PROPOSAL 002 / FULL EXPLANATION

Elevated Active Mobility

THE GREAT UPGRADE

Safe, continuous bicycle routes that connect people to everyday opportunities.

Build elevated sections where they solve a real barrier. Connect them to protected routes at street level. Measure whether the whole journey becomes safer, easier and worth the cost.

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English explanation edition | 7 October 2026

The purpose

Proposal 002 asks cities to give ordinary people a dependable way to travel by bicycle without having to mix with dangerous motor traffic. Its signature idea is a dedicated second level for cycling, used strategically to cross difficult junctions or connect places that a safe surface route cannot adequately connect.

The intended beneficiaries include children, older adults who cycle, students, workers and households for whom transport costs limit daily choices. The project must also preserve accessible movement for people who walk, wheel or use public transport.

Document status: a developed working explanation, grounded in the TGU master presentation and implementation guide. No site, engineering approval, construction budget, funding commitment or proven pilot is established by this document. Design options and numerical examples added here are proposed for review. [P1-P2]

What the proposal actually changes

From interrupted routes to a connected journey

A bicycle lane can look useful on a map yet become unusable at the very place where protection matters most. A route may stop before a large junction, squeeze into motor traffic at a bridge, or end far from a school or workplace. Proposal 002 focuses on those breaks. Its goal is a journey that remains understandable and protected from the neighborhood departure point to the destination.

An elevated bicycle route is a structure above street level with a riding surface, protective edges, supports and safe entry and exit points. It can bridge a single difficult crossing or form a longer connection. It must be supported by local streets, protected feeder routes, bicycle parking and clear wayfinding. The structure alone is only one part of the transport system.

The current TGU position

The master presentation specifies selective elevation where it creates continuity, safety and access. Protected routes at ground level remain valid when they deliver comparable outcomes for less cost over their useful life. This explanation carries that position forward; it does not turn the proposal into a requirement to elevate every bicycle route. [P1-P2]

A practical example

Imagine a residential area separated from a school and employment district by a wide arterial road. A protected neighborhood route leads to a gentle ramp, crosses the barrier on a dedicated bridge, descends to another protected route and reaches bicycle parking near the destination. The useful result is the complete connection, including the two approaches.

The test: Does elevation remove a significant barrier without creating a worse one through long detours, difficult climbs, poor access or excessive maintenance costs?

Who should benefit, and how

People	Intended improvement	What must be checked
Children and families	Safer routes to schools and activities.	Protected approaches, supervision options and speeds appropriate to inexperienced riders.
Workers and students	A predictable, affordable travel option.	Shift hours, night conditions, destination parking and directness.
Households with limited income	Less dependence on paid motor transport for suitable trips.	Bicycle access, repair costs, geographic coverage and fees.
Older adults and adaptive riders	A route usable at a comfortable pace.	Grades, resting places, width, passing and adaptive-cycle geometry.
People walking or wheeling	Safe movement around access structures.	Clear sidewalks, accessible crossings and separation from faster bicycles.

These are intended benefits, not measured outcomes. Some people cannot or do not wish to cycle. A fair project keeps public transport, accessible sidewalks and other essential services available. It should evaluate whether spending on an elevated segment helps underserved residents more than spending the same money on surface protection or another transport improvement.

Make access affordable

This edition recommends free public passage as the default operating option. Bicycle purchase, repair, storage and theft remain real barriers even when passage is free. Partners could offer affordable bicycles, repair support or secure parking. Any such program needs a separate budget and clear eligibility; it is not an existing commitment.

Evaluate the whole trip

Measure time and difficulty from the actual starting point to the actual destination, including ramps, crossings and parking. Report whose journeys improved and whose became harder. A faster elevated segment can still produce a slower trip if access requires a large detour.

Where elevation makes sense

Begin with travel needs and dangerous gaps, then choose the structure. The first corridor should connect useful places and have a plausible source of everyday demand. A visually impressive route without nearby origins and destinations is a weak first investment.

