

ASCE SYMPOSIUM BANGLADESH 2026

BUSINESS CASE COMPETITION

CASE 01

BUILDING THE CITY OF TOMORROW

An Infrastructure Prioritization & Investment Decision

1. Client Context

The City Authority is responsible for an 85 km² metropolitan district experiencing sustained population and economic growth. Infrastructure expansion has not kept pace with demand: peak-hour congestion is reducing mobility, water losses remain high, recurrent waterlogging affects developed areas, electricity demand is increasing, and most municipal waste is not recovered as a resource.

The Authority has adopted a 2035 infrastructure transformation objective focused on service reliability, resilience, resource efficiency, and measurable public value. It does not intend to pursue a technology-led showcase; investments must address demonstrated infrastructure needs and remain practical to finance, construct, operate, and maintain.

A capital envelope of USD 300 million has been identified for the first transformation program. The Authority cannot fund every available intervention. Your team has therefore been appointed to recommend a prioritized portfolio and delivery model.

2. The Decision

Recommend the portfolio of infrastructure investments the City Authority should approve for implementation through 2035. The proposal must demonstrate technical performance and system integration while also establishing financial viability, delivery feasibility, and stakeholder value.

The case is intentionally engineering-led: approximately 60% of the proposed solution should address technical and infrastructure considerations, and approximately 40% should address business, financing, implementation, and adoption considerations.

3. Planning Baseline

Indicator	Case Data
Current population	1.20 million
Projected population (2035)	1.55 million
District area	85 km ²
Average daily road trips	1.05 million
Public transport mode share	28%
Peak-hour average travel speed	17 km/h
Municipal water demand	210 million L/day
Non-revenue water	29%
Flood-prone developed area	18%
Annual electricity demand	1.65 TWh
Renewable share of electricity used	8%

Indicator	Case Data
Municipal solid waste generation	1,050 tonnes/day
Waste formally recovered / recycled	14%
Maximum program capital envelope	USD 300 million

Exhibit 1. Planning Baseline Indicators

Case data are provided for comparative planning purposes. Teams may introduce additional reasonable assumptions where necessary; each material assumption must be identified and justified.

4. Candidate Investment Program

The Authority has completed preliminary screening of six investment packages. The figures below are indicative planning estimates, not detailed designs. Teams may select, combine, modify, phase, or reject packages, provided that changes are technically and financially justified.

ID	Candidate Intervention	CAPEX	Indicative Planning Effect
A	Bus Priority & Intelligent Mobility Program	\$90M	Target: +12 percentage points public transport share; 15–20% reduction in corridor travel time.
B	Water Loss Reduction & Smart Metering	\$65M	Target: reduce non-revenue water from 29% to 17%; improve network monitoring.
C	Flood-Resilient Drainage & Blue-Green Network	\$120M	Target: reduce priority flood exposure by ~55%; improve stormwater retention.
D	Distributed Solar & Public-Asset Energy Retrofit	\$85M	Target: ~95 GWh/year clean-energy/efficiency benefit; lower public operating cost.
E	Material Recovery & Organic Waste Resource Facility	\$75M	Target: divert ~35% of municipal waste from disposal and recover recyclable/organic streams.
F	Integrated Urban Data & Infrastructure Operations Platform	\$45M	Target: integrate transport, water, energy and environmental monitoring; enable performance-based operations.

Exhibit 2. Candidate Investment Packages

The USD 300 million capital ceiling applies to the recommended program. The preliminary effects above should be treated as decision inputs; teams are expected to test their relevance, identify dependencies, and avoid selecting projects by headline benefit alone.

5. Technical Solution — 60%

The technical recommendation must form the core of the submission. Teams should select a portfolio that addresses at least three infrastructure systems and explain how the selected interventions operate as an integrated program.

- Establish the baseline problem and define measurable technical objectives.
- Compare credible alternatives and justify the selected engineering approach.
- Provide indicative sizing, capacity, demand, efficiency, or performance calculations where relevant.
- Identify interfaces and dependencies between transport, water, drainage, energy, waste, and digital systems.
- Address constructability, operations and maintenance, reliability, resilience, and major engineering risks.
- Define a limited set of KPIs against which the Authority can measure performance through 2035.

Teams are not expected to produce detailed engineering drawings. The required level is sufficient engineering analysis to demonstrate that the recommendation is technically defensible and implementable.

6. Business Solution — 40%

The business recommendation must establish how the proposed technical portfolio creates value and can realistically be delivered.

- Financial case: indicative CAPEX and OPEX, lifecycle implications, savings or economic benefits, and affordability within the capital ceiling.
- Funding and commercial model: justify the proposed mix of public funding, PPP, concession, green/development finance, user-based revenue, or other appropriate mechanisms.
- Delivery strategy: define phasing, procurement/delivery approach, responsible entities, and key decision gates through 2035.
- Risk allocation: identify material financial, operational, regulatory, market, and implementation risks and propose mitigation.
- Stakeholder and adoption strategy: address residents, businesses, utilities, government agencies, investors, and operators where relevant.

7. Constraints and Trade-offs

- Total recommended capital investment must not exceed USD 300 million unless a clearly identified external financing structure makes the additional investment credible.
- Existing essential services must remain operational during implementation.
- The Authority values measurable infrastructure outcomes over technology adoption for its own sake.
- A proposal should acknowledge opportunity cost: funding one intervention may delay or exclude another.
- Recommendations should distinguish case facts, external evidence, and team assumptions.

8. Required Submission Content

- Executive recommendation: the portfolio the Authority should approve and the principal reason for the decision.
- Problem diagnosis and evidence-based prioritization.
- Technical concept, calculations, system integration, and performance targets.
- Capital allocation and financial/commercial rationale.
- Phased implementation roadmap through 2035.
- Risk assessment and mitigation plan.
- Stakeholder and sustainability implications.
- Sources and clearly stated assumptions.

9. Evaluation Criteria

Criterion	Weight	Evaluation Focus
Problem Understanding & Analytical Depth	20%	Strong technical and business analysis; relevant evidence and assumptions.
Quality of Proposed Solution	20%	Clear recommendation, logic, strategic fit, and response to the core problem.
Feasibility & Implementation	20%	Actionable plan, resources, timeline, operational practicality, risk awareness, and SWOT analysis.
Financial / Commercial Viability	15%	Cost/value logic, adoption rationale, and commercial sustainability where relevant.
Innovation & Differentiation	10%	Originality and meaningful differentiation rather than novelty for its own sake.
Sustainability & Stakeholder Impact	5%	Environmental/social implications and stakeholder consequences relevant to the case.
Presentation & Communication	5%	Clarity, structure, professionalism, visual communication, and synthesis.
Q&A / Defense	5%	Ability to defend assumptions and respond directly and thoughtfully to judges.

Exhibit 3. Scoring Rubric

For Round 1, which has no live Q&A, the Q&A/Defense weighting may be redistributed across the applicable criteria in accordance with the Official Rulebook. Any case-specific score sheet issued by the Organizing Committee supersedes this framework.

10. Research, Sources and Assumptions

Participants may use publicly available research and other non-confidential sources. External facts, data, images, models, and quotations must be appropriately cited. Where reliable data are unavailable, reasonable assumptions are permitted, but they must be identified and justified. Participants remain responsible for every claim, calculation, source, and recommendation.

11. Final Client Question

Which portfolio should the City Authority fund first, why does it provide stronger overall value than the credible alternatives, and how should it be financed, delivered, and measured through 2035?