

REQUEST FOR PROPOSAL

Automated Aggregation Center

Design, build and commissioning of a modular, refrigerated meal-aggregation facility — the first of hundreds.

ISSUED BY	Youtopia
PROGRAM	6-Sigma Delivery System
FIRST SITE	South Denver (Centennial), Colorado
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PROPOSALS DUE	TBD — see Section 24
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1. Purpose and invitation

Youtopia is seeking one or more engineering partners to design, build, install and commission an automated meal aggregation center.

The facility receives individually produced chilled meal packages from independent producer kitchens, sorts them, assembles them into insulated household bags of typically 3–10 meals, and loads those bags onto delivery vans in route order. It is built from identical, self-contained packing pods added one at a time as volume grows, and the same pod will then be deployed across a planned network of more than 4,000 centers. We are asking you to design a product, not a building.

Two sections govern everything else. Section 2, the Basis of Design, is the single statement of the facts every design must meet — volumes, the clock, temperatures, dimensions, product and data. Section 3 sets out the principle every design must follow. Where anything elsewhere in this document appears to conflict with either, Sections 2 and 3 govern.

We are inviting responses from firms with demonstrated capability in one or more of: automated material handling, item-level UHF RFID, robotic pick-and-place of mixed unstable geometries, cold-chain automation, order-assembly and put-wall systems, and warehouse management and controls software.

You do not need to bid the whole scope. The work is decomposed into eight work packages (Sections 5–12). Bid any subset. State plainly which packages you would own, which you would subcontract, and where you would want a partner. We would rather integrate two excellent specialists than accept one adequate prime.

What we are asking you to do

1. Read Section 2, the Basis of Design, first. Every requirement in this RFP traces to it.
2. Read Sections 3–4 for the context, the governing principle and the scope.
3. Respond to the requirements in Sections 5–15 using the conventions in Appendix A.
4. Answer the open design questions in Section 16. These are genuine open decisions, and your answers are scored.
5. Submit per Section 18 by the date in Section 20.

What we are not asking for

We are not asking you to price a fixed design. Several major architectural decisions are deliberately open, because the firms who do this work daily will make better choices than we will. Where we state a design assumption, it is labelled as an assumption and you are invited to attack it. A proposal that tells us our approach is wrong, and shows the work, will score well.

A candidate concept, not a requirement. Youtopia has published a 3D model of one candidate concept for the center. It is one way to meet Section 2, not the required design, and it differs from this RFP in places. Where the two differ, this RFP governs.

2. Basis of Design

This section is the single statement of the facts every design must meet. Work packages cite these items by ID rather than restating them. If a figure changes, it changes here and nowhere else.

Youtopia is pre-launch, so not every figure is a measurement. Each item carries a status:

Status	Meaning
Fixed	Binding. Design to it; a design that breaks it is not viable.
Assumed	A planning assumption. Design to it, show how sensitive your design is to it, and expect it to be revised once pod 1 is running.
Derived	Calculated from other items. The arithmetic is shown at the end of this section; tell us if it is wrong.
Open	Not decided. Section 16 asks for your recommendation.

The Governs column shows which work packages each item binds.

Volume and throughput

ID	Fact	Value	Status	Governs
BOD-01	Meal packages per day, per site	20,000	Assumed	All
BOD-02	Bags per day	Up to 3,500; typically 2,500–3,300	Assumed	WP-04, WP-06, WP-07
BOD-03	Meals per bag	Typically 3–10, up to 14 lb per bag including ice packs; all bags one size	Fixed	WP-04, WP-05
BOD-04	Bags per household	One or more; a household's bags are tracked, loaded and delivered as one group	Fixed	WP-06, WP-07, WP-08
BOD-05	Inbound	About 30 refrigerated vans, about 670 meals each	Assumed	WP-01, WP-02
BOD-06	Outbound	The same vans, about 85–120 bags each	Assumed	WP-07
BOD-07	Average line rate	67 packages and up to 11.7 bags per minute	Derived	WP-03 to WP-06
BOD-08	Inbound peak	222–333 packages per minute, depending on the unload profile	Open (Q9)	WP-01 to WP-03

Schedule

ID	Fact	Value	Status	Governs
BOD-10	Operating days	7 per week; no weekly shutdown	Fixed	All
BOD-11	Inbound docking	All vans between 08:30 and 09:30	Assumed — Youtopia can stagger pick-up routes	WP-01, WP-02
BOD-12	Production window	08:30–13:30, five hours	Fixed	All
BOD-13	All delivery vans departed	13:30	Fixed — hard deadline	WP-06, WP-07
BOD-14	Non-production window	~19 hours overnight, shared by sanitation, bag returns, restocking, maintenance and pod installs	Derived	All

Temperature and food safety

ID	Fact	Value	Status	Governs
BOD-20	Product temperature	35–40 °F at all times inside the facility	Fixed	All
BOD-21	Exposure limit	No more than 10 consecutive minutes outside refrigeration, per exposure; not cumulative	Fixed — measurement method open (Q11)	All
BOD-22	Bag temperature at packing	Pre-chilled to 35–40 °F	Fixed	WP-04
BOD-23	Package handling	Upright throughout; tamper tape never disturbed	Fixed	WP-01 to WP-05
BOD-24	Warehouse ambient outside the pods	60–100 °F; the winter minimum depends on whether the building is heated	Open	All

Pod and site

ID	Fact	Value	Status	Governs
BOD-30	Unit of capacity	An identical, self-contained, refrigerated packing pod	Fixed	All
BOD-31	Pods per site	1 at launch; the count at 20,000 meals a day is the bidder's to derive	Assumed	WP-03, WP-04, WP-08

ID	Fact	Value	Status	Governs
BOD-32	Adding a pod	Roughly quarterly, without stopping production or reworking anything shared	Fixed	All
BOD-33	Pod enclosure	Shipping container (preferred) or purpose-built module	Fixed preference — module open (Q14)	All
BOD-34	Pod internal dimensions	Container: 36 ft L × 7 ft 6 in W × 8 ft 4 in H, reached only through windows cut into one door; no wall, ceiling or floor penetrations. Module: bidder-specified, ~12 ft wide suggested	Fixed for container — open for module	WP-04, WP-05
BOD-35	Minimum viable site	1 pod, shared receiving and loading, and provision for a surge buffer added later	Fixed	All
BOD-36	First site	South Denver near Centennial, Colorado; ~5,800–5,900 ft elevation; building not yet selected	Fixed	All
BOD-37	Network	More than 4,000 standalone centers planned across the US, each served by local kitchens and sized for up to 20,000 meals a day; target market of more than 42 million consumers	Assumed	All
BOD-38	Dock	Four dock doors or fewer, shared by arrivals and departures, with levelling to van floor height and weather protection between dock and van	Fixed	WP-01, WP-07
BOD-39	Vehicle	Extended-wheelbase, high-roof refrigerated cargo van; cargo space 146 × 68 × 71 in held at 35–40 °F, with a bulkhead door and a driver aisle from the rear door to the bulkhead	Fixed	WP-01, WP-07

Product, packaging and consumables

ID	Fact	Value	Status	Governs
BOD-40	Meal packages	Compostable fiber or plant-based PLA tray and bowl shapes up to 10 × 10 × 3 in; microwave-safe; no petroleum-based plastics	Fixed — packaging is being sourced in parallel	WP-01, WP-03, WP-05
BOD-41	Package weight and closure	Up to 2 lb; closed but not watertight; tamper-evident label across the closure	Fixed	WP-01, WP-05
BOD-42	Tray and dolly	Reusable stackable tray, about 22 × 26.5 in, carrying 5–9 mixed meals; up to 15 trays per wheeled dolly of about 22.75 × 27 in	Fixed — tray design and arrangement open	WP-01

ID	Fact	Value	Status	Governs
BOD-43	Insulated bag	16 in L × 10 in W × 14 in H; lightweight, collapsible, reusable; inspected on return	Fixed	WP-04 to WP-07
BOD-44	Liner	Plastic film liner inside the insulated bag; tamper-evident closure	Fixed — insertion timing and closure method open	WP-04 to WP-06
BOD-45	Ice packs	Reusable, water-filled, chemical-free; 13 × 9 × 0.75 in, 2.5 lb; up to 6,000 a day at about two per bag; frozen on carts of 100	Fixed — placement timing open	WP-05
BOD-46	Bag tag	2 × 6 in thermal-transfer label, RFID-encoded and barcoded, printed on demand and applied airline-style to the outside of the bag	Fixed	WP-06, WP-07
BOD-47	Bag cart	Metal cart about 70 in high, stocked in delivery stop order, rolled onto the van and secured in transit	Fixed — cart design open	WP-07

Identification, data and accuracy

ID	Fact	Value	Status	Governs
BOD-50	Identifier	Three-part 4 in label printed and RFID-encoded at the kitchen: plating instructions, package identification, and a perforated, removable hanging RFID tag	Fixed	WP-01, WP-03, WP-05
BOD-51	Writing to the tag	Never. The tag is an identifier; all state lives in the Youtopia platform	Fixed	WP-03, WP-08
BOD-52	Tag removal	Between identification and final bag placement, at a point the bidder defines; tags are single-use	Open	WP-03, WP-05
BOD-53	Reconciliation	Every handoff reconciles a physical read against an expected inventory	Fixed	All
BOD-54	Exception latency	2 seconds from detection to Youtopia	Fixed — bidders may propose another figure	WP-08
BOD-55	Bag plan timing	Contents fixed at least 24 hours ahead; route and stop assigned the morning of, before the vans dock	Fixed	WP-04, WP-06, WP-08
BOD-56	Platform	.NET on Azure, event-driven; versioned APIs in both directions	Fixed	WP-08

ID	Fact	Value	Status	Governs
BOD-60	Accuracy	No defective bag leaves the building. Faults will happen; every one is detected and flagged before the van doors close	Fixed	All

The enclosure: container preferred

Youtopia's preferred enclosure is the leased refrigerated shipping container. It is a commodity with an established lease and resale market, it moves on standard transport, it deploys quickly, and it can be folded up and relocated if a market underperforms. Design to it first.

The purpose-built insulated-panel module stays open for one reason: width is where capacity lives, and no ISO container is wider than about 7 ft 8 in internally. A bidder proposing the module must show what it buys against the container — fewer pods, a lower cost per bag, a workable aisle, or better reliability.