Candidate condition	Question before selecting elevation
A major road or complex junction	Can a protected crossing at street level provide equal or better access?
A rail, canal or other physical barrier	What clearances, owner permissions and emergency access are needed?
A constrained bridge or missing link	Would widening or improving an existing crossing work better?
A dense corridor with frequent conflicts	Do safe access points fit, and do benefits justify a longer structure?
A route near existing elevated infrastructure	Can it use the corridor without assuming spare structural capacity?

Compare routes before choosing a design

For each candidate, map schools, jobs, transit stops, shops, homes, existing cycling routes, crossing problems, utilities and possible access locations. Count current bicycle movements and ask people who avoid cycling what prevents them from using it. Low current use may reflect danger, but it is not proof of large future demand.

Reasons to reject a location

Reject or redesign a route if its ramps obstruct sidewalks, emergency response cannot reach users, foundations require unacceptable utility relocation, private land is unavailable, or the route creates unreasonable noise, overlooking or disruption. A location with lower visibility but better access may be the stronger project.

Recommended decision rule: use elevation only when it adds a material benefit that the best practical surface alternative cannot deliver at an acceptable total cost. Publish the reasons and uncertainties.

How people enter, ride and exit

Entries are part of the transport route

A user should reach an entry along a protected approach, see where it leads and ride onto it without sudden conflicts. Ramps need adequate width, comfortable geometry, visibility, drainage and room for the types of cycles allowed. Stairs can supplement access but should not be the only way to reach a public route.

Why ramp length matters

For a simplified straight ramp, horizontal length equals vertical rise divided by gradient. A hypothetical rise of 5 m at a 4% gradient needs about 125 m of horizontal run for each approach. At 3%, it needs about 167 m. These are arithmetic examples, not approved heights or slopes. Curves, landings, transitions and local accessibility requirements can add length.

A gentle ramp can require substantial land. A compact steep ramp can exclude people or create difficult downhill braking. The route-selection study must therefore include the footprint and travel time of access structures before treating a bridge as feasible.

Direction, passing and crossings

Provide clearly marked directions and usable passing space. Where a two-and-two layout is considered, treat two riding lanes per direction as an optional capacity design, subject to demand, width and cost assessment. It is not a fixed requirement in the current master brief. Separation and junction design must prevent fast riders from forcing slow users toward an edge.

Walking and wheeling

The core elevated facility is dedicated to cycling. If a project also offers pedestrian or wheelchair access, define a separate, suitably designed space and operating rules. Do not assume that mixing all users on one narrow deck is acceptable. Adaptive cycles need explicit design consideration even on a cycle-only route.

Where a lift is proposed, specify redundancy, downtime procedures, maintenance funding and an accessible fallback. A single unreliable lift can make a formally accessible route functionally inaccessible.

Architecture, materials and safety

The project includes an architectural concept in its prior development. This explanation does not contain a verified construction drawing or approval certificate. A chosen architectural form must be translated into site-specific engineering before it can establish dimensions, support spacing, foundations or safe loading.

Element	Required design work
Deck and supports	Assess expected users, maintenance equipment, wind, vibration, fatigue and other applicable loads.
Foundations	Investigate ground conditions, buried services, drainage and settlement.
Protective edges	Design for fall prevention, bicycle impacts and objects falling onto the street below.
Riding surface	Provide traction when wet, manageable joints, drainage and a maintainable surface.
Shade and lighting	Check wind effects, sight lines, energy supply, glare and replacement access.
Road interface	Confirm clearance and protect supports from relevant vehicle impacts.

Choose materials by total performance

Steel, concrete or a combination may be suitable, depending on the site. Modular components may simplify some manufacturing and replacement tasks, but repeated sections do not eliminate foundation differences or quality control. Compare corrosion protection, delivery, installation, inspection access, repair methods and the ability of local contractors to maintain the structure.

Independent review

Before public use, require competent engineering review, construction inspection, documented testing and a signed opening decision from the responsible authority. Volunteers and an innovation competition can contribute ideas; they cannot substitute for accountable design and inspection.

> Physical safety is a condition for opening. Architectural appeal, public support and an online vote do not demonstrate structural adequacy.

