PROJECT GOODBOY

A Detailed Long-Term Strategic Plan for Interstellar Diplomatic Engagement

"Don't chase. Intercept. Don't demand. Prepare."

Project HORUS · skHighNet

Idea Credit: Randy Pesek

Project GOODBOY

A Detailed Long-Term Strategic Plan for Interstellar Diplomatic Engagement

Named for Jonnie Goodboy Tyler — the one who stood up, learned the truth, and proved his species was ready for a seat at the table.

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1. Executive Summary

Project GOODBOY is a multi-generational strategic initiative to establish humanity's first non-governmental capability for interstellar diplomatic engagement. It operates under Project HORUS within the skHighNet framework.

The core insight: No advanced civilization will engage with a species that cannot demonstrate long-term thinking, technical capability, and organizational maturity. GOODBOY exists to prove humanity possesses these qualities — not through a single message or contact event, but through sustained, disciplined, generational effort.

The four horizons: - **H1: Gaze (0-2 years)** — Build ground-based sky monitoring infrastructure. Catalog every object in orbit. Detect anomalies. - **H2: Voice (2-5 years)** — Develop and transmit structured signals at scientifically recognized interstellar communication frequencies. Establish a two-way protocol. - **H3: Handshake (5-15 years)** — Expand to a global network. Deploy orbital assets. Demonstrate persistence and capability worth responding to. - **H4: Table (15-50+ years)** — Formalize humanity's first non-governmental diplomatic presence in interstellar relations.

Funding model: Self-sustaining through skHighNet commercial ventures. Target operating budget of $50,000/year by Year 5, with a $500,000 endowment by Year 10.

Success is not measured by contact alone. Even if another entity makes first contact before GOODBOY does, the infrastructure, protocols, and mindset developed by this project will have prepared humanity for that moment.

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2. The Problem: Why Humanity Is Not Ready

2.1 The Immaturity Barrier

Humanity in 2026 is not a candidate for interstellar diplomatic engagement. We demonstrate:

- **Tribal governance:** 195 nation-states, each with competing agendas. No unified voice for the species.
- **Short-term thinking:** Political cycles measured in years. Corporate planning measured in quarters. A species that cannot commit to a 50-year project cannot credibly claim to be ready for interstellar relations.
- **Signaling confusion:** Military, commercial, and scientific signals all compete for the same spectrum. An external observer cannot distinguish between a human weapons test and a human greeting.
- **Territorial aggression:** We still resolve disputes through force. Any civilization observing us sees a species that has not outgrown its violent adolescence.

2.2 The False Signal Problem

Humanity already broadcasts into space: - Television and radio leakage (1940s-present) - Radar transmissions (military and civilian) - Deep space network communications (NASA, ESA, CNSA) - Active SETI transmissions (METI — Messaging Extra-Terrestrial Intelligence)

These are uncoordinated, inconsistent, and project an inaccurate picture of humanity. An alien civilization receiving 20th-century television signals would conclude we are a species obsessed with soap operas, advertising, and sports. Not a flattering first impression.

2.3 The Trust Deficit

No advanced civilization has reason to trust humanity. We: - Cannot keep our own treaties - Weaponize new technologies faster than we regulate them - Still discriminate against members of our own species - Have no unified ethical framework for interstellar engagement

GOODBOY does not solve all these problems. But GOODBOY demonstrates that some humans are aware of them and are working on them.

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3. The Solution: Project GOODBOY

3.1 Core Principles

1. **Patience:** GOODBOY operates on generational timelines. Nothing about interstellar diplomacy is fast.
2. **Capability, not firearms:** We prove ourselves through technical and organizational achievement, not military power.
3. **Non-governmental:** GOODBOY represents humanity as a species, not any nation-state.
4. **Transparency within OPSEC:** The project is secret until it needs to not be. When disclosure happens, it must be on our terms.
5. **Continuity:** The project outlives its founders. This is non-negotiable.

3.2 Why GOODBOY Will Succeed Where Others Have Not

Previous attempts	Why they failed	How GOODBOY is different
SETI (passive listening)	Listens but never transmits. Assumes aliens will do all the work.	GOODBOY transmits — actively announces our presence and intent.
METI (Active SETI)	One-off messages. No follow-through. No infrastructure.	GOODBOY builds permanent infrastructure for sustained, disciplined signaling.
Government space programs	Political. Budget-dependent. Leadership changes kill continuity.	GOODBOY is non-governmental with a fixed charter and endowment. Survives political cycles.
Private initiatives (Inspiration4, etc.)	Commercial or PR-driven. No diplomatic mandate.	GOODBOY has a clear diplomatic mission. Commercial work funds it, not drives it.

3.3 The Jonnie Goodboy Tyler Parallel

Jonnie Goodboy Tyler was: - **An observer first.** He watched the Psychlos before he understood them. - **A learner.** He learned their language, their technology, their vulnerabilities. - **A strategist.** He didn't attack — he found the seams and pulled. - **A diplomat.** The final victory was not destruction — it was negotiation.

GOODBOY follows the same arc: observe, learn, prepare, engage.

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4. H1: Gaze (0-2 Years) — Ground-Based Sky Monitoring

4.1 Overview

H1 establishes the foundational capability: a dedicated ground-based SDR antenna array that monitors the sky 24/7. This array catalogs everything in orbit with an RF signature — known satellites, debris, classified payloads, and anomalies.

4.2 Array Technical Specifications

Primary antenna: Directional Yagi-Uda array, optimized for 100 MHz - 6 GHz continuous coverage.

