

Proposal

July 30, 2026

PILOT PROJECT: 30-UNIT AUTOMATED UNDERGROUND HOUSING BLOCK

Near Las Vegas – HUD 30% Income Housing

Bootstrapping Robotic Construction Technology with Government Subsidy on Suitable Desert Land

PURPOSE OF THIS PILOT

The single goal of this pilot is to prove and accelerate automated housing technology as rapidly as possible.

We will use the most suitable desert land approximately 30 miles from Las Vegas—selected primarily for soil characteristics and low water table—and the existing HUD subsidy system (30% of income rent) as the funding vehicle. Success of this small 30-unit block will unlock the technical data, cost benchmarks, regulatory approvals, and political support needed to scale the same robotic method to thousands of units.

This is not a large housing program in itself. It is a technology demonstration project paid for by housing subsidies.

WHY THIS APPROACH

Traditional construction is too slow and expensive to solve the affordable housing shortage at scale.

Robotic excavation plus on-site production of building blocks from the excavated soil removes most material transport and much of the labor cost.

The desert near Las Vegas offers favorable conditions for underground or bermed construction when sites are chosen for appropriate soil composition and a naturally low water table.

HUD's existing 30%-of-income framework already exists and can pay for the pilot without requiring new legislation.

A small, contained 30-unit block can be designed, permitted, built, and evaluated in a fraction of the time required for a full neighborhood.

PILOT SPECIFICATIONS

SCALE

One self-contained 30-unit residential block.

LOCATION

Approximately 30 miles from Las Vegas on the most suitable desert land, selected for soil features that support high-quality stabilized compressed earth blocks and a low water table that minimizes waterproofing and dewatering challenges. Land may be acquired through BLM via SNPLMA Section 7(b) at \$100/acre if available to a public partner, or through private parcels meeting the same soil and water-table criteria. Minimal existing utilities are acceptable so the pilot can demonstrate self-contained power and water solutions.

CONSTRUCTION METHOD (THE TECHNOLOGY BEING PROVEN)

Automated or semi-automated excavation of a compact pit sized for the 30-unit block.

Spoil is conveyed, ground to consistent particle size, mixed with minimal stabilizers, and pressed into thick interlocking compressed earth blocks.

Blocks receive a durable, paintable coating.

The 30 units are built primarily from these on-site blocks in a multi-level or single-level underground or bermed configuration.

Rough-ins for utilities are installed during construction.

A simple shared common space or small community room is included.

UNIT TYPE

Two-bedroom, one- or two-bathroom units with kitchen and living area, sized for HUD family occupancy. Exact square footage will be optimized for the pilot's engineering and cost targets.

AFFORDABILITY

100% of units will meet the HUD standard: tenants pay no more than 30% of adjusted household income for rent and utilities. The pilot will be structured to qualify under HOME, LIHTC, or other standard HUD programs so that the subsidy itself becomes the funding source for technology development.

TECHNOLOGY GOALS OF THE PILOT

The 30-unit block must answer these questions with hard data:

- Can local desert soil be consistently turned into code-compliant structural blocks at low cost?
- What stabilizer percentages and coating systems work best?
- How fast and how reliably can the robotic or semi-automated process operate?
- What are the true all-in costs per unit once material transport is nearly eliminated?
- What engineering, waterproofing, ventilation, and utility solutions work for underground or heavily bermed construction in this climate?
- What regulatory and inspection pathway is required?

Every lesson is documented for immediate use in the next, larger module.

LINK TO MENTAL HEALTH AND POVERTY POLICY

Stable housing is foundational to mental-health recovery and substance-use recovery. By proving a dramatically cheaper construction method, this pilot creates the physical inventory needed for permanent supportive housing at scale.

[Citizens for Mental Health Reform](#) also continues to advocate for federal recognition that chronic poverty itself produces disabling cognitive and mental-health effects. Successful low-cost housing technology makes that policy conversation more practical: if housing can be produced far more cheaply, income supports and housing can be paired more effectively.

IMPLEMENTATION OUTLINE

MONTHS 1–6

Site selection based on soil testing and water-table data, partnership with local public housing authority or Clark County for SNPLMA access, preliminary engineering, and HUD funding strategy.

MONTHS 7–18

Detailed design, permitting, robotic equipment procurement or partnership, construction of the 30-unit block.

MONTHS 19–24

Lease-up under HUD rules, intensive data collection on costs, performance, resident outcomes, and operational lessons.

IMMEDIATELY AFTER SUCCESSFUL EVALUATION

Design of the next module (100–300 units) using the proven methods, still financed primarily through housing subsidies.

REQUESTED SUPPORT

[Citizens for Mental Health Reform](#) seeks partners to:

- Identify and secure a suitable 5–15 acre parcel approximately 30 miles from Las Vegas based on soil features and water table.
- Provide or co-develop the robotic excavation and block-production system.
- Structure the pilot so that HUD subsidies cover the majority of construction cost while the technology is de-risked.
- Document every technical and cost finding for open or licensed use in subsequent projects.

The pilot is deliberately small so that it can move fast. Its only purpose is to make automated, low-cost housing technology real and scalable as quickly as possible.

SUGGESTED TECHNOLOGY AND PARTNERS TO START WITH

PRIMARY RECOMMENDATION – TESLA AND THE BORING COMPANY

Tesla and The Boring Company are the strongest strategic starting partners for this pilot. The Boring Company has already developed and publicly discussed technology to turn excavated tunnel spoil into structural bricks and pavers. Tesla brings advanced robotics (Optimus), autonomous systems, solar and battery energy solutions, and a major operational presence in the Las Vegas region. A partnership or technology collaboration would accelerate the exact combination of automated excavation, on-site material conversion, and energy independence this pilot requires.

ADDITIONAL PROVEN COMPRESSED EARTH BLOCK (CEB) EQUIPMENT MANUFACTURERS

These companies already produce commercial machines capable of turning local soil into structural blocks on site and would be logical equipment or technology sources for the pilot:

- Advanced Earthen Construction Technologies (AECT) – San Antonio, Texas. Highly regarded automated and portable CEB machines used in more than 50 countries.
- PMSA (Pan Mixers South Africa) – Full range of interlocking and non-interlocking CEB machines, including mobile plants.
- Hydraform – Established interlocking compressed earth block systems widely deployed internationally.
- EarthTek LLC – New Mexico-based manufacturer with decades of experience in compressed earth block machinery.

These systems, combined with Tesla/Boring Company robotics and energy technology, provide a practical starting point for the 30-unit pilot.