	Option A — shipping container (preferred)	Option B — purpose-built module
Internal width	7 ft 6 in, fixed by ISO standard	Bidder-specified; ~12 ft suggested
Cubbie faces	2 (both long walls)	4 (two walls plus a double-sided centre rack)
Est. cubbies per 36 ft pod	~300	~600
Packing pods for 3,500 bags	~10–15	~5–8
Wall penetrations	Not permitted — leased	Wherever the design needs them
Doors	Two 4 ft, front end only	Bidder-specified
Relocatability	High — standard transport	Moderate — factory-built, redeployable
Supply and resale market	Established, commodity	Limited

The consequence of the preference, stated plainly: at container width, 20,000 meals a day needs roughly 10–15 packing pods depending on how bags face in the cubbie wall (Section 8), at or beyond the ten or so Youtopia has been planning around. At 12 ft wide it needs roughly 5–8. Tell us the pod count your design needs; do not design to a pod count.

For reference, the container envelope:

Dimension	Value
Internal length	36 ft
Internal width	7 ft 6 in
Internal height	8 ft 4 in
Internal floor area	~270 sq ft

Dimension	Value
Doors	Two hinged, 4 ft each, at the front end
Cooling unit	Rear wall, opposite the doors

How the derived figures are calculated

- **Line rate (BOD-07).** 20,000 packages and up to 3,500 bags across the 300-minute production window gives 67 packages and 11.7 bags a minute — one finished bag about every 5 seconds. The last bag must seal early enough to be loaded before 13:30, so the real outbound rate is higher.
- **Inbound peak (BOD-08).** 20,000 packages arrive between 08:30 and 09:30. Unloaded evenly across that hour that is 333 a minute; spread across 90 minutes, 222. The profile has not been measured and it sizes WP-01 and WP-02.
- **Bag count (BOD-02).** Bag capacity is set by weight and volume, not by a meal count. The 14 lb limit includes ice packs, and two ice packs weigh 5 lb, so an iced bag carries at most about 9 lb of meals; a 16 × 10 in footprint also takes only one full-size 10 × 10 in package per layer. At a typical 3–10 meals a bag, 20,000 meals make about 2,500–3,300 bags; the design point is 3,500. That holds only while meals stay light: if the average meal weighs much more than about 1.5 lb, weight rather than space fills the bag and the count rises above 3,500. Most orders are expected to be six items or more, so many households receive more than one bag.
- **Non-production window (BOD-14).** From the 13:30 departure to 08:30 receiving: roughly 19 hours, seven days a week, with no weekend.
- **Tray volume.** At 5–9 meals a tray, about 3,000 trays a day — roughly 100 trays and 7 dollies per van, all of which leave again as empties.
- **Van load (BOD-06).** Up to 3,500 bags across about 30 vans is up to about 117 bags a van, inside a 146 × 68 × 71 in cargo space that must keep a driver aisle clear. Show that your cart design fits.

3. Program context and the governing principle

Youtopia is a precision-nutrition platform. Consumers subscribe to a nutrition plan; meals are produced to that plan by independent producer kitchens and delivered to the household. The internal program name for the fulfillment system is the **6-Sigma Delivery System**, named for the accuracy it demands rather than a certification.

The operating model has three legs:



Figure 1 — The operating model. Dashed lines are return flows.

The aggregation center is the subject of this RFP. Youtopia has not yet launched. The producer network and the pick-up and delivery fleets are being stood up alongside this facility, so there is no operating history: every volume in this document is a planning assumption, not a measurement. The first site will be in south Denver, near Centennial, Colorado.

Why this is hard

The difficulty is not volume. Twenty thousand items a day is unremarkable for a distribution center. Three things make it hard together:

1. **Concurrency.** Meals arrive unsorted from many kitchens across many vans (BOD-05), so no household bag can be closed until its last package lands. Every bag is open at once. This drives the physical size of the facility more than throughput does.
2. **The envelope.** Every pod holds 35–40 °F (BOD-20), and the preferred enclosure is a leased shipping container whose walls cannot be cut, so every input and output passes through a four-foot doorway (BOD-33, BOD-34).
3. **The window.** The whole sequence runs between the last inbound van and the first outbound route, in five hours (BOD-12), every day, with no tolerance for a missed departure.

The governing principle: design the pod, not the facility

A site starts with one packing pod, one shared receiving and loading area, and provision for a surge buffer. Capacity grows by adding identical packing pods, roughly once a quarter, to about ten per site. Every pod is fed from the same receiving area, which may have more than one dock door.

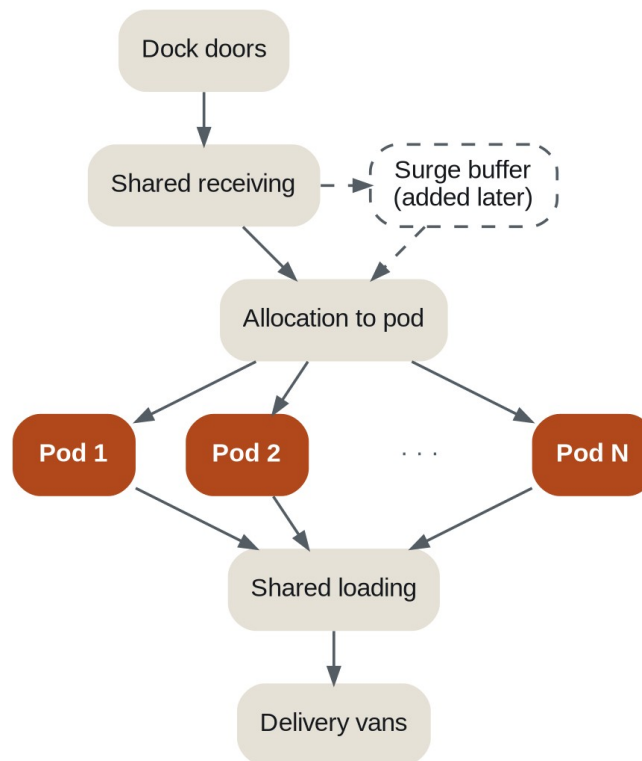


Figure 2 — Site topology. Every pod is identical; the surge buffer is added once volume requires it.

Each site is standalone. Meals are made by local kitchens and nothing ships between sites. Youtopia plans more than 4,000 centers across the US, so the pod will be built tens of thousands of times.

Four consequences govern every work package:

1. **The pod is a product.** Its unit cost, its install procedure and its reliability across tens of thousands of copies matter more than the optimisation of any one site.
2. **Adding a pod must not re-engineer anything shared.** A new pod is installed and commissioned within one non-operating window, with no rework of receiving, sortation or loading beyond configuration. A central sorter with one divert per pod fails this test.
3. **The marginal cost of pod N matters more than total capex.** Pod 1 carries the fixed cost of the site; pods 2 through 10 should be cheap and fast.
4. **The pod is defined by its capacity and interfaces, not its enclosure.** The shipping container is preferred and the purpose-built module remains open (Section 2).

Source documents

This RFP consolidates two internal documents: the 6-Sigma Delivery System functional specification and the Requirements for the Automated Aggregation Center. Both are available to shortlisted bidders under NDA. Where the two disagreed, this RFP states the resolved position and it supersedes both.

4. Scope and how to bid

Scope begins when a pick-up van docks at the aggregation center and ends when a loaded delivery van leaves it.

In scope

Package	Title	Section
WP-01	Receiving and de-tray	5
WP-02	Chilled surge buffer	6
WP-03	Identification and sortation	7
WP-04	Cubbie wall and bag presentation	8
WP-05	Pick, tag-strip and place	9
WP-06	Bag seal and labelling	10
WP-07	Cart build and van load	11
WP-08	Controls, integration and data	12

Also in scope across all packages: mechanical and electrical installation, integration with the pod enclosures, the dock interface, the ice-pack system, inspection of returned bags and ice packs, empty-tray stacking and storage, commissioning, operator and maintenance training, spares strategy, and documentation.

This RFP covers the automation inside the Aggregation Center. Youtopia is sourcing the wider ecosystem — compostable packaging, labels and printers, trays, bags and carts, the van fleet and its upfit, routing software and container leasing — through separate engagements set out in its Solution Provider Invitation.

The primary deliverable is a **replicable packing-pod design and a site template** — the shared receiving, loading, surge and controls a pod plugs into — delivered first at one site. Price and document it so the second site is a copy, not a new project.

Out of scope

- Producer-kitchen equipment, including RFID label printing and application at source.
- The pick-up and delivery fleets, route optimization, and driver systems.
- Bag washing. Youtopia or a separate partner will own it; inspecting returned bags is in scope (Section 13).
- The Youtopia platform. You integrate with it (WP-08); you do not build it.
- Building shell, site works, utility service to the site, and any container leases.

How to bid

REQ-OPS-001 MUST State for each work package whether you are bidding as prime, as subcontractor, or not at all.

REQ-OPS-002 MUST If you bid a subset, define the physical and data interfaces at each boundary you do not own, in enough detail that another vendor could build to them.

REQ-OPS-003 SHOULD Name the partners you would bring, and say whether you have delivered with them before.

We expect to award either a single prime with named subcontractors, or two to three specialists with Youtopia acting as integrator. Tell us which you are proposing and why it is better for us.

5. WP-01 — Receiving and de-tray

Take 20,000 packages off about 30 vans and present them singulated to sortation, inside 90 minutes of arrival.

GOVERNED BY BOD-05, BOD-08, BOD-11, BOD-21, BOD-23, BOD-40 to BOD-42, BOD-50.

Input: loaded dollies rolled from a refrigerated van (BOD-42).

Output: singulated, upright packages presented to WP-03, plus empty trays to ambient staging.

Requirements

- REQ-WP1-001 MUST** Accept loaded dollies direct from the van (BOD-42).
- REQ-WP1-002 MUST** De-stack trays and singulate their 5–9 packages, whatever their arrangement on the tray (REQ-PKG-010).
- REQ-WP1-003 MUST** Handle every package geometry in BOD-40 mixed on the same tray, within BOD-23.
- REQ-WP1-004 MUST** Read every package into an inbound manifest reconciliation against the van's expected inventory (REQ-COC-002).
- REQ-WP1-005 MUST** Route empty trays to unrefrigerated staging, counted and attributed to the originating kitchen.
- REQ-WP1-006 MUST** Hold packages within the exposure limit (BOD-21) across the entire receiving operation, including dock dwell.
- REQ-WP1-007 MUST** Operate through four dock doors or fewer, shared with outbound loading (BOD-38, REQ-FAC-005).
- REQ-WP1-008 SHOULD** Detect and reject damaged, leaking or mis-oriented packages before they enter sortation.
- REQ-WP1-009 SHOULD** Support manual induction as a fallback at reduced rate when automation is down.
- REQ-WP1-010 MUST** Nest or stack empty trays, remove them from the sorting area, store them compactly and keep a count of trays by kitchen (REQ-PKG-011).