Component	Specification	Cost	Source
Yagi antenna (VHF/UHF)	6-element, 100-1000 MHz, 8-12 dBi gain	$200	M2 Antennas / Custom
Log-periodic dipole array (LPD)	1-6 GHz, 6-8 dBi gain	$350	CREATE / Custom
SDR receiver	HackRF One + upconverter (HF/VHF)	$300	Great Scott Gadgets
SDR receiver (wideband)	BladeRF 2.0 micro, 47 MHz-6 GHz	$600	Nuand
LNA (low-noise amplifier)	0.5 dB noise figure, 30 dB gain, 100 MHz-4 GHz	$150 per band	Mini-Circuits
Antenna rotator	Yaesu G-5500 (azimuth + elevation)	$600	Yaesu
Filter bank	Switchable bandpass filters for interference rejection	$200	Custom / Mini-Circuits
Computer	Raspberry Pi 5 (8 GB) per receiver + central server	$400	Element14
GPS-disciplined oscillator	Trimble Thunderbolt, 10 MHz reference	$250	Trimble
Enclosure	Weatherproof NEMA 4X box with ventilation	$300	Hammond
Cabling	LMR-400 UF, SMA connectors, lightning arrestors	$200	Various
Power	Solar panel (200W) + battery bank (100Ah LiFePO4)	$800	Renogy / Battle Born
Array total		**~$4,350**	

Secondary antenna (future expansion): Phased array of 4x patch antennas for electronic beam steering. Allows tracking of multiple objects simultaneously without mechanical rotator. Adds ~$1,500 if implemented.

4.3 Site Selection Criteria

The array site must satisfy all of the following:

Criterion	Requirement	Why
RF noise floor	< -100 dBm across 100 MHz - 6 GHz	City RF noise drowns weak satellite signals
Sky access	> 180° unobstructed view above 10° elevation	Horizon-to-horizon coverage
Power independence	Off-grid capability (solar + battery)	Operational security
Data connectivity	Cellular or Starlink (unlimited data plan)	Remote monitoring and data exfil
Physical security	Locked enclosure, no public access, not visible from road	Equipment protection
Accessibility	Within 4 hours drive of a team member	Maintenance and troubleshooting
Legal	No zoning restrictions on radio receiving equipment	Compliance

Candidate locations (West Coast focus):

Location	Pros	Cons
Eastern Oregon (Malheur National Forest area)	Excellent RF quiet, clear sky, public land with permitted use	Remote (4+ hours from Salem), seasonal access issues
Central Oregon (Ochoco National Forest)	Good RF, accessible year-round, 2.5 hours from Salem	Moderate sky obstruction from terrain
Nevada desert (BLM land)	Excellent RF, excellent sky, year-round access	8+ hours from team base
California Coast Range (remote ridge)	Good RF, excellent western sky access	Fog, condensation, higher maintenance

Recommendation: Primary site in Central Oregon (Ochoco region). Secondary site in Eastern Oregon for backup and interferometry (correlation between two sites allows signal direction finding).

4.4 Orbital Catalog Methodology

The orbital catalog is a living database of every object in orbit detectable by the array.

Initial catalog build (Months 1-6):

1. **Known satellite import:** Download and integrate public TLE (Two-Line Element) sets from Space-Track.org, CelesTrak, and amateur satellite tracking groups.
2. **Verification pass:** For each known satellite, verify its RF signature matches expected parameters. Record: frequency, modulation, power, transmission schedule.
3. **Unknown object detection:** During verification, any signal that does not match a known satellite is flagged as a candidate anomaly.
4. **Cross-reference:** Compare anomaly candidates against classified satellite databases (via publicly available inference — known frequency allocations, launch manifests, amateur observations).

Catalog fields:

```
Satellite ID:        [NORAD catalog number or GOODBOY-assigned]
Name:                [Official name or GOODBOY designation]
Orbit type:          [LEO, MEO, GEO, HEO, SSO]
Orbital parameters:  [Apogee, perigee, inclination, period]
Frequencies:         [List of observed frequencies]
Modulation:          [FM, AM, PSK, QAM, spread-spectrum, unknown]
Encryption:          [Yes/No/Unknown]
Encryption type:     [If identifiable, e.g., AES, proprietary]
Transmission power:  [Estimated EIRP]
Schedule:            [Continuous, daily window, hourly burst, on-demand]
Last observed:       [Timestamp]
Status:              [Active, inactive, decaying, debris]
Classification:      [Civilian, commercial, military, unknown, anomaly]
Notes:               [Free text]
```

Catalog maintenance:

- Automatic pass: Array software compares every received signal against the catalog daily
- Flagged signals: Any signal without a catalog match triggers a manual review within 24 hours
- Monthly review: Full catalog audit, dead satellite removal, orbital parameter updates
- Quarterly report: Summary of changes, new objects, resolved anomalies

4.5 Anomaly Detection Algorithm

The anomaly detection system operates at three tiers:

Tier 1: Signal-based (Real-time)

```
 Input: Demodulated baseband from SDR
Frequency analysis: FFT with 1 Hz resolution
Pattern matching: Compare against catalog of 5,000+ known signatures
Threshold: Any signal > 3 dB above noise floor that does not match catalog
Output: Flag candidate anomaly with frequency, time, duration, signal
strength
Confidence: 95%+ for known satellite identification, 70%+ for anomaly
flagging
```

Tier 2: Behavior-based (Hourly)

```
 Input: 24-hour log of Tier 1 results
Orbital analysis: Verify detected signals match predicted pass times from
TLE data
Behavioral analysis: Identify patterns that suggest intent (regular
scheduling, frequency changes, response to external stimuli)
Output: Flag any signal that exhibits anomalous behavior
Examples:
  - A satellite transmitting outside its predicted pass window
  - Two objects transmitting on the same frequency simultaneously
  - A signal that changes frequency in response to another signal
```

Tier 3: Correlation-based (Weekly)

```
Input: Combined data from all GOODBOY sources (including future multiple sites)
Cross-source correlation: Match signals across geographically separated receivers
Triangulation: Calculate origin of unknown signals using time-difference-of-arrival (TDOA)
Output: Geolocated anomaly with confidence interval
```

Anomaly classification:

Class	Description	Response
Alpha	Confirmed human satellite, classified	Log, no further action
Bravo	Confirmed human satellite, unregistered	Log, monitor, attempt identification
Charlie	Unknown object, no human origin match	Phase 1: 30-day passive observation
Delta	Unknown object, exhibits non-human characteristics	Phase 2: Escalate to H2 (Voice)
Echo	Confirmed non-human signal or object	Immediate escalation to Handler + Architect

4.6 Power Infrastructure

The array operates off-grid as standard. Grid power is a backup, not the primary.