Climate, comfort and personal security

Plan for the conditions people experience

For a possible Ciudad Juárez study, investigate heat, direct sun, wind, airborne dust, rain, drainage and seasonal cold using local measurements. These are design questions rather than a claim that a specific corridor has already been assessed. An exposed elevated deck may feel different from a sheltered street route.

Shade is worth evaluating at ramps, waiting areas and exposed sections. A canopy adds structural loads and maintenance. Solar panels could provide some shade or power, but their yield, electrical requirements, cleaning, wind resistance and lifecycle cost require separate calculation. They should not be presented as automatically paying for the project.

Security throughout operating hours

Lighting should reveal faces, obstacles and direction changes without excessive glare. Access points should be visible and connected to occupied public areas where possible. Avoid hidden corners, isolated dead ends and long sections with no workable emergency exit. Discuss night travel and harassment with women, shift workers and other affected users.

If cameras are proposed, document purpose, access controls and retention limits. Cameras can support incident response but are not a substitute for staff, reachable assistance, good design and maintenance. Provide location markers and a clear way to report an emergency without requiring a smartphone.

Emergency and weather operation

Define how responders reach an injured user, how a stretcher moves off the route and how a blockage is managed. The operator needs inspection-based closure rules for wind, surface hazards, structural concerns or damage. The relevant professionals must set the actual thresholds for the chosen design.

Every closure should activate a signed, usable alternative route. Publish the reason, expected duration and reopening decision. A route that is repeatedly unavailable at work or school travel times may fail its transport purpose even if its structure remains sound.

Connect the second level to the city

The first and last part of the trip

A protected elevated section should lead to protected approaches, useful crossings and destination parking. Access cannot end by directing a rider into fast motor traffic. The plan should show every transition, including driveways, bus stops, turning vehicles and crossings at the base of ramps.

The UK Department for Transport design guidance explicitly covers network planning, transitions, junctions, crossings, parking, construction and maintenance. These are useful topics for the project review checklist; the guidance does not certify a TGU design or replace local requirements. [E1]

Public transport connection

Select entries near appropriate transit stops where the connection is safe and convenient. Parking near a stop can help someone cycle for part of a longer journey. Parking must not obstruct pedestrian circulation, accessible boarding or emergency access. Operators should establish responsibility for cleaning, repairs and theft reporting.

Sensor-operated signals

Sensor-operated signals are a candidate feature for surface crossings on feeder routes. Their value depends on reliable detection of ordinary and adaptive bicycles, accessible user controls, appropriate signal timing and a safe fallback when detection fails. They do not remove the need for a protected junction layout.

Coordination with Evolucracia

Proposal 003 could complement 002 through authorized neighborhood improvements such as repairs, markings, landscaping or maintenance around approaches. Keep each project’s ownership, workforce, budget and safety responsibilities clear. Skilled structural work must remain under qualified supervision and the legally responsible operator.

> The practical network is a combination: protected local streets + carefully designed crossings + elevated links where needed + secure destination access.

Evidence and expected benefits

An elevated route is physically possible

The project architects describe the Xiamen Bicycle Skyway in China as a 7.6 km project completed in 2016-2017. Their account describes ramps, parking and connections to transit. This is evidence that a substantial elevated cycling facility can be built. It does not establish the cost, ridership or value of a proposed route in Ciudad Juárez. The architects' description is a project account, not an independent impact evaluation. [E2]

Health is a reason to test active travel

WHO reports that regular physical activity benefits physical and mental health and recognizes cycling as a form of activity. Its June 2024 fact sheet reports that 31% of adults globally do not meet recommended activity levels. Those global findings support making activity easier; they do not quantify the health benefit of Proposal 002 or describe inactivity in a particular neighborhood. [E3]

Benefits that remain hypotheses

A connected route may reduce exposure to motor-vehicle conflicts at the crossings it removes. It may make travel time more predictable, increase cycling for useful trips and reduce some paid transport expenses. Whether those effects occur depends on access, weather, security, demand and the quality of the complete network.

Lower emissions require actual substitution away from motor travel, evaluated alongside construction and maintenance impacts. A new recreational bicycle trip is valuable for recreation, but it should not automatically be counted as a replaced car trip. Reduced congestion or citywide healthcare savings require additional evidence.