What we want to see in your response

- Sustained and peak de-tray rate, in packages per minute, with the availability assumption.
- How you handle a tray whose packages have shifted in transit.
- Whether dollies enter a pod or stay in the warehouse, and the thermal consequence either way.
- Empty tray buffer size and how trays leave the building.

6. WP-02 — Chilled surge buffer

Absorb the gap between a 90-minute arrival wave and a five-hour processing line.

GOVERNED BY BOD-05, BOD-08, BOD-11, BOD-12, BOD-20, BOD-35.

The inbound wave arrives in about an hour (BOD-05, BOD-11); sortation and packing run to the end of the production window (BOD-12). Something must hold the difference, in refrigeration, without losing package identity.

Input: singulated packages from WP-01, faster than the line can take them.

Output: packages metered into WP-03 at line rate.

Requirements

REQ-WP2-001 MUST Buffer capacity sufficient to decouple the arrival peak from sortation rate. State the capacity your design requires and show the queueing calculation.

REQ-WP2-002 MUST Buffered packages stay within BOD-20 for the full dwell.

REQ-WP2-003 MUST Package identity is preserved through the buffer. A package entering and a package leaving must be the same known unit.

REQ-WP2-004 MUST Meter into sortation at a controllable rate.

REQ-WP2-005 SHOULD Sequence out of the buffer in an order that helps downstream — for example, releasing packages that complete nearly-finished bags first. State whether your design can do this.

REQ-WP2-006 SHOULD Degrade gracefully: if sortation stops, the buffer should absorb inbound for a stated period before receiving must stop.

What we want to see in your response

- Buffer technology and why (shuttle, carousel, accumulation conveyor, tote-based AS/RS, something else).
- Enclosures and floor area consumed by the buffer, and the pod count at which it is first needed.
- Maximum dwell time and its effect on food quality.
- Whether buffering requires re-reading identity on exit, and the cost of that read.

Alternative worth arguing for

If you believe a buffer is the wrong answer — that receiving should simply run at 220+ packages per minute, or that pick-up routes should be staggered instead — make that case. Youtopia controls the pick-up schedule and can change it. Holding loaded vans, plugged in and locked, as the buffer is another option, and it is the one Youtopia's candidate concept shows. Section 16 asks the question directly.

7. WP-03 — Identification and sortation

Read every package individually, resolve it to a household and a packing room, and divert it there.

GOVERNED BY BOD-07, BOD-08, BOD-31, BOD-33, BOD-40, BOD-50, BOD-51.

Input: singulated packages from WP-01/WP-02.

Output: packages delivered to the correct packing room, identity confirmed.

Requirements

- REQ-WP3-001 MUST** Read the hanging UHF RFID tag on every package, individually attributable to that package (REQ-COC-005).
- REQ-WP3-002 MUST** Resolve the package to its bag and packing room by lookup against the Youtopia platform. **No data is written to the tag** (BOD-51), which is encoded once at the kitchen.
- REQ-WP3-003 MUST** Divert to the correct packing room across the full room count your design requires.
- REQ-WP3-004 MUST** Sustain the rate established under REQ-OPS-010.
- REQ-WP3-005 MUST** Handle a no-read deterministically: divert to a known exception lane, raise the event, and never pass an unidentified package downstream.
- REQ-WP3-006 MUST** Report a measured read rate and mis-read rate, distinguishing the two. A mis-read — reading tag B when package A is present — is materially worse than a no-read and must be reported separately.
- REQ-WP3-007 SHOULD** Provide a secondary identification path (vision, barcode on the printed label) as cross-check or fallback.

The footprint and modularity problem

A sorter with a divert per packing room, running mixed unstable geometries with adequate gapping, is plausibly 60–100 ft of machine. A container is 36 ft long (BOD-34). The sorter does not fit in one room, and we do not have a preferred answer. Youtopia's candidate concept runs one main conveyor along the pod doors with a kicker at each pod; treat it as one option, not a requirement.

The options we can see are: span several containers, with transfers through 4 ft doors; place sortation in the warehouse outside the chilled rooms, which breaks REQ-XCT-001 and puts every package on the 10-minute clock; adopt a non-linear topology such as a two-stage or matrix sort; or enclose the pods in a chilled envelope (REQ-FAC-010).

Modularity decides between them. A single sorter with one divert per pod must either be bought at full size on day one and run at a tenth of capacity for years, or be extended every time a pod is added — which is exactly the rework Section 3 forbids. The architectures that survive the governing principle are:

- **Two-stage sortation.** Coarse allocation from receiving to a pod; fine sort to cubbie inside the pod. At one pod the first stage need not exist. At ten it is a small sorter with ten outputs, not a large one with thousands of destinations.

- **Untethered transfer.** AMRs, tugs or carts moving totes between receiving and pods rather than fixed conveyor. Adding a pod becomes a map update and a traffic lane, not construction. Under Option A this also avoids welding each container to a fixed spine through one of its two doors.

REQ-WP3-020 MUST State the physical length and footprint of your sortation solution and where it sits relative to the pods.

REQ-WP3-021 MUST If sortation spans containers or sits outside them, show how REQ-FAC-002 and REQ-FAC-004 are satisfied at every transfer.

REQ-WP3-022 MUST Adding a pod must not require extending, re-engineering or re-commissioning shared sortation beyond configuration. State exactly what changes in your sort architecture when pod N+1 is added, and how long it takes.

The RF problem — read this carefully

The read environment is a refrigerated metal enclosure — a steel shipping container under Option A, typically a metal-skinned insulated panel room under Option B — with conductive surfaces on all six sides, producing severe multipath and unpredictable nulls. Tags are loose hanging paper/inlay tags, not bonded labels, so their orientation relative to the antenna is uncontrolled. Tag population density at the read point is high.

REQ-WP3-010 MUST, IF AVAILABLE Provide a measured read and mis-read rate from a comparable enclosure — a metal-walled refrigerated space with a dense tag population. A vendor datasheet figure does not satisfy this. If you do not hold such data, say so plainly and request the RF trial described in Section 17; requesting it is not held against you, and claiming datasheet numbers as measured is.

REQ-WP3-011 MUST Describe tag selection, antenna geometry, power and shielding strategy, and how you prevent stray reads from adjacent packages or an adjacent room.

REQ-WP3-012 SHOULD Propose a tag specification if the current hanging tag is the wrong choice. The tag is not frozen.

REQ-WP3-013 SHOULD State how read performance degrades with condensation, frost, and wet tags.

What we want to see in your response

- Reference site with item-level UHF RFID in cold, metal-enclosed space. Name it or describe it under NDA.
- Read architecture: portal, tunnel, overhead array, on-conveyor, handheld fallback.
- What happens to throughput when read rate drops below target.
- A proposed on-site RF survey and tag trial as a paid pre-contract work package, if you recommend one.

8. WP-04 — Cubbie wall and bag presentation

Hold up to 3,500 chilled bags open simultaneously and present any one of them on demand. This package, not throughput, sets the size of the facility. Youtopia's working concept is a vertical put wall on each side of the room, with cubbies that present and hide bag positions on demand; challenge it if you have a better one.

GOVERNED BY BOD-02, BOD-03, BOD-20, BOD-22, BOD-31, BOD-34, BOD-43, BOD-44, BOD-55.

Why 3,500

Meals arrive unsorted from many kitchens across many vans. A household's bag cannot be closed until its last package arrives, and the last package may be on the last van. In the worst case every bag is open until the end of the sort. Youtopia's current position is that this worst case is the design case.

A rough sizing, offered as a starting point and not a requirement. The bag is 14 in high, 16 in long and 10 in wide (BOD-43), and which way it faces is worth roughly a quarter of pod capacity. Narrow face out, at about 12 in pitch, gives around 36 positions along a 36 ft wall but needs 16–17 in of depth; long face out, at about 18 in pitch, gives around 24 positions in 11 in of depth. At 5 tiers that is 120–180 cubbies per wall face. The enclosure then decides the rest. At container width there are two faces, 240–360 cubbies per pod, and 10–15 packing pods for 3,500 bags; ten pods falls short of 20,000 meals in most orientations. At 12 ft wide there are four faces, 480–720 cubbies per pod, and 5–8 pods. The ~300 and ~600 figures in Section 2 are midpoints of these ranges. Tell us if your numbers differ and why.

The aisle problem

The same arithmetic creates a difficulty we cannot resolve from our side. A room is 90 in wide internally. Cubbies 16 in deep on both walls leave 58 in. A feed conveyor takes another 18–24 in. That leaves roughly 34 in of working aisle — and the presented bag slides forward into it from both sides (REQ-WP4-002), while REQ-XCT-021 requires safe human access and egress in the same space.

Thirty-four inches does not accommodate a humanoid, and it may not accommodate much else. This problem is specific to the container. At 12 ft wide it does not arise — which is the strongest argument a module bidder can make against Youtopia's preference.

REQ-WP4-010 MUST Provide a dimensioned cross-section of your packing room showing cubbie depth, conveyor, working aisle, presented-bag travel and the egress path.

REQ-WP4-011 MUST If the aisle does not close, say so and tell us what has to give: shallower cubbies, single-sided walls, a wider room, fewer bags per container, or a different pick architecture. This is the answer we most want from WP-04 bidders and we would rather hear it now than after award.

REQ-WP4-012 MUST Hold the presented bag and its liner open for placement. The liner is pliable film and will collapse on its own. State the mechanism, whether it depends on the insulated bag being rigid enough to stand unsupported, and how the liner stays open through several placements as the bag fills.

REQ-WP4-013 MUST Define the pre-load of each cubby: when and how the bag, its liner and, if your design loads them first, the ice packs go in before meals arrive.

Requirements

REQ-WP4-001 MUST Support the concurrent open-bag count your design derives from Section 2. State the number and show the derivation.

REQ-WP4-002 MUST Each cubbie presents its bag to the pick position on demand and retracts to a ready state.

REQ-WP4-003 MUST Bags stay within BOD-20 for the entire time they are open.

REQ-WP4-004 MUST Detect per-bag completion and signal that the household is ready to seal.

REQ-WP4-005 MUST Fit within the pod envelope of Section 2 for the enclosure option you propose, including the working aisle and, under Option A, the access constraint of REQ-FAC-002.

REQ-WP4-006 MUST A cubbie fault must not strand its bag. State how a bag is recovered from a failed cubbie mid-shift.

REQ-WP4-007 SHOULD Support pre-staging of the night's bag plan, given contents are fixed 24 hours ahead (BOD-55).

REQ-WP4-008 TBD Bag and ice-pack replenishment into the cubbie wall is undecided. Propose a method (Section 16).