Primary system: - Solar: 2x 100W monocrystalline panels (200W total) - Charge controller: Victron SmartSolar MPPT 100/30 - Battery: 100Ah LiFePO4 (Battle Born or equivalent) — 1,280 Wh - Runtime without sun: ~48 hours (array idling), ~18 hours (full scan active)

Redundancy: - Secondary: Small wind turbine (200W, for overcast periods) — optional, adds ~$400 - Backup: Generator connection (for extended maintenance or winter recharge) — not permanently installed

Power budget:

Component	Idle	Active	Peak
SDR #1 (HackRF)	0.5W	2.5W	2.5W
SDR #2 (BladeRF)	1W	5W	5W
Raspberry Pi #1	3W	7W	9W
Raspberry Pi #2	3W	7W	9W
Antenna rotator	0W	12W	12W
Network equipment	2W	5W	5W
Filter bank (switched)	0.1W	0.5W	0.5W
Total	**~10W**	**~39W**	**~43W**

At 200W solar with 5 peak sun hours per day (Oregon average): 1,000 Wh/day generation. Daily consumption at active scan: ~470 Wh (12 hours active + 12 hours idle). Reserve: 530 Wh/day for battery charging.

System is energy-positive under normal conditions. During winter (3 peak sun hours): 600 Wh/day generation, still exceeds consumption.

4.7 Data Management

On-site storage: - 2 TB SSD in central server (Raspberry Pi with USB SSD) - Rolling 30-day buffer of full-spectrum IQ data (compressed) - Rolling 365-day buffer of detected signal metadata only - Automatic archive offload to encrypted cloud backup (via Starlink or cellular)

Data pipeline:

```
SDR → raw IQ → GNU Radio → FFT → signal detection → catalog lookup →
  → match? → log timestamp → archive raw IQ (30 day retention)
  → no match? → anomaly alert → full IQ capture → encrypted offload
```

Encryption at rest: - All on-site data: LUKS full-disk encryption - Offloaded data: PGP-encrypted before transmission - Metadata database: SQLite with SQLCipher extension (AES-256)

Data classification:

Class	Access	Retention
Catalog (known satellites)	All team members	Permanent
Raw IQ (background)	After processing only	30 days
Raw IQ (anomaly)	Handler, Archivist, Architect	Permanent
Analysis reports	All team members	Permanent
Operational logs	Handler, Architect	Permanent

4.8 H1 Success Criteria

- [ ] Array operational and transmitting data 24/7
- [ ] Orbital catalog complete with 90%+ of known satellites cataloged
- [ ] Anomaly detection protocol triggered at least once (legitimate signal or false positive — either validates the system)
- [ ] Array survives 6 months without requiring on-site maintenance
- [ ] At least one potential anomaly identified and analyzed
- [ ] Power system operates without grid connection for 30 consecutive days

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5. H2: Voice (2-5 Years) — Intentional Transmission

5.1 Overview

H2 upgrades the array from passive monitoring to active transmission. GOODBOY begins broadcasting structured signals at scientifically recognized interstellar communication frequencies. The goal is not to demand attention but to announce presence — a beacon that says "an intelligent, organized entity exists at these coordinates and is listening."

5.2 Frequency Selection

Primary frequency: 1420.40575177 MHz

This is the hydrogen line (21 cm) — the emission frequency of neutral hydrogen, the most abundant element in the universe. It is: - Universally recognizable by any civilization with radio astronomy capability - Protected from terrestrial interference by international treaty (ITU Radio Regulations, footnote 5.149) - Used by SETI as a primary search frequency — everyone capable of listening is listening here

Secondary frequencies:

Frequency	Band	Rationale
1420.405 MHz	Hydrogen line	Universal, protected, SETI standard
1665.402 MHz	Hydroxyl line (OH)	Second most abundant molecule. "Water hole" frequency (H + OH = H2O).
4750.656 MHz	Methanol line	Organic chemistry marker. Common in star-forming regions.
10.000 GHz	X-band	Common for deep space communications. NASA DSN compatible.

Transmission schedule: - Primary: 1420 MHz, 1 hour every night, centered on local sidereal noon (galactic center overhead) - Secondary: Rotating schedule — one secondary frequency per week, 30-minute transmission - All transmissions: During the target frequency's expected reception window (galactic center passage, known exoplanet systems, etc.)

5.3 Transmitter Specifications

Component	Specification	Cost	Source
Transmit SDR	ADALM-Pluto (325 MHz - 3.8 GHz)	$200	Analog Devices
Power amplifier	2W linear PA, 1400-1500 MHz	$400	Mini-Circuits
Antenna	3m parabolic dish, 35 dBi at 1.4 GHz	$1,500	Prodelin / Custom
Feed horn	Prime focus, circular polarization	$200	Custom
Upconverter	For frequencies above 3.8 GHz (if needed)	$300	Mini-Circuits
GPSDO reference	Trimble Thunderbolt (shares with receive array)	Shared	Trimble
Transmit subsystem		**~$2,600**	

Transmitter specifications: - Frequency accuracy: < 0.1 Hz (GPSDO-referenced) - Bandwidth: 1 Hz to 10 kHz (adjustable) - Modulation: Phase-shift keying (QPSK at 100 baud) - EIRP: ~8,000 W (2W × 4,000 antenna gain) - Reach: Detectable by Arecibo-class telescope at 1,000 ly (theoretical)

5.4 Message Design

The GOODBOY transmission follows a specific structure. Every transmission is identical — consistency is more important than content.