Evidence category	How this document uses it
Project position	TGU documents establish the selective-elevation concept.
External evidence	A real project and public design/health guidance support specific background points.
Planning recommendation	Proposed operating and pilot choices remain open to review.
Illustrative arithmetic	Budget and usage examples test assumptions; they are not forecasts.

Cost: what the budget must include

No local engineering estimate or contractor quotation is available in the reviewed project material. This document therefore provides a cost framework and a deliberately hypothetical example, rather than claiming a market price per kilometer.

Budget component	Items to account for
Preparation	Demand study, surveys, ground investigation, utility checks, design and review.
Construction	Foundations, supports, deck, barriers, ramps, surface and installation.
Connections	Protected approaches, crossings, destination access, parking and signs.
Site complications	Utility relocation, property interests, traffic management and environmental measures.
Operations	Cleaning, inspection, lighting, security, repairs and public information.
Long-term obligations	Surface renewal, protective coatings, component replacement and closure or removal.

Compare equivalent projects

Evaluate an elevated scheme and its best surface alternative over the same service area and time horizon. Include their approaches, operating costs and replacement cycles. Show how different assumptions about ridership, construction difficulty, useful life and discount rate alter the result.

Funding without false certainty

Possible funding sources include authorized public transport or infrastructure budgets, grants and transparent contributions from employers or other partners. These are options to investigate, not committed funds. Essential public access and project selection should not depend on a sponsor’s marketing preferences.

If the City Upgrade Fund in Proposal 004 is considered, verify its actual legal authority and available resources separately. Future revenues from other TGU proposals cannot be booked as cash for 002. Before procurement, identify the owner, the construction payer and the party funding maintenance for the full planned period.

Illustrative numbers: test the assumptions

Hypothetical arithmetic only. Assume a complete pilot costs MXN 60 million to build, costs MXN 1.2 million annually to operate and maintain, and is spread across 20 years for a simple undiscounted comparison. These are selected teaching inputs, not quotations, forecasts or a proposed appropriation.

Annualized capital = 60,000,000 / 20 = MXN 3,000,000. Adding the assumed annual operation gives MXN 4,200,000 per year. This simplified model excludes financing, inflation, discounting, major replacement and residual value. A formal estimate must address them.

One-way trips/day	Trips/year, 365 days	Simple cost per trip
300	109,500	MXN 38.36
1,000	365,000	MXN 11.51
2,000	730,000	MXN 5.75

A trip is one passage, not a unique person. Someone who rides to work and back makes two trips. Daily figures here are averages across the year; a one-day event or peak weekday count cannot be used as the annual average.

Why demand changes the decision

The same infrastructure can be hard to justify with low use and more attractive with sustained use. These figures do not measure social benefit. Compare cost with additional safe trips, access gained and the alternatives. Report total trips and additional trips separately so existing cycling is not counted as entirely new activity.

A travel-time example

If an entire 3 km trip averaged 15 km/h, riding time would be 12 minutes. If the real journey also needed 5 minutes for access, crossings and parking, it would take 17 minutes. Both values are assumptions. Measure actual door-to-door time before claiming the route saves time.

Replace every teaching input with a local measurement or documented estimate before requesting construction funding.

The strongest objections and alternatives

Objection	What would answer it
A surface network could serve more people for the same money.	Compare equally funded alternatives and publish access gains per peso, not only bridge usage.
Ramps make short trips slower or exclude riders.	Test complete journeys and adaptive-cycle access; redesign or select another site.
People may avoid an exposed or isolated deck.	Study weather, night security and non-user concerns before construction.
The project creates new repair obligations.	Fund an accountable operator and show inspection and replacement costs.
The route benefits central areas while others wait.	Publish who benefits by neighborhood and income, and compare underserved corridors.
The structure harms the street below.	Evaluate sidewalks, sight lines, light, utilities, drainage and local business access.

Four alternatives worth comparing

Protected surface network: physical separation, safe crossings and useful destinations. **Hybrid network:** mostly protected surface routes with a small number of elevated barrier crossings. **Longer elevated corridor:** considered where repeated barriers and reliable demand justify it. **Maintain and improve existing routes:** repair gaps and crossings before committing to a new structure.