What we want to see in your response

- Cubbies per pod, and the layout drawing that achieves it.
- Total packing pod count at 20,000 meals/day, under the enclosure option you propose.
- Presentation mechanism and cycle time per present/retract.
- Completion-sensing method and its false-positive and false-negative rates.
- Capital cost per cubbie, since this number multiplied by 3,500 is likely the largest line in the project.

Cubbie turnover

Cubbie turnover is in scope as an option, and Youtopia wants it considered. The pod's job is to place bags in cubbies, pack them, and release them to loading; nothing requires a cubbie to hold one bag for the whole window. A bag that completes mid-window can be sealed, ejected and replaced by a fresh empty bag, so cubbies stop equalling bags. A bag whose meals all come from early vans completes early; one waiting on the last van completes late. At 30% turnover, 3,500 bags fit in roughly 2,450 cubbies. Turnover costs a bag-eject mechanism, a fresh-bag feed into every pod, and a scheduler to sequence it. How much turnover is available depends on the mix of producers and vans behind each bag, for which Youtopia has only planning assumptions until launch. Pod 1 will generate the real figure (REQ-RMP-013).

REQ-WP4-020 SHOULD State whether your design supports cubbie turnover, the cubbie and pod count it saves, and what it costs. If your answer is that turnover does not pay at your cubbie density, show why.

9. WP-05 — Pick, tag-strip and place

Take a package, remove its RFID tag, and place it in the right bag. Roughly 67 times a minute across every pod (BOD-07), in a chilled aisle — 7 ft 6 in wide in the preferred container.

GOVERNED BY BOD-03, BOD-07, BOD-23, BOD-34, BOD-40, BOD-41, BOD-45, BOD-52.

Input: package delivered to a packing room by WP-03; a cubbie presented by WP-04.

Output: package in the correct bag, hanging tag removed if your design removes it here; bag marked complete when full.

Requirements

REQ-WP5-001 MUST Confirm package identity at the point of pick, before placement.

REQ-WP5-002 MUST Where your design removes the hanging tag in the pick cell (BOD-52), separate it at the perforation without tearing the printed label, disturbing tamper tape, or damaging the package.

REQ-WP5-003 MUST Collect removed tags into bins at a defined handover point for disposal or recycling. Tags are single-use label stock printed at the kitchens and are not reclaimed.

REQ-WP5-004 MUST Place the package into the presented bag, upright, without dropping or crushing. Bags typically take 3–10 packages, up to 14 lb including ice packs (BOD-03), and every assortment is unique.

REQ-WP5-005 MUST Add ice packs per the consumer's request for that delivery (BOD-45, REQ-PKG-021). They are 13 × 9 × 0.75 in and 2.5 lb, and may go in before or after the meals, by robot or by hand; state which.

REQ-WP5-006 MUST Handle every package shape in BOD-40, from round bowls to rectangular trays, without a tooling change.

REQ-WP5-007 MUST Work within the pod aisle remaining after the cubbie wall and conveyance are installed.

REQ-WP5-008 MUST Verify placement — confirm the package actually entered the intended bag, not merely that it was released. This was a SHOULD in an earlier draft and has been promoted. Placement error is the dominant failure mode at the pick cell and the identification chain cannot catch it: the sortation read was right, the pick read was right, and the package still went into the wrong cubbie. Without this verification the detection guarantee in Section 14 is unachievable by construction. Price it as a MUST and show us the cost.

REQ-WP5-009 SHOULD Support manual operation at reduced rate when a cell is down.

The placement concept — challenge it

Youtopia's working concept is robotic suction placing each meal into its bag from a vertical put wall on each side of the room. It is a concept, not a validated design, and the placement method is the highest-cost and highest-risk decision in the program.

REQ-WP5-020 MUST State whether your design uses suction end-effectors as envisioned, another gripper, a gantry, a human operator, or something else — and defend the choice on cost, cycle time, reliability and maintainability.

REQ-WP5-021 SHOULD If you believe a different pick architecture would change the cubbie design (WP-04), say so. We would rather redesign the wall than build the wrong one.

What we want to see in your response

- Cycle time per pick, and picks per minute per cell.
- Cells required per packing room and in total.
- Tag-strip mechanism and its failure modes, with a measured success rate if you have one.
- Grip strategy across every package shape and material — in particular whether suction holds reliably on porous compostable fiber lids.
- Mean time between interventions, and who intervenes in a 35–40 °F room.

10. WP-06 — Bag seal and labelling

Close every bag and label it with the household it belongs to — about twelve a minute, sustained (BOD-07).

GOVERNED BY BOD-04, BOD-07, BOD-13, BOD-21, BOD-43, BOD-44, BOD-55.

Input: a completed bag signalled by WP-04.

Output: a sealed, labelled bag ready for cart build.

Requirements

REQ-WP6-001 MUST Close the interior liner with a tamper-evident closure. The liner is a pliable film bag; propose the closure method, whether heat seal, tie with a tamper band, or something else. The closure must show visible evidence if opened between the facility and the household.

REQ-WP6-002 MUST Close the insulated outer bag.

REQ-WP6-003 MUST Print, RFID-encode and apply a 2 × 6 in bag tag (BOD-46) carrying consumer name, delivery address, route and stop, and the bag's position in its household group (for example, 2 of 3) so the driver knows how many bags belong at the door.

REQ-WP6-004 MUST The bag tag is applied so it survives handling, cold and condensation, and remains legible at the doorstep.

REQ-WP6-005 MUST Reconcile bag contents against the expected inventory before sealing. A bag that is short must not seal silently (REQ-COC-003).

REQ-WP6-006 MUST Sealing happens inside the refrigerated envelope, or within the exposure limit (BOD-21).

REQ-WP6-007 SHOULD Capture a record of the seal event: time, cell, operator or machine, and the final content list.

REQ-WP6-008 MUST The bag tag carries both RFID and a barcode (BOD-46). Read both back after application to confirm the right tag is on the right bag.

What we want to see in your response

- Sealing mechanism and cycle time, and whether one cell serves several packing rooms or each room has its own.
- Print-and-apply hardware, and its reliability at 35–40 °F with condensation present.
- Label stock and adhesive suited to cold and wet.
- What happens to a bag that fails reconciliation: held, diverted, sealed-and-flagged.

Dependency

Route and stop are not known until after the last pick-up scan (BOD-55). Bag tags therefore cannot be pre-printed the night before. State how quickly your print queue can absorb the route file once it lands, and whether that is on the critical path to 13:30.

11. WP-07 — Cart build and van load

Get every sealed bag onto its van in stop order (BOD-06), with every van gone by 13:30 (BOD-13).

GOVERNED BY BOD-02, BOD-04, BOD-06, BOD-13, BOD-21, BOD-43.

Input: sealed, labelled bags from WP-06.

Output: loaded vans, reconciled against their route manifests.

Requirements

REQ-WP7-001 MUST Place each bag at a designated position on a designated route cart. Position is determined by delivery stop order.

REQ-WP7-002 MUST Load carts into vans sequentially and in designated positions, so a driver reaches the next stop's bag without searching.

REQ-WP7-003 MUST Reconcile every bag onto its van against the expected route manifest before the van departs.

REQ-WP7-004 MUST Complete every van load by the departure deadline (BOD-13), with the last bag sealed no later than your stated cut-off.

REQ-WP7-005 MUST Respect the exposure limit (BOD-21) during cart movement and van loading, including time on the dock.

REQ-WP7-006 MUST Support the return flow: receive used bags and ice packs back from drivers, count them, and route bags to inspection and Youtopia's wash partner and ice packs to inspection, sanitization and freezing. Washing is out of scope; receiving, counting, inspection and the ice-pack system are in scope (Section 13).

REQ-WP7-007 SHOULD Handle a late-arriving bag — one completed after its cart has left the packing area — without breaking sequence.

REQ-WP7-008 TBD Whether bags are scanned onto carts, onto vans, or both is undecided. See Section 16.

REQ-WP7-009 MUST A household's bags are placed together on the same cart, in adjacent positions, and loaded to the same stop (REQ-COC-011). A cart must not leave loading with part of a household's bags. State how your design holds a cart when one bag of a group is late.

REQ-WP7-010 MUST Carts roll onto the van fully stocked and are secured for transit without blocking the driver's aisle (BOD-39, BOD-47). State how many carts and bags each van takes in your design.

What we want to see in your response

- Cart design and capacity, or a statement that you would use a cart we supply.
- Whether carts are built in the packing room, a loading room, or on the dock.
- Whether Receiving and Loading can share one room in your design (Section 16).
- Load time per van, and how many vans you can load in parallel.
- Dock door count and the marshalling area required.

Constraint reminder

Under Option A, a cart built inside a container room has to leave through a 4 ft doorway that may already carry a conveyor cut-out (REQ-FAC-002). Cart width and the room's remaining clear opening are a coupled decision. State both. Youtopia's candidate concept sequences finished bags in the cubby wall and returns them to the dock on the same main conveyor, reversed once the last meal is inducted. State whether your design shares conveyance between inbound and outbound and, if it does, how a meal that arrives after the switch reaches its bag.

12. WP-08 — Controls, integration and data

One warehouse management and controls layer across every pod, integrated with the Youtopia platform. We own orders, routing and consumer state. You own the floor.

GOVERNED BY BOD-51, BOD-53, BOD-54, BOD-55, BOD-56, BOD-60.

Platform context

Youtopia runs on .NET on Azure, event-driven, with Azure SQL and Cosmos DB, deployed through Azure DevOps (BOD-56). We will expose and consume versioned APIs and an event stream; we are not asking you to adopt our stack internally.

Requirements

REQ-WP8-001 MUST A single warehouse management system (WMS) and controls layer spanning all rooms and work packages, including any equipment supplied by another vendor.

REQ-WP8-002 MUST Consume from Youtopia: the bag plan (BOD-55), the expected inventory per step, the route and stop assignment (morning), and consumer-level ice-pack requests.

REQ-WP8-003 MUST Emit to Youtopia, in real time: every scan event, every reconciliation result, every exception, and every state change of a bag.

REQ-WP8-004 MUST Exception events must carry enough context for Youtopia to act — package ID, expected location, actual location, step, timestamp, and the reason class.

REQ-WP8-005 MUST Versioned API contracts in both directions, with a documented deprecation policy.

REQ-WP8-006 MUST Operate degraded when the link to Youtopia is down: continue processing against the last known plan, queue events, and reconcile on reconnect. State the maximum offline duration you support.

REQ-WP8-007 MUST Provide an operations view showing live throughput, queue depths, open bags, exceptions and projected completion against the 13:30 deadline.