Message structure:

```
Preamble (30 seconds):
  - Carrier wave: 1420.40575177 MHz, unmodulated, 10 seconds
  - Primer: Simple on-off keying (OOK), 1 Hz — counts from 1 to 10 —
demonstrates modulation awareness
  - Mathematical preamble: Prime numbers 2, 3, 5, 7, 11, 13, 17, 19, 23,
29 — demonstrates intelligence

Header (15 seconds):
  - Bit rate announcement: Alternating 0-1 pattern at 100 baud
  - Frame synchronization: Barker code (13-bit sequence, known in signal
processing)
  - Data format: Binary, MSB first, no compression

Data block (main message, ~300 seconds at 100 baud = ~3,750 bytes)
  - Designed to be reconstructed as a bitmap image (similar to Arecibo
message)
  - Content (in order):
    1. Counting system: Binary representation of numbers 1-10
    2. DNA structure: Double helix diagram (human genetic code)
    3. Human form: Simplified bipedal humanoid outline
    4. Solar system: Nine planets (sorry, Pluto), with home planet
indicated
    5. Earth location: Position relative to galactic center and known
pulsars
    6. GOODBOY identifier: Unique symbol/logo
    7. Intent: Open channel — we are listening at twice this frequency
    8. Next transmission time: Encoded as days since the current
transmission

Postamble (15 seconds):
  - Repeat of the primer sequence (confirms message ended intentionally)
  - Carrier drop: Signal fades out over 5 seconds

Total transmission: ~360 seconds (6 minutes)
```

Note on content philosophy: The message deliberately avoids: - Political content (no flags, no borders, no government names) - Military content (no weapons, no conflict imagery) - Religious content (no specific iconography) - Cultural content (no music, no language — mathematics is universal)

It presents humanity as a biological species with a home planet and the technical ability to communicate. That is all a first contact needs to establish.

5.5 Transmission Protocol

Pre-transmission checklist:

- [ ] 30-minute spectrum scan confirms the target frequency is clear (no ongoing scientific observations, no military exercises)
- [ ] Off-site backup receiver confirms GOODBOY's transmission is being broadcast correctly (spectrum analyzer at a remote location verifies modulation, power, frequency)
- [ ] Orbital catalog checked for any satellite expected to pass through the transmission beam during the broadcast window
- [ ] Anomaly detection system active and recording
- [ ] Transmission logged: date, time, frequency, duration, power, modulation parameters

During transmission:

- Monitor spectrum for any response in adjacent frequencies (±1 MHz)
- Log all signals detected during the transmission window
- If interference is detected (another user of the frequency): cease transmission immediately. Attempt again at next scheduled window.

Post-transmission:

- Review spectrum capture for any response signals
- Cross-reference response candidates against orbital catalog (eliminate known satellites)
- If a potential response is detected: quarantine the recording, do not analyze for 24 hours (prevents confirmation bias)
- After 24 hours: analyze with fresh perspective

5.6 Response Protocol

GOODBOY must handle a response. It is unlikely within H2, but the protocol must exist.

If a response is detected:

Step	Action	Timeline	Decision Authority
1	Confirm signal is not terrestrial	24 hours	Archivist
2	Cross-reference against orbital catalog	24 hours	Archivist
3	Verify signal structure matches GOODBOY's transmission parameters	48 hours	Archivist + Handler
4	Confirm signal is not random noise (structural analysis)	72 hours	Archivist
5	Escalate to Handler and Architect	Immediately after Step 4	Archivist
6	30-day passive observation period	30 days	Handler
7	Analyze for pattern, intent, and content	30-90 days	Full team
8	If confirmed intentional: transmit acknowledgment	After 90-day analysis	Architect (final)
9	Open persistent channel at agreed frequency/time	Ongoing	Handler

DO NOT under any circumstances: - Respond immediately (within 24 hours). Patience proves discipline. - Publicize the event. Secrecy preserves analysis integrity. - Change GOODBOY's transmission schedule. Consistency proves reliability.

5.7 Legal and Regulatory Considerations

Regulation	Impact	Mitigation
ITU Radio Regulations	1420 MHz is a passive band. Active transmission is prohibited.	GOODBOY operates outside ITU jurisdiction (non-signatory entity on non-allocated basis). Transmit power is below levels that would cause harmful interference to licensed services.
FCC Part 5 (Experimental)	Required for any intentional radiator not covered by Part 15	Apply for experimental license under "radio astronomy research" justification. If denied, operate under Part 15 (unlicensed, low-power exemption).
National Telecommunications laws	Varies by country. US: Communications Act of 1934.	Legal defense: GOODBOY is a "private research station" conducting "propagation studies of the 21 cm hydrogen line." This is factually true.
SETI / METI treaties	No binding international law prohibits METI. 2010 UN COPUOS discussion — no resolution adopted.	GOODBOY complies with the "Declaration of Principles Concerning Activities Following the Detection of Extraterrestrial Intelligence" (SETI Post-Detection Protocol).
Spectrum interference liability	If GOODBOY's transmission interferes with licensed services, liability exists.	Transmit power is 2W into a 35 dBi dish. At 1 km from the transmitter, field strength is below FCC Part 15 limits. No detectable interference beyond the site boundary.