The current system also belongs in the comparison. Describe its actual safety, access and maintenance outcomes; do not imply that doing nothing has no cost. A surface network should receive a serious design and cost estimate, rather than being represented by an unsafe painted lane.

Give the dissenter a real role

An independent critic should identify the strongest failure mechanism, submit a credible alternative and examine the same evidence as supporters. Record which objections led to changes. Choosing the surface alternative is a valid TGU outcome when it better serves the public. [P1-P2]

A realistic pilot and decision sequence

Stage 1: select and study a useful gap

A proposed first pilot is one elevated crossing or short connection within a complete protected corridor. Its length must follow the location and access requirements. Begin with counts, trip surveys, a map of dangerous breaks and a preliminary comparison of elevation with surface improvements.

Stage 2: prove feasibility before building

Prepare a site-specific design, ground and utility investigations, accessibility assessment, cost range and operating plan. Confirm who owns the land and corridor, which bodies can authorize work and how approvals will be obtained. Publish alternatives, conflicts of interest and the independent critique.

Stage 3: authorize, construct and inspect

The pilot charter should specify location, spending cap, procurement process, operator, maintenance obligations, evaluation access and authority to close the facility. Construction still requires full applicable safety standards; the word pilot does not lower structural requirements. Opening follows competent review and inspection.

Stage 4: measure use through seasonal conditions

This edition recommends at least 12 months of operating observation where practical, together with comparable baseline measurements and a reference corridor. That duration is a planning recommendation, not a requirement already adopted by TGU. It helps distinguish launch enthusiasm from sustained use and exposes seasonal issues.

Stage 5: publish a decision

Choose stop, revise, repeat the pilot or expand within a funded plan. Expansion should follow satisfactory safety, meaningful access gains, acceptable costs and reliable operation. Low demand, a serious access failure or an unaffordable maintenance obligation can justify a different solution.

> The existing TGU guide offers a 90-day preparation framework. Use that period to organize studies and decisions where feasible; it is not a promise to design, approve and construct an elevated route in 90 days. [P2]

What to measure, and when to stop

Measure	Method and interpretation
Use and added cycling	Count passages by time and season. Survey unique users and previous travel modes.
Whole-trip time	Time representative journeys, including approaches, ramps and parking.
Safety	Record injuries, incidents and serious conflicts relative to trips or distance traveled.
Access and distribution	Check destinations reachable and participation across ages, neighborhoods and user groups.
Availability	Track closures, lift failures where relevant, surface defects and repair duration.
Cost	Report construction, operation, renewal assumptions and spending per added safe trip.
Public experience	Survey users and non-users about security, comfort, detours and reasons for avoidance.

Set methods, target values and the responsible evaluator before the pilot opens. Do not change the definition of success after seeing the result. Compare equivalent seasons and consider other changes such as roadworks, fuel prices or transit service that could affect use.

Interpret short-term safety results carefully

A short pilot with few trips may observe no serious injuries without establishing a reliable reduction in risk. Use exposure, incident investigation and carefully defined conflict measures alongside injury records. Publish missing data and avoid claiming precise citywide effects from a small test.

Immediate closure and broader failure

Close or restrict operation when competent inspection identifies structural danger, failed protective barriers, an unsafe surface or an emergency-access problem. The operator must have named decision authority and a documented reopening process. Reconsider expansion if demand, accessibility or lifecycle cost misses the published criteria.

Release aggregate results, complaint themes and the evaluation report while protecting personal information. Record both benefits and harms. A revised route or operating model receives a new proposal version so earlier support is not presented as endorsement of an unreviewed change. [P1-P2]

Open innovation and accountable delivery

Invite expertise through a structured challenge

The earlier concept includes an Open Innovation Challenge and Innovation Dashboard. Use them to request specific contributions: structural options, access geometry, construction methods, materials, lifecycle costing, climate protection, personal security, adaptive-cycle access and pilot evaluation. Each submission should identify assumptions, evidence, estimated costs and limitations.