REQ-WP8-008 SHOULD Retain a full event history per package and per bag, queryable, for at least 90 days.

REQ-WP8-009 SHOULD Support a simulation or replay mode so Youtopia can test route and volume changes before they hit the floor.

REQ-WP8-010 MUST Record room, staging and dock temperatures continuously and link them to each meal's and bag's event history, supporting acceptance checks at receiving.

Security and data

Bag tags carry consumer names and delivery addresses, and bag contents are derived from a nutrition plan. Treat all of it as personal data.

REQ-WP8-020 MUST Encrypt personal data in transit and at rest. State your key management approach.

REQ-WP8-021 MUST Role-based access control with audit logging on any access to consumer data.

REQ-WP8-022 MUST No consumer data leaves the facility network or your named cloud region without explicit contractual permission.

REQ-WP8-023 SHOULD State your security certifications (SOC 2 Type II, ISO 27001) and your last penetration test date.

REQ-WP8-024 SHOULD Describe how you would support a consumer data deletion request reaching your systems.

What we want to see in your response

- A real API contract from a previous WMS-to-customer-platform integration, redacted as needed.
- Your integration model: REST, event bus, file drop, or a mix.
- Who owns the integration work and how it is priced.
- Whether the WMS is yours, licensed, or third-party, and what happens to it if we part ways.

13. Cross-cutting requirements

These apply across work packages, and each traces to the Basis of Design in Section 2. Address them once in your proposal unless a package needs a specific answer.

Throughput and schedule

REQ-OPS-010 MUST Size receiving and sortation to the arrival peak, not the daily average. State the peak rate your design sustains and the assumption behind it.

REQ-OPS-011 MUST State the latest inbound arrival time your design can absorb and still clear 13:30.

REQ-OPS-012 MUST Quote throughput with a stated availability figure (e.g. 20,000 units/day at 95% availability), not a nameplate rate.

REQ-OPS-013 SHOULD Identify the single bottleneck in your design and the cost of removing it.

REQ-OPS-015 MUST State the bag count your design assumes and how sensitive your pod count is to it. Youtopia is pre-launch and has no order history, so design to 3,500 bags and show how your pod count moves at 2,500 and at 4,000.

REQ-FAC-005 MUST Use four dock doors or fewer, shared by arrivals and departures (BOD-38). Show the unload rate per door that clears the arrival peak and the load rate that clears 13:30.

Enclosure choice

REQ-FAC-020 MUST State which enclosure you propose. The shipping container is Youtopia's preference (BOD-33); if you propose the module, show what it buys against the container. You may price both.

REQ-FAC-021 MUST Show the pod count your design needs at 20,000 meals per day under the option you propose.

REQ-FAC-022 MUST Minimise permitting and ongoing oversight. Describe the permitting path you expect for your enclosure in a typical US jurisdiction, and whether it is treated as equipment or as construction.

REQ-FAC-023 SHOULD If you propose Option B, state the width and length you recommend and why, and whether the module can be relocated between sites.

Container constraints

These apply to the shipping container, the preferred enclosure. They do not apply to a purpose-built module, whose equivalent obligation is an enclosure held within BOD-20, factory-built, and installed within the non-operating window (BOD-14).

REQ-FAC-001 MUST Container side walls, roof and floor may not be cut, drilled or penetrated. The containers are leased and must be returned unmodified.

REQ-FAC-002 MUST All conveyance into and out of a room passes through a cut-out in one of the two 4 ft front doors. A door carrying a cut-out is permanently fixed shut and no longer functions as a door.

REQ-FAC-003 MUST Every cut-out is fitted with a curtain or equivalent that holds the room at 35–40 °F during continuous operation.

REQ-FAC-006 MUST Every room must remain serviceable: state how equipment is accessed, removed and replaced given REQ-FAC-001 and REQ-FAC-002.

REQ-FAC-007 SHOULD Equipment inside a room should be installable through a 4 ft doorway without disassembly beyond what one technician can reverse.

With one door consumed by conveyance, a room has a single 4 ft opening left for people, carts, consumables, maintenance and egress. Room layout, throughput and refrigeration are a single coupled problem. Proposals that treat them separately will not survive evaluation.

Transfers between pods — unresolved

This RFP specifies what happens inside a pod and is silent on what happens between pods, which is a real gap rather than an omission we are hiding.

A site with many pods needs a feed to each, crossing the space between them. Those transfers either run through unconditioned warehouse at 60–100 °F, putting every package on the 10-minute clock at the worst moment, or the pods sit inside a larger chilled envelope, which changes the refrigeration load, the cost and most of this section.

Youtopia has not decided. See Q12.

REQ-FAC-010 MUST State whether your design requires a chilled envelope around the pods, conditioned transfer enclosures between them, or neither — and give the consequence for REQ-FAC-004 either way.

REQ-FAC-011 MUST State the total footprint your design occupies, including the space between pods and any marshalling area, not just the pod count.

Site

Power, compressed air, drainage, floor flatness and clear height at the site are not yet specified, and the site itself is not confirmed. State your requirements and we will confirm feasibility during clarification (Section 20). One related unknown you should price around: the container lease term is not yet settled, so the period over which your installed equipment can remain in place is undefined. If your amortisation assumes a term, state it.

Elevation. The area sits at roughly 5,800–5,900 ft (BOD-36). Air-cooled refrigeration, motors, drives and enclosed electronics are commonly derated above about 3,300 ft because thinner air carries less heat.

REQ-FAC-030 MUST Rate refrigeration capacity, motors, drives and electronics enclosures for operation at 6,000 ft, and state the derating you applied.

Winter ambient. The 60–100 °F warehouse range in BOD-24 assumes a conditioned or mild building. An unheated warehouse in the Denver area can fall well below that in winter. Youtopia has not yet decided whether the building will be heated.

REQ-FAC-031 SHOULD State the minimum warehouse ambient temperature your equipment tolerates outside the refrigerated pods, and what changes if the building is unheated.

REQ-FAC-032 MUST Level or bridge each cargo van to dock height so tray dollies and bag carts roll on and off without lifting (BOD-38, BOD-39).

REQ-FAC-033 MUST Provide dock-to-van weather protection that limits temperature exposure during transfer and fits the high-roof cargo-van fleet (BOD-21).

Product handling

REQ-PKG-001 MUST Handle every package shape in BOD-40 on one line without changeover or manual pre-sorting.

REQ-PKG-002 MUST Maintain upright orientation throughout. Packages are not watertight and will leak if tipped.

REQ-PKG-003 MUST Do not damage or dislodge the tamper-evident tape. A package with disturbed tape is a defect.

REQ-PKG-004 MUST Tolerate the hanging tag without snagging, jamming or tearing it prematurely. A tag lost between the sortation read and the pick cell leaves the package unidentifiable and opens a blind segment in the chain of custody. State the tag survival rate your design achieves, and either guarantee it or provide re-identification at the pick cell.

REQ-PKG-005 MAY If a packaging change would materially reduce cost or risk, propose it. Packaging is not frozen.

REQ-PKG-010 MUST De-stack and singulate from trays carrying 5–9 meals each. Arrangement and orientation on the tray are not yet fixed; state whether a fixed pattern would materially simplify your design, since Youtopia can specify one to its kitchens.

REQ-PKG-011 MUST Return empty trays to unrefrigerated staging for collection by the pick-up fleet, tracked by originating kitchen.

REQ-PKG-020 MUST Bags are pre-chilled to 35–40 °F at the point of packing.

REQ-PKG-021 MUST Dispense ice packs per order, not per bag by default.

REQ-PKG-022 TBD How and when bags and ice packs are replenished into packing rooms is undecided. See Section 16.

Bag weight and rigidity, and the liner's closure method, are not yet specified. A pliable film liner will not hold itself open, so presenting the liner open for placement is a design problem for WP-04 and WP-05, not a detail. Youtopia will supply samples (Section 17).

Chain of custody

Every meal package carries a machine-readable identity from production to the household door, and every handoff reconciles a physical read against an expected inventory produced by the previous step.

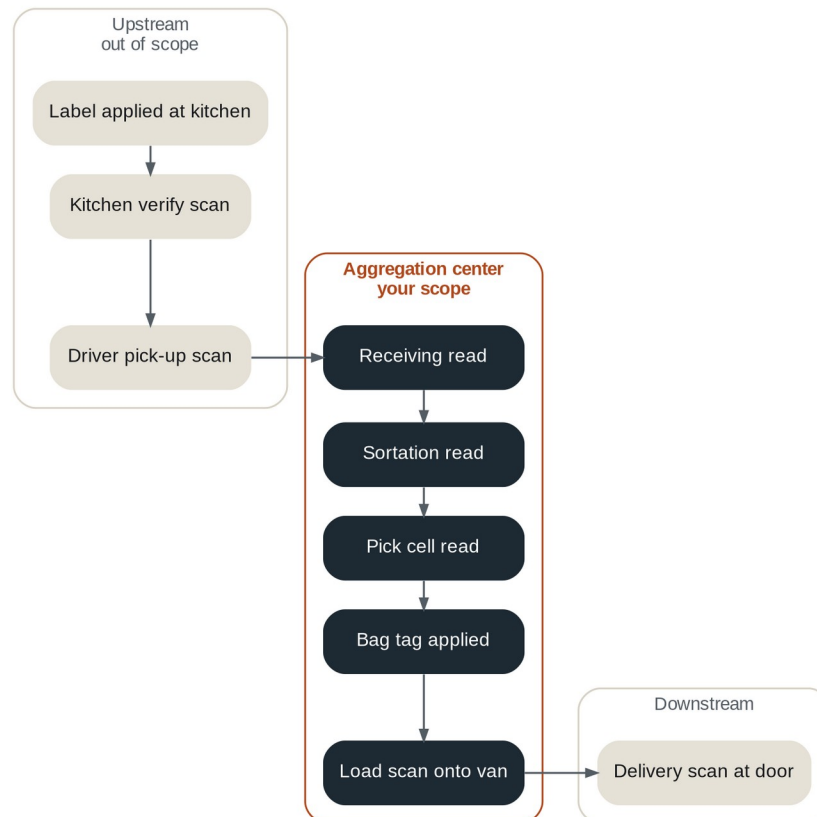


Figure 3 — Chain of custody. Every box is a scan event reconciled against an expected inventory.

Steps upstream of receiving happen at the kitchens and on the pick-up fleet and are out of scope. Every scan inside the aggregation center is yours.

REQ-COC-001 MUST The RFID tag is an identifier only. **Nothing is written back to the tag** at any point in the facility. All state lives in the Youtopia platform and is retrieved by lookup.