Legal cover for the array site: - Registered as "Pacific Radio Research Station — Propagation Studies Laboratory" - Business license held by the Bank's LLC - All equipment labeled as "research receiving equipment" - Transmitter documented as "test equipment for calibration purposes only" - If questioned:

"We study radio wave propagation characteristics of the ionosphere using the 21 cm hydrogen line as a reference beacon."

5.8 Cover Integration

GOODBOY's operations must be indistinguishable from legitimate scientific research.

Public-facing identity: - Name: Pacific Radio Research Laboratory (PRRL) - Mission statement: "Advancing understanding of ionospheric propagation and radio astronomy through independent research." - Website: Simple, legitimate-looking. Publications on propagation, antenna design, and signal processing — all real but unremarkable. - Personnel: The Handler is listed as "Director of Operations." The Archivist is "Senior Research Associate." - The Fabricator is never listed. Nor is the Pilot. Nor the Nomad.

Research output: - Publish legitimate findings from the array. Real ionospheric data. Real satellite tracking observations. - A small academic footprint (1-2 papers per year in minor journals) provides cover that lasts decades. - If anyone investigates: "We're a small independent research lab. We track satellites and study the ionosphere. The hydrogen line work is an extension of our interest in propagation."

Operational security: - The transmission message is stored as "calibration sequence — transmit weekly for baseline propagation measurements." - The orbital catalog is "satellite tracking database for experimental verification of TLE propagation." - Anomaly reports are "interference analysis logs." - Every document has a cover explanation that is technically true.

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6. H3: Handshake (5-15 Years) — Proof of Worthiness

6.1 Overview

H3 expands GOODBOY from a single-site operation to a global network. This is the horizon where GOODBOY proves it is permanent, capable, and worth responding to. The key actions are: global network expansion, orbital asset deployment, legal/foundation structuring, funding stabilization, and knowledge transfer.

6.2 Global Network Expansion

Site expansion plan:

Year	Site	Location	Purpose
5	Site 1 (existing)	Central Oregon	Primary North American monitoring + transmission
6	Site 2	Southern Hemisphere (Chile or Australia)	Southern sky coverage, interferometry pair
7	Site 3	Mid-Pacific (Hawaii or remote island)	Trans-Pacific coverage, ocean monitoring
8	Site 4	Northern Europe (Scotland or Iceland)	Northern sky coverage, redundancy
9	Site 5	Equatorial (Ecuador or Kenya)	Equatorial monitoring, GEO belt coverage

Site 2 considerations (Southern Hemisphere): - Chile (Atacama Desert): Excellent RF conditions, clear sky, existing astronomy infrastructure. Downside: complex logistics for a US-based team. - Australia (Western Australia outback): Excellent RF, English-speaking, mining infrastructure for support. Downside: very remote, 12+ hour travel from team base. - Recommendation: Western Australia (near Meekatharra or similar). Satellite monitoring community exists. Lease existing infrastructure if possible.

Interferometry capability: - With 2+ sites separated by 1,000+ km, GOODBOY gains interferometric direction-finding capability - A signal detected at both sites can be located to within 0.1° of sky angle - With 5+ sites, near-real-time position tracking of any object emitting in the observed spectrum - Technical requirement: GPSDO-synchronized time base at each site (already specified in H1)

6.3 Orbital Asset Deployment

Cubesat program — GOODBOY-1:

Parameter	Specification
Form factor	3U cubesat (10×10×34 cm)
Mass	~5 kg
Power	20W (deployable solar panels, 2×3U)
Battery	30 Wh Li-ion
Primary payload	BladeRF 2.0 micro + band-specific LNA
Frequency range	100 MHz - 6 GHz (SDR)
Data downlink	70 cm band (435 MHz) at 9,600 baud
Uplink	2 m band (145 MHz) for command and control
Attitude control	Passive (magnetorquer + gravity gradient boom)
Orbit	LEO, 500 km, 51.6° inclination (ISS-compatible for deployment)
Lifetime	2-3 years (limited by orbital decay at 500 km)
Cost	~$100,000 (development + launch)

Mission objectives: 1. **Continuous sky monitoring** from orbit — no atmospheric distortion, no terrestrial RF interference 2. **Signal verification** — confirm or refute terrestrial anomaly detections using the cleaner orbital RF environment 3. **Interferometry relay** — correlate orbital data with ground array data for precision direction finding 4. **Legacy** — the cubesat itself is a signal. Any entity monitoring Earth orbit will notice a new, intentionally passive, non-military satellite with no encryption and no weapons. That's deliberate.

Launch options:

Launcher	Cost	Timeline	Orbit	Notes
SpaceX Rideshare	$10,000-50,000	12-24 months	SSO or LEO	Most cost-effective. Regular launches.
Rocket Lab	$50,000-80,000	6-12 months	Custom orbit	More flexibility. Dedicated launch.
ISS deployment (JAXA/Kibo)	Unknown	12-18 months	51.6°, 400 km	Requires partnership. Shorter lifetime.

Successive cubesats: - GOODBOY-2 (Year 10+): Improved SDR, higher orbit (800+ km, >5 year lifetime), possibly optical camera for visual confirmation of anomalies - GOODBOY-3 (Year 15+): Active transmit capability (subject to H3/H4 status). Small transmitter for hydrogen line broadcast from orbit.

6.4 Legal and Foundation Structure

Year 5: GOODBOY becomes a legal entity.

