rules (18+ to sign up, or a guardian).
Helmets	Required under age 12 on pedalcycles (§3510). Some towns add stricter local rules.	Unverified . Check each town's ordinances before it joins the network.

Rule	What sources say	Status
Speed cap	The fleet will be set to max assist 15–18 mph on paths.	A design choice, not a legal requirement.

Before launch, confirm everything against legis.state.pa.us / palegis.us and PennDOT guidance.

9. Phases

Phase	Scope	Gate to move on
0. Prepare (now – 6 mo)	Choose a vendor (build vs buy), get landowner letters, confirm the law, write the privacy policy (including the rider app)	Written permission for the pilot sites
1. Pilot (6–18 mo)	6–10 stations, ~60–100 bikes: downtown, SouthSide, plus Hanover Twp Municipal Park and Bethlehem Twp (2 each). Rider app basics (unlock, find a dock, ride history) and the public station feed (GBFS)	Safety and ridership goals met after 6 months
2. Bethlehem build-out	Grows in waves by demand toward all 120 planned stations: 104 at parks (one at every park, two at bigger parks and long trails) and 16 at Connect stops. Opt-in mileage stats, goals and badges, and aggregate system analytics	Funding plus City agreement in writing
3. Lehigh Valley	Allentown and Easton, using the same platform. Rider-started app syncs (fitness, calendar, trip planners)	Each town's agreement; a privacy review and the other company's terms for each sync
4–5. Micro-EVs	One-seat, then two-seat	Legal review plus insurer sign-off
6. Across Pennsylvania	Town by town: Reading → Lancaster → Harrisburg → Scranton/Wilkes-Barre → State College → Erie, each with a local host agency	Repeatable playbook plus local funding

10. Costs

Cost estimates are internal until real quotes come in. Every figure needs a fresh quote.

Possible funding sources (none applied for): PennDOT Multimodal and TASA, DCED Multimodal, the federal CMAQ program through the LVTS MPO, Carbon Reduction Program funds, PA DEP Alternative Fuels grants, and private sponsors.

11. Build vs buy

Recommendation: buy or license first, build only what's missing.

Option	Examples	Fit
Full turnkey operator	Lyft Urban Solutions (PBSC hardware), BCycle (Trek)	The fastest path. Ask each about solar or off-grid charging docks.
Charging-dock hardware	Drop Mobility, Kuhmute, Swiftmile	Fits the "auto charging" goal. Pair it with a platform.
Software platform	Movatic, Fifteen, Joyride	We own the brand, data rules and pricing.
Build our own	—	Only for gaps such as the privacy-first analytics layer, rider stats and app syncs (\$6), built on top of the vendor APIs (GBFS feeds). Community chat uses Project OS.

Choose through an RFP that requires: GBFS data, our privacy rules in the contract, UL-certified bikes and batteries, ADA compliance and a solar option. *(Examples only; none contacted yet. A request for information comes first.)*

12. Automation and roles

Role	When needed	Can automation replace it?
Project lead (David)	Long term	—

Role	When needed	Can automation replace it?
Site and permits coordinator	During build-out	Partly (document tracking)
Licensed electrician / electrical contractor	During build-out	No (legally required)
Solar + storage installer	During build-out	No
Civil and ADA designer	During build-out	No
Procurement / RFP lead	During build-out	Partly
Fleet technician (repair, battery checks)	Long term	No (safety)
Rebalancing driver (e-cargo van)	Long term	Reduced through demand prediction
Community moderator / support	Long term	Partly (first-line automation, human backup required)
Data and privacy steward (also reviews every app sync)	Long term	Partly (automated retention, export and deletion)
Rider app and integrations developer (vendor or contractor)	Long term	Partly (the vendor platform covers the basics)

Automated: availability, the public station feed (GBFS), smart rebalancing routes, battery-health alerts, billing, rider stats, first-line support, the retention purge and reporting.

Volunteer and trained roles (planning phase)

Open roles (station ambassador, station check and tidy, path and access check), trained roles (ride leader, skate-gear locker helper, community chat helper) and qualified crews (licensed electrician, battery and solar technician, fleet technician, rebalancing driver) each have a one-screen quick guide (see /roles). The work is presented like a game: quests, training that unlocks roles, and badges for finishing, learning and helping. Seasonal leaderboards and rewards by category are set by each league, and people choose whether to appear; hours worked, speed on safety-critical work and risk-taking are never scored. Volunteer shifts are at most 2 hours, nobody does more than 10 hours a day across all projects (plus up to 2 bonus

hours a week, with lower legal or employer limits winning), and safety-critical work stays with qualified crews. Joining happens later through Project OS. The long-term aim behind all of this is a future where money matters much less and people and their work count most; it's an aim, not a promise of pay, jobs or free services.

13. Risks

Theft and vandalism (locked docks, GPS on bikes), lithium-ion fire (codes, monitoring, LFP), low ridership (the pilot gate), winter (fewer bikes in the fleet and seasonal pricing), equity (low-income pass, cash access), misuse of rider data (opt-in stats, no sale, 30-day GPS deletion, revocable syncs), and the vendor going under (contract must give us ownership of data and hardware).

14. Reuse it anywhere

What another town, campus or country copies: the method (a station at every park, two at bigger parks and long trails, one beside every transit stop, each starting on an existing curb or lot edge), the demand-weighted fleet profiles (§3), the place-neutral station record, the build tools, the role quick guides and the safety and privacy checklists in this plan. **What stays local and must be checked there:** land and owners, permits, e-bike, e-scooter and trail laws (scooters only where state and local rules allow; may start later), climate, language, currency and units. **How it's kept reusable:** one site, many places: each town or city is one entry in a places file (Bethlehem is the first), and its station details live in one data file; the templates and tools carry no people, contacts or private data; and a copy starts at stage "idea", with every approval "not requested". **Beyond Bethlehem (an aim, not a plan or a promise; nothing is chosen or funded):** the same kit could repeat in other Pennsylvania towns, across the US (for example the Midwest) and worldwide, each run with a local host. **Natural energy only:** charging uses solar, wind, hydro (only where permitted, with fish passage and reviews), geothermal and heat recovery, stored in batteries, thermal storage, or pumped storage where the land allows. It's supplied through Energy & Logistics Hubs that repeat region by region, and power crosses the grid only under the utility's and the state's rules. **Related projects:** Project OS (the shared sign-up, map and chat) and Aethon (ocean exploration) are part of the same mission. Projects share methods, never data. All are in their planning phase.

Sources

- Hanover Twp (Northampton Co.) parks: <https://hanovertwp-nc.org/departments/community-center/parks/>
- Bethlehem Twp Recreation Center (PA 211 listing): <https://pa211.org/agency/17476/53805/93916>
- City of Bethlehem Recreation: <https://bethlehem-pa.gov/Recreation>
- PA e-bike rules (secondary, to verify): <https://bikepgh.org/2026/07/02/in-pennsylvania-e-bikes-are-bicycles-e-motos-are-not/> ; HB 2646 release: <https://pahouse.com/Bullock/InTheNews/NewsRelease/?id=116912>

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