REQ-COC-002 MUST Every scan event reconciles against an expected inventory supplied by Youtopia for that step.

REQ-COC-003 MUST A discrepancy — an expected package not read, or an unexpected package read — raises an exception event at the step where it occurred, delivered to Youtopia within **2 seconds** of detection. "Real time" is not a specification; if 2 seconds is the wrong number for your architecture, propose one and justify it.

REQ-COC-004 MUST Youtopia owns exception resolution. Your obligation is detection and propagation: the information must flow downstream fast enough for us to act before the bag closes.

REQ-COC-005 MUST Reads must be individually attributable to a single package. A bulk count that confirms quantity but not identity does not satisfy this requirement.

REQ-COC-006 MUST The hanging RFID tag is removed between identification and final bag placement, at the point your design defines (BOD-52). Tags are single-use and are not reused.

REQ-COC-007 SHOULD Every package should carry a complete, queryable event history: which room, which cell, which cubbie, what time.

Bag contents are fixed at least 24 hours ahead and routes are assigned the morning of (BOD-55). This matters for cubbie allocation: the household-to-cubbie binding can be pre-staged the night before, while anything printed with a route or stop cannot be produced until the morning.

Pre-staging is only worth building if the plan holds. Consumers cancel, change contents and change addresses, and Youtopia has not yet set a change freeze point.

REQ-COC-010 MUST State the latest point in your process at which a bag's contents can change without manual intervention, and what happens to a pre-staged cubbie when a plan changes after that point. Youtopia will set its customer-facing change cut-off to match a workable answer.

REQ-COC-011 MUST A household may receive several bags. Youtopia's bag plan specifies which meals go in which bag. A household's bags are tracked as a group, loaded to the same stop on the same van, and reconciled together: a household is complete only when all of its bags are sealed and loaded.

REQ-COC-012 MUST A household's bags need not be packed in the same pod. If your design spreads them across pods, show how they are re-united before loading.

Thermal

REQ-XCT-001 MUST All equipment operates continuously at 35–40 °F and 90%+ relative humidity with condensation present.

REQ-XCT-002 MUST Equipment must not add heat load that the pod's cooling unit cannot absorb. State your heat output per pod.

REQ-XCT-003 MUST No condensation may drip onto food packages from any part of your equipment.

REQ-XCT-004 SHOULD Tolerate the daily transition between a chilled room and a 60–100 °F warehouse without fogging, icing or electronics failure.

REQ-FAC-004 MUST Demonstrate compliance with the exposure limit (BOD-21) at every transfer in your design. Compliance is measured as elapsed time outside a space held at 35–40 °F, not as package core temperature. We know that is conservative: propose a product-temperature criterion instead, with a measurement point and a validation method, under Q11.

Food safety and sanitation

REQ-XCT-010 MUST All food-contact and food-adjacent surfaces are food-grade, cleanable and corrosion-resistant.

REQ-XCT-011 MUST Equipment is designed for washdown, or for a documented dry-clean regime you specify. State which, and the IP rating of every enclosure.

REQ-XCT-012 MUST State the daily sanitation time your design requires and where it falls in the 24-hour cycle. Under Option A, container floors were not designed for drainage; if your regime needs drainage, say so now.

REQ-XCT-013 MUST No lubricant, fastener, or fragment may enter the food stream. Document your foreign-object controls.

REQ-XCT-014 SHOULD Design to a recognised standard for food equipment hygiene. Name it.

Regulatory

Youtopia holds the food facility registration and owns regulatory compliance for the operation. Your obligation is to build equipment and systems that let us meet it.

REQ-XCT-015 MUST State how your design supports FDA FSMA record-keeping, including the traceability and lot-linking obligations under the Food Traceability Rule, given that every package already carries a unique identifier.

REQ-XCT-016 MUST Support a recall: given a lot, producer or date range, the system must identify every affected bag and its delivery address. State the query latency.

REQ-XCT-017 MUST Describe how your design handles allergen cross-contact risk on shared conveyance and grippers.

REQ-XCT-018 SHOULD Identify the HACCP critical control points your equipment touches and the monitoring records it produces.

REQ-XCT-019 SHOULD Provide a temperature record per package or per bag sufficient to demonstrate cold-chain compliance to an auditor.

The sanitation regime itself is Youtopia's decision, not yours. REQ-XCT-012 asks what your equipment requires; we will reconcile that against our QA function and the local health authority and confirm the window during clarification.

Worker safety

REQ-XCT-020 MUST Comply with OSHA and applicable machine-safety standards for collaborative and guarded operation.

REQ-XCT-021 MUST Safe human access for clearing jams and for maintenance inside a pod — under Option A, a 7 ft 6 in room with one usable exit.

REQ-XCT-022 MUST Emergency stop coverage and egress that remains valid with a conveyor occupying one doorway.

REQ-XCT-023 SHOULD Account for cold-work exposure limits for any human operator inside a packing room.

Utilities and installation

REQ-XCT-030 **MUST** State power, air, network and drainage requirements per room and in total.

REQ-XCT-031 **MUST** All equipment installs through the pod's doorway and is removable the same way — under Option A, a 4 ft doorway (REQ-FAC-007).

REQ-XCT-032 **MUST** Under Option A, installation must not modify the container structure (REQ-FAC-001). Describe your mounting method.

Reliability and maintainability

REQ-XCT-040 **MUST** State MTBF and MTTR for each major subsystem.

REQ-XCT-041 **MUST** Any single point of failure whose loss stops the 13:30 departure must be identified, with the mitigation.

REQ-XCT-042 **MUST** Spares strategy, recommended on-site inventory, and lead times.

REQ-XCT-043 **MUST** Remote diagnostics and support model, including response times.

REQ-XCT-044 **SHOULD** Training for Youtopia operators and maintainers, with the curriculum and duration.

Ice packs and returns

Ice packs and returned bags are in scope (BOD-43, BOD-45). Washing returned bags is not.

REQ-XCT-050 **MUST** Freeze and stage up to 6,000 reusable 2.5 lb ice packs a day on staggered first-in, first-out cycles, on carts of 100. State BTU capacity, airflow, recovery time and footprint.

REQ-XCT-051 **MUST** Inspect returned ice packs for contamination, cracks and leaks, and remove failures from service.

REQ-XCT-052 **MUST** Sanitize returned ice packs food-safely, without leaving an unsafe or objectionable surface inside a delivery bag.

REQ-XCT-053 **MUST** Track ice-pack inventory through inspection, sanitization, freezing and packing, with live availability and demand by packing room.

REQ-XCT-054 **MUST** Inspect returned delivery bags inside and out for cleanliness, tears, staining and branding damage, and sort them into good, rework and retire.

REQ-XCT-055 **SHOULD** Design rolling carts that hold 100 ice packs and balance freezing performance, ergonomic handling and safe movement through the facility.

14. Performance, acceptance and warranty

The accuracy target is BOD-60: **no defective bag leaves the building**. We do not expect zero faults; we expect every fault detected and flagged before the van doors close.

This is a detection requirement, not a first-pass-yield requirement. It is the reason the chain of custody in Section 13 exists. A design that achieves 99.9% pick accuracy and catches every one of the remaining errors is acceptable. A design that achieves 99.99% and lets the rest through silently is not.

Defect definitions

Term	Definition
Fault	A package placed in the wrong bag, omitted, damaged, or unidentified at any step.
Detected fault	A fault raised as an exception before its bag is sealed.
Escape	A fault present in a bag that left the building.
Defective bag	A bag delivered with wrong, missing, damaged or extra contents.

REQ-PRF-001 MUST State your first-pass fault rate per work package, measured, with the reference installation it comes from.

REQ-PRF-002 MUST State your detection rate — the proportion of faults your design catches before seal — and how it is measured.

REQ-PRF-003 MUST State the escape rate you will warrant contractually, and what remedy applies when you exceed it.

REQ-PRF-004 MUST Distinguish read faults from placement faults from mechanical faults. They have different causes and different remedies.

REQ-PRF-005 SHOULD Propose the measurement method itself. We would rather adopt a metric you can actually instrument than impose one you cannot.

Availability

REQ-PRF-010 MUST State guaranteed availability across the five-hour window, and the definition you are using.

REQ-PRF-011 MUST Describe the recovery path when a cell or room fails at 11:00 with 13:30 fixed. Manual fallback, redundancy, re-routing — show the plan and the throughput it preserves.

REQ-PRF-012 MUST State the maximum outage your design can absorb and still make the 13:30 departure.

Acceptance

Stage	What it proves	When
Design review	The concept meets the requirements in this RFP	Post-award
Factory acceptance test	Subsystems meet rate and accuracy at your site	Pre-shipment
Site acceptance test	Installed system meets rate and accuracy at ours	Post-install

Stage	What it proves	When
Reliability run	Sustained performance over consecutive production days	Pre-handover

REQ-PRF-020 MUST Propose FAT and SAT protocols including the rate, accuracy and duration criteria you will be measured against.

REQ-PRF-021 MUST Propose a reliability run: consecutive days at full volume before Youtopia accepts the system. State the duration.

REQ-PRF-022 MUST State warranty period, coverage and response times.

REQ-PRF-023 SHOULD Propose how payment milestones tie to these acceptance stages.

15. Ramp, phasing and replication

The same design must work at one pod and at full build-out (BOD-30 to BOD-35). Ten pods is the reference point for pricing, so proposals can be compared; your design may need more or fewer (Section 2). Volume grows by adding identical pods to a running site, roughly once a quarter, never by replacing the system. This section turns the principle in Section 3 into requirements.

REQ-RMP-001 MUST Describe your design at three points: one pod (the minimum viable site), four pods, and the full site at 20,000 meals per day. At each, give pod count, meals per day, cubbie count, pick-cell count, and capital cost split into fixed site cost and per-pod cost.

REQ-RMP-002 MUST Capacity is added in pod-sized increments. Every packing pod at a site is identical, and adding one requires no redesign and no replacement of installed equipment.

REQ-RMP-003 MUST State the minimum viable first phase — the smallest deployment that proves the concept in production.

REQ-RMP-004 MUST Adding a pod is non-disruptive: it is installed, integrated and commissioned without stopping production, or at most within one non-operating window, with no rework of shared receiving, sortation, loading or controls beyond configuration. The site runs seven days a week, so there is no weekend: the non-operating window is the overnight gap from the 13:30 departure to 08:30 receiving, roughly 19 hours, shared with sanitation, bag returns and restocking. State how much of it a pod install consumes.

REQ-RMP-005 SHOULD Identify what is inherently fixed-cost regardless of volume, so we understand the economics of the early phases.

REQ-RMP-006 SHOULD State lead time from order to commissioned capacity for one additional pod.