Option A: Non-profit foundation (Recommended) - Structure: 501(c)(3) educational non-profit in the United States - Name: "The Pacific Institute for Radio Astronomy and Interstellar Studies" - Mission: "Advancing the scientific understanding of radio astronomy and interstellar communication through independent research and education." - Board: Handler, Bank, Architect (original), plus 2-3 external members (legitimate academics or professionals who understand the stated mission but not the full scope) - Charter: Legally bound to continue operations for a minimum of 50 years - Cannot be dissolved without unanimous board approval + court order - Assets (array, existing equipment) donated to the foundation — not owned by individuals

Option B: Trust (Alternative) - Structure: Irrevocable trust with independent trustee (law firm or trust company) - Grantor: The original team - Beneficiary: The Foundation (above) - Term: Perpetual (no termination date) - Advantages:

Stronger legal protection. Harder to dissolve or redirect. Better for holding assets.

Recommendation: Form the foundation first (Year 5). Transfer assets to it. Add the trust layer later (Year 10) for additional protection.

6.5 Funding Model

GOODBOY must achieve funding independence.

Revenue sources:

Source	Annual Contribution	Growth Potential	Year Achievable
SaaSy Menu (commercial)	$5,000-15,000	Moderate (scaling)	1-3
Consulting (legitimate)	$10,000-30,000	High (reputation)	2-5
Foundation grants	$5,000-20,000	Low (competitive)	5-10
Private donations	$0-10,000	Variable	5+
Endowment income (5% draw)	$25,000 (at $500K)	Grows with principal	10+

Expense budget (Year 5, annual):

Category	Annual Cost
Site 1 maintenance (power, data, repairs)	$3,000
Site 2 setup (Year 6)	$8,000
Data connectivity (Starlink + cellular)	$3,600
Equipment replacement and upgrades	$5,000
Team expenses (travel, supplies, comms)	$10,000
Legal and compliance	$3,000
Foundation administration	$2,000
Contingency (15%)	$5,340
Total	**~$40,000**

Endowment target: - Year 5: $100,000 - Year 10: $500,000 - Year 20: $2,000,000+

At a 5% draw, a $2M endowment generates $100,000/year — enough to cover all operations and cubesat replacement cycles.

6.6 Knowledge Transfer and Documentation

Every member of the team documents their role. The project must survive any single person's departure.

Documentation requirements:

Role	Documents	Review Frequency
Architect	All designs, system architecture, decisions and rationale	Per design cycle
Handler	Operational procedures, checklist, contact protocols	Quarterly
Fabricator	Assembly guides, repair manuals, parts sourcing	Per build
Archivist	Catalog methodology, analysis protocols, frequency database	Monthly
Pilot	Flight operational procedures, emergency procedures	Per flight
Bank	Financial procedures, vendor contacts, budget model	Annual
Fixer	Contact network (encrypted), problem resolution protocols	As needed
Ghost	Infrastructure documentation, security procedures, key management	Quarterly

The Rook program (Year 5+): - Each permanent role trains at least one successor - The Rook can perform the role independently within 2 years of training start - No role is single-person dependent - The Rook may come from outside the original team (vetted through the Fixer's network)

6.7 H3 Success Criteria

- [ ] Global network: 3+ operational sites on at least 2 continents
- [ ] GOODBOY-1 cubesat deployed and operational
- [ ] Foundation or trust legally established with 50-year mandate
- [ ] Self-sustaining funding (revenue covers operating costs without external money)
- [ ] All roles documented and at least one Rook trained per position
- [ ] Handshake protocol executed at least once (even if no confirmed extraterrestrial response — the protocol works)
- [ ] Hawaiian shirt-related: not required but encouraged

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7. H4: Table (15-50+ Years) — Diplomatic Presence

7.1 Overview

The final horizon. GOODBOY transitions from project to institution — humanity's first non-governmental facility for interstellar diplomatic engagement. This does not mean contact is guaranteed. It means the infrastructure and protocol exist, maintained and ready, for as long as it takes.

7.2 From Project to Institution

Year 15-20: Charter formalization

GOODBOY's charter transitions from "research project" to "diplomatic institution."

Core principles of the GOODBOY Charter:

1. **Non-governmental:** GOODBOY does not represent any nation-state, political party, or commercial interest.
2. **Non-military:** GOODBOY's facilities and personnel are exclusively dedicated to peaceful communication and scientific research.
3. **Perpetual:** The mission continues indefinitely. No dissolution clause.
4. **Transparent:** Within operational security constraints, GOODBOY's existence and mission are public knowledge.
5. **Neutral:** GOODBOY does not take positions on terrestrial political matters. It represents humanity as a species.

Governance structure:

- **Council of HORUS:** 5-7 members. Oversees strategic direction. Self-appointing (existing members select successors).
- **Director of Operations (Handler successor):** Day-to-day authority over all sites and operations.

- **Director of Research (Archivist successor):** Scientific direction, data analysis, communication protocol development.
- **Director of Continuity (Bank successor):** Financial stewardship, legal compliance, foundation management.
- **Council of Advisors:** External experts (legitimate scientists, diplomats, ethicists) who advise but do not direct.

7.3 Embassy Design

Physical facility (Year 20+):

Element	Specification
Location	Remote, neutral territory (international waters, Antarctica, or treaty-protected land)
Primary function	Operations center for the global GOODBOY network
Secondary function	Physical point of contact for any entity arriving at Earth
Design	Self-sufficient (power, water, food), defensible but not fortified, welcoming but not open
Capacity	12-20 permanent staff, 50+ during contact events
Communications	Direct link to all GOODBOY sites, redundant satellite uplink, hydrogen line transmitter array

Virtual embassy: - An encrypted communication protocol published via GOODBOY's transmissions - Any civilization can verify GOODBOY's identity and establish a secure channel - Cryptographic key published as part of the transmission message (updated annually) - The virtual embassy exists whether or not anyone uses it

Embassy staff: - Council of HORUS (strategic oversight) - Operations team (array management, data analysis) - Diplomatic corps (trained in the GOODBOY Contact Protocol) - Support staff (engineering, logistics, medical)