Keep an innovation index separate from the public preference results. An attractive concept, a promising material and an engineered design are different kinds of contribution. Mark their maturity and review status. Online popularity must not certify engineering or select a contractor outside the applicable procurement process.

Accountable role	Responsibility
Lead public authority	Owns authorization, route selection and the final public decision.
Qualified design team	Develops and checks the site-specific structure, access and safety design.
Operator	Runs inspections, cleaning, repairs, closures and incident response.
Independent evaluator	Checks methods and reports outcomes and uncertainty.
Residents and user groups	Identify access needs, local impacts and usability problems.
TGU proposal team	Maintains the explanation, alternatives, version record and institutional responses.

Participation without overstating authority

Keep citizen preferences, institutional positions and expert assessments in separate views. An institution’s response should identify who approved it, the authority represented and the exact version reviewed. No response remains no response; it does not become opposition or endorsement. Consultation complements the lawful authorization process. [P1]

How Ranf can move it forward

Prepare one corridor brief

Choose one daily trip in Ciudad Juárez that should be easier by bicycle. Identify the start area, the destination, the troublesome crossing and nearby transit. Explain who would use it and at what times. A rough map and a short description of the barrier are enough to begin an engineering conversation; do not choose a final structural form yet.

Collect useful local evidence

Take photographs from lawful, safe public locations; note gaps in protection and obstructions near possible entries. Ask workers, students, parents, older riders and adaptive-cycle users what route they need and what stops them using it. Summarize responses without publishing identifying information. Counts collected by volunteers should state date, duration, weather and method.

Ask for a comparison, not an endorsement

Invite a local transport planner and qualified structural professional to assess the same corridor. Request three sketches: a protected surface solution, a hybrid connection and an elevated option where justified. Ask for access footprints, major utility issues, preliminary cost components and the information needed for a proper estimate.

Build a review packet

Combine the route map, problem statement, beneficiary groups, photographs, alternatives and unanswered questions. Identify the responsible public bodies and potential institutional reviewers. Request a documented response on feasibility, the strongest objection and the next study that would resolve uncertainty.

What is needed before seeking construction funding

A credible next-stage package includes a named owner and operator, engineering scope, permission pathway, realistic budget range, maintenance commitment, independent evaluation plan and comparative evidence. None of these should be inferred from public enthusiasm alone.

The next concrete result: one corridor, three comparable options and a written feasibility response. That would turn Proposal 002 from a broad idea into a locally testable project.

Sources, scope and open decisions

Project documents were reviewed for the current proposal position. External sources were checked on 7 October 2026. Bracketed identifiers refer to the items below. Unreferenced implementation choices are recommendations developed for this explanation, not established results or previously approved specifications.

Project foundation

[P1] The Great Upgrade - Pan-American Master v4.0, September 2026. Slide 29 defines Proposal 002 and selective elevation; the wider deck supplies alternatives, dissent, representation, versioning and pilot principles.

[P2] The Great Upgrade: A guide for public institutions and implementers (04_Public_Implementation.pdf), September 2026. Pages 2-6 explain authorization, lifecycle obligations, comparative review and pilot decisions. These are internal project sources.

External references

[E1] UK Department for Transport. Cycle infrastructure design (LTN 1/20), published 27 July 2020. The publication page identifies its design and maintenance scope. Used as an example of review topics, not as local law.
gov.uk: Cycle infrastructure design (LTN 1/20)

[E2] Dissing+Weitling. Xiamen Bicycle Skyway, project description, 2016-2017. Primary account by the project architect; supports existence, stated length and described features.
dissingweitling.com: Xiamen Bicycle Skyway

[E3] World Health Organization. Physical activity, fact sheet dated 26 June 2024. Supports the limited health background and global inactivity statistic used here.
who.int: Physical activity

Decisions still open

Exact route; approved architectural and structural design; deck width and lane count; entry spacing and grades; permitted cycle types; pedestrian provision; climate protection; operating hours; legal authorizations; operator; budget; funding; pilot thresholds and demand forecast. The illustrative pesos, trip counts and ramp dimensions are not estimates for an actual site.

> Where human potential has been trapped the longest, The Great Upgrade should arrive first.