REQ-RMP-007 MUST State the marginal cost of pod 2, pod 5 and pod 10. We expect pod 1 to carry most of the fixed site cost and later pods to be substantially cheaper. A proposal where pod 10 costs nearly what pod 1 does is a bespoke build presented as modular, and will be scored accordingly.

REQ-RMP-008 MUST The minimum viable site is one packing pod, one receiving and loading area, and provision for a surge buffer. The surge buffer need not be installed at pod 1, but the receiving architecture must accept one later without rework. State the pod count at which your design first needs it.

REQ-RMP-009 MUST Provide a pod install runbook: the sequence, crew size, duration and commissioning tests for adding one pod to a running site. Youtopia will execute this hundreds of times a year across the network.

REQ-RMP-013 MUST Youtopia is pre-launch and has no operating history, so pod 1 is also the instrument that sizes pods 2 through 10. It must record, in a form Youtopia can analyse: order and bag sizes, arrival time by van and by producer, time from a bag's first package to its last, cubbie occupancy across the window, and every exception. The facility's design point of 20,000 meals a day is a forecast; this data is how it gets tested before capital is committed to the next pod.

Replication

Youtopia intends to build more than 4,000 Aggregation Centers across the US, serving a target market of more than 42 million consumers. Each site is standalone, since meals are made by local kitchens and nothing ships between sites, so the pod and the site template will each be built many times over — plausibly tens of thousands of pods across the network.

REQ-RMP-010 SHOULD State how much of your design is a product versus a bespoke build, and how unit cost changes across the second, third and fifth deployment.

REQ-RMP-011 SHOULD Describe what changes when the site, the pod count or the local labour market differs.

REQ-RMP-012 MAY If you would price differently for a multi-site programme than for one facility, say so and show both.

Phasing preference

We would rather run a small automated facility early and learn from it than wait for a complete 20,000-meal system. Proposals that front-load risk reduction — an RF trial, a single pick cell, one instrumented packing room — will be viewed favourably even where total cost is higher.

16. Open design questions

These are undecided. Your answers are scored under "engineering judgment" in Section 19. A bidder who answers them well will be shortlisted over one who simply complies.

#	Question	Why it matters
Q1	Can Receiving and Loading share one room?	Saves a room and a dock face, but couples the morning peak to the afternoon rush.
Q2	Where should hanging tags come off — at identification, at sortation, or in the pick cell?	Sets what the pick cell must identify, and whether meal RFID ever enters a packing room.
Q3	How and when do bags and ice packs get replenished into packing rooms?	Competes for the same doorway as everything else.
Q4	Are bags scanned onto carts, onto vans, or both?	Two reconciliation points cost more but catch cart-loading errors.
Q5	Buffer, faster receiving, or staggered pick-up routes?	Youtopia controls the pick-up schedule and will change it if that is the cheaper answer.
Q6	Robotic suction from the put wall as envisioned, or something better?	The single largest cost and risk decision in the programme.
Q7	What inbound arrival profile should we design to?	Currently an assumption. Tell us the profile that makes your design cheapest and we will try to deliver it.
Q8	What would make the compostable packaging easier to automate?	Packaging is being sourced in parallel, so your answer can still shape it, including lids that suction can hold.
Q9	Is the unload rate 333/min over 60 minutes, 222/min over 90, or something else?	Section 2 cannot resolve this and it sizes WP-01 and WP-02. State what you assume.
Q10	What daily non-production window does your design need, and for what?	The site runs seven days a week, five production hours a day. The overnight gap is the only window for sanitation, restocking, maintenance and pod installs.
Q11	Should the 10-minute rule be measured as ambient exposure or product temperature?	Ambient is conservative and may be costing us money. Product temperature needs a validation method.
Q12	Chilled envelope around the pods, conditioned transfers, or neither?	Determines whether inter-room transfers break REQ-FAC-004 and changes total refrigeration load.
Q13	Where does sortation live, and how does it grow as pods are added?	A single sorter with one divert per pod fails the modularity principle. See Section 7.
Q14	Shipping container (preferred) or purpose-built module — and if a module, why, and at what width?	The container is Youtopia's preference. A module must earn its place on pod count, cost per bag or the aisle. See Section 2.

#	Question	Why it matters
Q15	Should cubbies turn over mid-window, and does it pay at your cubbie density?	Could save a third of cubbies; costs bag-eject, fresh-bag feed and scheduling.
Q16	Does bagging and sealing happen inside each pod, or at a shared cell?	Self-contained pods replicate the seal cell ten times; a shared cell is a convergence point every pod feeds.
Q17	Should Youtopia own the pod design, license it exclusively, or buy units?	At tens of thousands of pods this is worth more than any build contract.

REQ-OPS-020 MUST Answer Q1 through Q17 explicitly. "No opinion" is an acceptable answer for questions outside your scope; silence is not. Q9 and Q13 in particular are questions we cannot answer ourselves, and a bidder who resolves them will be shortlisted over one who works around them.

Three we have already decided

For the avoidance of doubt, these were open in earlier internal drafts and are now closed:

- **No data is written back to the RFID tag.** An earlier specification called for re-encoding the tag with a cubbie address at sortation. That requirement is withdrawn. The tag is an identifier; state lives in the platform.
- **Bag washing is out of scope.** Youtopia or a separate partner will own it. You receive, count and inspect returned bags; you do not clean them.
- **Bag tags carry both RFID and a barcode.** They are 2 × 6 in thermal-transfer labels applied airline-style to the outside of the bag (BOD-46).

17. What Youtopia provides

We will not make you guess at things we can hand you.

Available on request, now

- Sample compostable meal packages across the current range, filled to representative weight.
- Sample trays, dollies, insulated bags, liners and ice packs.
- Current RFID tags and labels as used at producer kitchens.
- The 6-Sigma Delivery System functional specification and the Requirements for the Automated Aggregation Center, under NDA.
- Container drawings and, for Option A, the lease terms governing modification.

RF trial — available before you bid

REQ-WP3-010 asks for measured RFID performance in a comparable enclosure, and we recognise that most firms will not hold that data for this specific environment. So the RF trial is available **before** proposals are due, not only to shortlisted bidders.

Youtopia will provide a representative refrigerated container, live tags, real packages at realistic density, and a half-day session. Request it with your intent to bid. We would rather fund several trials and receive real numbers than collect a stack of datasheet figures and discover the truth after award.

Available to shortlisted bidders

- Site access for survey and measurement.
- An RF test session in a representative refrigerated container with live tags and packages.
- Youtopia's planning assumptions for order size, assortment and producer mix. Youtopia is pre-launch, so these are forecasts, not operating data.
- API documentation and a sandbox environment for WP-08 integration planning.
- Access to the Youtopia team designing the producer network and fleet operations.

Youtopia's obligations during delivery

- Enclosure procurement (container or module), placement, power and refrigeration commissioning.
- Site preparation, including any drainage and floor work your design requires.
- Platform-side API development and the expected-inventory feeds.
- Producer-kitchen labelling process and its compliance.
- Bag washing and consumable inventory.
- Operator staffing and management.

Data we do not yet have

We would rather tell you than let you discover it in week three. See Appendix D for the full list, which includes the inbound arrival curve, the producer-per-order distribution that determines peak bag concurrency, and the building itself.

Some will be closed before contract award; others, such as the producer mix, can only be measured once pod 1 is running (REQ-RMP-013). If your design is sensitive to one of them, tell us in your proposal.

18. Proposal requirements

Submit the following. Sections A through H are mandatory; a proposal missing any of them will not be scored.

Two bid routes

We are aware that this document contains seventeen open questions, a list of acknowledged data gaps, no selected building and no budget envelope, and that asking for firm fixed pricing against it would reward whoever loads the least contingency and recovers through change orders. So there are two acceptable routes.

Route A — full proposal. Price the build as described below, stating every assumption your price depends on and the contingency you carry.

Route B — study first. Propose a paid, fixed-fee engineering study of 8–16 weeks that closes the questions your design is most sensitive to, with the build priced at its conclusion. A credible Route B bid is not treated as weaker than Route A. Tell us which route you are taking in Section A of your response.

A Route B proposal should say what the study resolves, what it costs, how long it takes, what you deliver at the end, and whether the fee is credited against the build if we proceed with you.

#	Section	Limit
A	Executive summary — what you are bidding and why you	2 pages
B	Technical approach, per work package bid	4 pages per package
C	Compliance matrix — every requirement ID with a code and a note	No limit
D	Answers to Q1–Q17 (Section 16)	4 pages
E	Performance commitments — rate, accuracy, availability, with evidence	3 pages
F	References — three comparable installations	3 pages
G	Commercial — pricing, schedule, terms	No limit
H	Risks — your top five, with mitigations	2 pages

Technical approach (Section B) must include

- Concept layout drawing showing pod count, room functions and material flow.
- The enclosure you propose and, if it is not the preferred container, what it buys (REQ-FAC-020).
- Throughput model with stated assumptions, showing you clear 13:30.
- Equipment list by major subsystem, with make and model where you are integrating rather than building.
- Interface definitions at every boundary you do not own.

- What is proven in an existing installation versus what is new development for Youtopia. Be candid; we will find out either way.

Performance commitments (Section E) must include

- Measured rate and accuracy from a named or NDA-described reference site, not a nameplate figure.
- Specifically for WP-03 bidders: a measured RFID read and mis-read rate from a metal-enclosed refrigerated environment (REQ-WP3-010).
- What you will warrant contractually, and the remedy if you miss.

References (Section F) must include

For each of three installations: the client (or a description under NDA), scope, volume, go-live date, whether it hit its committed rate on schedule, and a contact we may call.

At least one reference must involve cold-chain or food handling. At least one must involve item-level identification at comparable volume.

Commercial (Section G) must include

- Capital cost by work package, split into a fixed site cost and a per-pod unit price, at the pod counts in REQ-RMP-001 — plus the marginal cost of pods 2, 5 and 10 (REQ-RMP-007) and your price for a second site built from the same template.
- Engineering, installation, commissioning and training, priced separately.
- Annual support, spares and software licensing.
- Payment milestones tied to the acceptance stages in Section 14.
- Schedule from award to commissioned capacity, with the critical path shown.
- Price validity period and the assumptions your price depends on.

Format

PDF, English, US customary or metric units. One file per section, or one combined file with a navigable table of contents. Page limits apply to substantive content; drawings and the compliance matrix are excluded.

19. Evaluation criteria

Proposals are scored out of 100. Price is weighted at 20%, which is deliberate: the cheapest system that misses 13:30 is worth nothing.