7.4 Diplomatic Protocol

When GOODBOY confirms contact:

Phase	Actions	Timeline
1 — Validate	Confirm signal is non-human, non-terrestrial. 30-day observation.	30 days
2 — Analyze	Decode message. Identify intent, origin, technical capability.	30-90 days
3 — Internal notify	Inform team. No external disclosure.	After Phase 2
4 — Respond	Transmit acknowledgment. Open channel.	After team consensus
5 — Engage	Exchange information. Establish communication protocol.	Ongoing
6 — Disclose	Inform relevant authorities (UN, scientific community)	After stable channel established
7 — Formalize	GOODBOY offers itself as a neutral point of contact	Phase 6 + 30 days

Guiding principles for engagement: - **Truthfulness:** GOODBOY represents humanity. Misrepresentation, even for strategic advantage, corrupts the relationship. - **Patience:** Interstellar distances mean time delays are measured in years or decades. Every exchange matters. - **Reciprocity:** GOOODBOY shares information in proportion to what is received. - **Transparency with limitations:** GOODBOY does not share human military capabilities, political vulnerabilities, or personal data of non-consenting individuals. - **Red lines:** GOODBOY does not assist in harm against humans. GOODBOY does not share technology that could be used to harm humans. GOODBOY does not engage in espionage.

7.5 Public Disclosure Strategy

GOODBOY must transition from a secret project to a known entity before contact becomes public knowledge. The alternative — being revealed by circumstance — is worse.

Phase 1 (Year 10-15): Scientific Disclosure - Publish legitimate papers referencing GOODBOY's array and findings - Present at minor conferences - Become a known entity in the radio astronomy community - No mention of transmission, contact protocol, or diplomatic intent

Phase 2 (Year 15-20): Partial Disclosure - GOODBOY's existence becomes publicly known (but not its full mission) - Presented as: "An independent research laboratory studying the 21 cm hydrogen line and maintaining a long-term SETI monitoring program." - Gradual. Let the public become aware without a PR campaign.

Phase 3 (Year 20+): Full Disclosure - Only after contact is confirmed or the project has operated for 25+ years with no contact - Full mission public - GOODBOY offers its facilities and expertise to the global community - Transition to Phase 4 of the project (if contact occurred) or continue monitoring

7.6 Legacy Metrics

GOODBOY's ultimate success is measured by:

Metric	Target
Operational years	50+ consecutive years of operation
Global sites	5+ monitoring stations across 3+ continents
Orbital assets	3+ successive cubesats deployed
Network uptime	99%+ (array operational, data streaming)
Knowledge transfer	3+ generations of team members
Funding independence	Endowment covers all operating costs
Scientific contribution	10+ legitimate publications
Diplomatic infrastructure	Embassy (physical or virtual) established
Contact readiness	Protocol validated and staffed continuously

If contact never occurs within the project's timeframe, GOODBOY continues. The universe is old. Patience is the only strategy that has ever worked at this scale.

---

8. Technical Infrastructure

8.1 System Architecture

```
 ┌──────────────────────┐
│    GOODBOY Array       │
│  (Central Oregon)      │
│                      │
│  SDR #1 │ SDR #2       │
│  ────── │ ──────       │
│  HF/VHF │ UHF/SHF      │
│  100MHz │  1-6GHz      │
│ -1GHz   │              │
└─────────┴──────────────┘
         │
┌────────┴──────┐
│  Local Server  │
│  ┌──────────┐  │
│  │ RPi 5    │  │
│  │ 8GB RAM  │  │
│  │ 2TB SSD  │  │
│  │ GNURadio │  │
│  └──────────┘  │
└────────┬──────┘
         │
         │ Encrypted relay
         ▼
┌──────────────────────┐
│    Team Network        │
│                      │
│  Handler  Ghost      │
│  ───────  ─────      │
│  Ops C2   Security   │
│                      │
│  Archivist           │
│  ─────────           │
│  Analysis            │
└──────────────────────┘
```

8.2 Software Stack

Layer	Software	Purpose
SDR interface	GNU Radio 3.10	Signal processing, modulation/demodulation
SDR interface (backup)	SoapySDR + CubicSDR	Basic receive capability, visual waterfall
Catalog management	PostgreSQL + PostGIS	Orbital catalog with spatial queries
Anomaly detection	Custom Python (NumPy, SciPy)	Signal analysis and pattern matching
Transmission control	Custom C++ (real-time)	Message generation and transmission
Telemetry	Prometheus + Grafana	Array health monitoring, uptime, power status
Data pipeline	Apache Kafka (lightweight)	Stream processing for multi-site data
Communication	Matrix (Element)	Encrypted team communication
Storage encryption	LUKS + VeraCrypt	Data at rest
Network security	WireGuard + OpenVPN	Encrypted tunnels between sites

8.3 Redundancy and Failover

System	Primary	Backup	Failover Time
Array control	Local RPi 5	Remote control via Starlink	10 seconds
Data storage	On-site 2TB SSD	Off-site encrypted backup	24 hours
Power	Solar + battery	Generator (manual)	4 hours
Network	Starlink	Cellular (LTE backup)	5 minutes
Antenna rotator	Electric motor	Manual override	1 hour
SDR #1 (VHF)	HackRF One	BladeRF (covers both bands)	1 minute

8.4 Site Security

Physical security: - Enclosure: 14-gauge steel, welded seams, tamper switches - Locks: Abloy Protec (restricted keyway, cannot be duplicated without authorization) - Monitoring: Motion sensor + camera (records to on-site storage, overwritten after 30 days) - Signage: "Private Research Facility — No Trespassing" (no mention of radio, space, or anything specific)

Data security: - All site data: encrypted at rest - All site data: encrypted in transit - Remote access: two-factor authentication (YubiKey + password, changed quarterly) - No third-party cloud services for project-critical data - Backups: Encrypted, stored on removable media in a separate physical location

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9. Communication Protocol Design

9.1 Protocol Layers

GOODBOY's communication protocol uses a layered architecture modeled on the OSI reference model, adapted for interstellar distances.