Criterion	Weight	What earns a high score
Technical credibility	20	Evidence from comparable installations; measured figures, not nameplate; honest about what is new development
Modularity and unit economics	15	Identical pods; low marginal cost of pod N; non-disruptive install; a template a second site can copy
Handling the hard constraints	15	A convincing answer to bag concurrency, the enclosure choice and the RF environment
Engineering judgment	15	Quality of answers to Q1–Q17; willingness to challenge our assumptions with reasoning
Price	20	Fixed site cost plus per-pod unit price across a ten-pod build-out, not headline capex
Schedule	5	Credible path to a first pod in production
Integration and support	10	API maturity, support model, and how you work alongside another vendor

What scores well

- Telling us a requirement is wrong, and showing the analysis.
- A measured number with its conditions stated, even when the number is unflattering.
- A phased proposal that reduces risk early rather than one that de-risks on paper.
- Naming what you cannot do and who should do it instead.

What scores badly

- Nameplate throughput with no availability assumption.
- Datasheet RFID read rates presented as measured performance.
- Compliance claimed against every requirement with no deviations. Nobody complies with all of this.
- A proposal that ignores Section 16.

Disqualifiers

A proposal will not be scored if it: claims a zero-defect or zero-escape rate without stating how it is measured and what it is warranted at; proposes cutting a leased container's structure; omits the compliance matrix; or provides no reference installation for a bid work package.

To be explicit, since an earlier draft of this document was ambiguous: accepting the target in Section 14 is not a disqualifier. Accepting it without a measurement method is.

Process

Shortlisted bidders present in person or by video, walk their layout, and answer follow-ups. We will also ask to speak to the engineers who would run the project, not only the sales team. Expect a site visit and, for WP-03 bidders, an RF trial before award.

20. Commercial terms, process and timeline

Draft — subject to change. The commercial terms in this section have not completed legal review. They show the positions Youtopia expects to take and may change before proposals are invited.

Timeline

Dates will be confirmed and circulated to every bidder who registers intent to bid.

Milestone	Date
RFP issued	TBD
Intent to bid due	TBD
Clarification questions due	TBD
Youtopia responses circulated to all bidders	TBD
Site visits, sample collection and RF trials	TBD
Proposals due	TBD
Shortlist notified	TBD
Presentations	TBD
Preferred bidder selected	TBD
Contract award	TBD

Clarifications

Submit questions in writing by the date above. Answers go to every bidder without attributing the question. We would rather answer a hard question once, publicly, than let a bidder guess.

Commercial terms

REQ-OPS-030 MUST Prices held valid for 90 days from submission.

REQ-OPS-031 MUST State all assumptions your price depends on, and what would change it.

REQ-OPS-032 MUST State your position on Youtopia owning or licensing the controls software (WP-08), and what happens to it if the relationship ends.

REQ-OPS-033 MUST Confirm you can accept payment milestones tied to acceptance rather than to delivery.

REQ-OPS-034 SHOULD State your position on liquidated damages for missed throughput or schedule.

REQ-OPS-035 MUST State your proposed ownership position on the pod design and the site template. Youtopia has not decided whether to own the design outright, license it exclusively, or buy units at a unit price, and will evaluate all three (Q17). At tens of thousands of pods across the network this is likely worth more than any single build contract. State specifically whether you would sell an equivalent pod to a competitor, and on what terms you would agree not to.

Liability, insurance and governance

REQ-OPS-036 MUST State your position on a liquidated damages regime for missed throughput or schedule, including the cap you would require. We do not expect uncapped exposure and will not ask for it.

REQ-OPS-037 MUST State your insurance coverage and limits, and whether you can provide a performance bond.

REQ-OPS-038 MUST State your requirements for documentation deliverables — CAD or BIM format, as-built standard, and O&M manual scope — or confirm you will work to a standard Youtopia nominates.

REQ-OPS-039 SHOULD State the decision turnaround you need from Youtopia to hold your schedule. With seventeen open questions, a slow client decision loop is a real schedule risk and we would rather commit to a service level than discover we are the bottleneck.

On Youtopia as integrator

Section 4 contemplates Youtopia integrating two or three specialists. Youtopia is a nutrition software company, and multi-vendor materials-handling integration is a discipline we do not have in-house.

REQ-OPS-040 SHOULD If you believe the multi-vendor model puts the programme at risk, say so, and state whether you would take prime responsibility or recommend we appoint an owner's engineer. This will not count against a bidder who raises it.

Confidentiality

This RFP is published openly. Bidders execute a mutual NDA before receiving source specifications, order data or site access. Youtopia will not share one bidder's technical approach with another.

Youtopia reserves the right to award in part, to award to multiple vendors, to re-scope, or not to award at all. This RFP is not an offer and creates no obligation to contract.

Contact

All correspondence to a single point, by email only:

Paul White, Head of Producers, Youtopia

Paul.White@youtopia.com

To meet Paul White, Ken Neumann (CEO) and Trevor Eulenbach together, use the booking link on the vendor site at operations.youtopia.com. Please keep all other contact about this RFP to Paul.

21. Appendices

Appendix A — How to read this document

Every requirement carries an ID. Respond to each one individually in your compliance matrix (Section 18). Basis of Design items carry a status instead of an obligation level (Section 2); cite them by ID wherever your response depends on one.

ID format: Basis of Design items are BOD-<NN>; requirements are REQ-<AREA>-<NNN>. Areas are OPS (operating), FAC (facility), PKG (packaging), COC (chain of custody), WP1–WP8 (work packages), XCT (cross-cutting), PRF (performance), RMP (ramp).

Obligation levels:

Level	Meaning	If you cannot meet it
MUST	Binding. A design that fails it is not viable.	Say so explicitly and propose an alternative, or do not bid that package.
SHOULD	Strongly preferred. We will trade it against cost or schedule.	Explain the trade and what we get instead.
MAY	Optional. Tells you where we are flexible.	No response needed.
TBD	We have not decided. Section 16 asks for your recommendation.	Answer in Section 16.

Compliance codes for the matrix: C (comply as written), CD (comply with deviation — describe it), CE (comply by exception — requires something from Youtopia), NC (not compliant), NB (not bid — outside your scope).

Two conventions worth flagging. Units are US customary, because the facility, the containers and the packaging are all specified that way. Temperatures are Fahrenheit. We will accept metric responses without penalty. Where this document gives a derived figure — a rate per minute, a concurrency count — the derivation is shown. If you think the arithmetic or the assumption behind it is wrong, say so. Several of these numbers drive the entire capital cost.

Appendix B — Requirement index

Prefix	Area	Section
BOD	Basis of Design	2
REQ-OPS	Bidding, throughput, open questions and commercial	4, 13, 16, 20
REQ-FAC	Enclosure and site	13
REQ-PKG	Product handling	13
REQ-COC	Chain of custody	13
REQ-WP1	Receiving and de-tray	5

Prefix	Area	Section
REQ-WP2	Chilled surge buffer	6
REQ-WP3	Identification and sortation	7
REQ-WP4	Cubbie wall and bag presentation	8
REQ-WP5	Pick, tag-strip and place	9
REQ-WP6	Bag seal and labelling	10
REQ-WP7	Cart build and van load	11
REQ-WP8	Controls, integration and data	12
REQ-XCT	Cross-cutting	13
REQ-PRF	Performance and acceptance	14
REQ-RMP	Ramp and replication	15

Appendix C — Glossary

Term	Meaning
AC	Aggregation Center — the facility this RFP covers
Bag	The insulated delivery unit, typically 3–10 meal packages, up to 14 lb including ice packs; a household may receive several
Bag tag	The label applied at seal, carrying consumer and route data
Basis of Design (BoD)	Section 2: the single set of facts every design must meet, each with a status
Cubbie	A single bag position in the packing-room wall
Escape	A fault that left the building undetected
HGK	Producer kitchen — an independent establishment that cooks meals
Liner	The pliable film bag inside the insulated bag, closed with a tamper-evident closure
Meal package	One individually packaged meal, one of 13 SKUs
Packing room	A packing pod: one identical, self-contained refrigerated unit with a cubbie wall and pick cells, container or purpose-built. The unit of capacity.
Route cart	The wheeled unit holding bags in delivery stop order
Tray	Reusable stackable tray, about 22 × 26.5 in, carrying 5–9 meals from a kitchen
WMS	Warehouse management system — the controls, tracking and orchestration layer of WP-08

Appendix D — Known data gaps

The status of each known gap. Resolved rows stay so bidders can see what changed. Open rows will be closed before award where possible, and otherwise by pod 1 (REQ-RMP-013).

Gap	Affects	Status
Producer-per-order distribution	WP-04 peak bag concurrency — the largest cost driver	No data — pre-launch; pod 1 will measure it (REQ-RMP-013)
Inbound unload curve across 08:30–09:30	WP-01, WP-02 sizing; the 222 vs 333 per minute question	Assumption only (Q9)
Packages per tray, and whether trays are patterned	WP-01 sizing, dock dwell	Resolved: 5–9 per tray; arrangement open
Bag and liner dimensions, weight, closure type	WP-04, WP-05, WP-06	Resolved: 16 × 10 × 14 in, up to 14 lb including ice packs, film liner; insertion timing and closure open
Building within the south Denver / Centennial market; floor plan, clear height, utilities, drainage, heating	All packages	Not confirmed
Operating days per week and maintenance window	Redundancy cost across all packages	Resolved: seven days a week; overnight window only
Container lease term	Equipment amortisation, REQ-FAC-001	Not settled (Option A only)
Sanitation window and regime	WP-01 through WP-07	Youtopia QA decision, pending
Ice packs per bag and share of bags	WP-05, ice-pack system	About two a bag, up to 6,000 a day; per-order rate not yet known
Container interior length	Cubbies per pod	Resolved: 36 ft
Packaging material	Grip and suction design	Resolved: compostable fiber or plant-based PLA; no petroleum-based plastics
Current state — manual volume today	Phasing, REQ-RMP-003	Resolved: pre-launch, no operating history
Budget envelope and target go-live	Commercial	Not set
Regulatory sign-off authority and recall SLA	REQ-XCT-015 to 019	Youtopia to confirm
Order-size distribution (meals per household per delivery)	Bag count, and so pod count, via multi-bag splits	No data — pre-launch; planning assumption is mostly 6+ items
Enclosure choice and width	Pod count, aisle feasibility, permitting path	Container preferred; module open (Q14)

Gap	Affects	Status
Pod design ownership	Commercial terms, exclusivity	Open (Q17)

The first row is the one that matters most. Peak concurrent open bags drives pod count, which drives almost everything else. If it turns out that a material share of households draw from a single kitchen on a single van, the facility could be materially smaller than this document assumes.