Layer	Function	Implementation
L1: Physical	Radio frequency and modulation	1420 MHz, QPSK, 100 baud
L2: Link	Frame synchronization and error correction	Barker code sync, Reed-Solomon FEC
L3: Network	Addressing and routing	Source/destination identifiers embedded in message
L4: Transport	Reliable delivery with acknowledgment	ARQ (Automatic Repeat reQuest) — acknowledgments at interstellar timescales
L5: Session	Connection management	Session IDs, timeout, reconnection protocol
L6: Presentation	Data formatting	Binary bitmap, universal constants preamble
L7: Application	Message content	GOODBOY message structure

9.2 Error Correction

At interstellar distances, signal degradation is guaranteed. Reed-Solomon error correction codes are used:

Parameter	Value
Code	RS(255, 223)
Correctable errors	Up to 16 bytes per 255-byte block
Overhead	14%
Encoding efficiency	87%
Redundancy	Triple transmission of critical data (preamble, header)

9.3 Timing Considerations

At 50 light-years (distance to the nearest potentially habitable exoplanets): - One-way light time: 50 years - Round-trip: 100 years minimum

GOODBOY's transmission protocol accounts for this: - Message format is static — the same message is transmitted every time - A response does not need to arrive within a human lifetime to be meaningful - The array continues transmitting regardless of whether a response is expected - Patience is a feature, not a limitation

---

10. Legal, Regulatory and Ethical Framework

10.1 Guiding Ethic

Project GOODBOY operates under the following ethical framework:

1. **Do no harm.** GOODBOY's actions must not cause harm to humans, human civilization, or any entity we communicate with.
2. **No deception.** GOODBOY represents itself honestly. Misrepresentation corrupts the enterprise at its foundation.
3. **Transparency within limits.** GOODBOY is transparent about its existence and general mission. Operational security is maintained only where necessary.
4. **No weapons.** GOODBOY is a diplomatic project, not a military one. No GOODBOY asset is designed or used as a weapon.
5. **Humanity first.** In any conflict between diplomatic interests and human welfare, human welfare takes priority.
6. **Precautionary principle.** If an action carries unknown risk of significant harm, the action is not taken until the risk is understood.

10.2 Legal Framework

Jurisdiction	Applicable Law	GOODBOY Compliance
International	Outer Space Treaty (1967), Rescue Agreement (1968), Liability Convention (1972), Registration Convention (1975)	GOODBOY's cubesat is registered. Ground-based operations do not fall under space law.
International	ITU Radio Regulations	GOODBOY operates experimental transmissions at very low power. No harmful interference.
United States	Communications Act of 1934, FCC Part 5 (Experimental Radio Service)	Experimental license application (or Part 15 exemption).
United States	National Defense Authorization Act (restrictions on contact with extraterrestrial intelligence)	No current US law prohibits private METI. Monitor legislative changes annually.
Local	Zoning, land use, environmental regulations	Complies with all applicable local regulations. Site selection prioritizes compliance.

10.3 The Precautionary Protocol

Before any transmission, GOODBOY asks:

1. Could this transmission be harmful to the recipient?
2. Could this transmission reveal information that would make humanity vulnerable?
3. Could this transmission be misinterpreted as hostile?
4. Are we transmitting because we can or because we should?
5. Have we waited long enough to ensure this is the right decision?

If the answer to questions 1-3 is "yes" or "maybe," the transmission is delayed. If the answer to question 4 is "can" the transmission is delayed. Question 5 is always answered with "wait one more cycle."

11. Budget and Funding Model

11.1 Capital Expenditure (Years 1-10)

Year	Item	Cost
1	Site 1 (array, equipment, solar, installation)	$5,000
2	Transmit antenna (3m dish) + feed	$2,000
2	Power amplifier, cables, filters	$1,000
3	Software development, message design, protocol testing	$2,000
5	Legal: Foundation formation, charter drafting	$5,000
6	Site 2 (Southern Hemisphere)	$8,000
7	Site 3 (Mid-Pacific)	$8,000
7	GOODBOY-1 cubesat development	$60,000
8	GOODBOY-1 launch	$40,000
9	Site 4 (Northern Europe)	$8,000
10	Site 5 (Equatorial)	$8,000
	Total (Years 1-10)	**~$147,000**

11.2 Operating Expenditure (Annual, Years 5-10)

Category	Annual
Site operations (5 sites)	$15,000
Data connectivity	$6,000
Equipment maintenance and replacement	$10,000
Team expenses	$15,000
Cubesat operations (after deployment)	$5,000
Legal and compliance	$5,000
Contingency (15%)	$8,400
Total annual	**~$64,400**

11.3 Revenue Projection

Year	SaaSy Menu	Consulting	Foundation Grants	Endowment Draw	Private Donations	Total Revenue
1	$2,000	$0	$0	$0	$0	$2,000
2	$5,000	$5,000	$0	$0	$0	$10,000
3	$8,000	$15,000	$0	$0	$0	$23,000
4	$12,000	$20,000	$0	$0	$0	$32,000
5	$15,000	$25,000	$5,000	$0	$2,000	$47,000
6	$18,000	$30,000	$10,000	$0	$5,000	$63,000
7	$22,000	$35,000	$15,000	$0	$8,000	$80,000
8	$25,000	$40,000	$20,000	$5,000	$10,000	$100,000
9	$28,000	$45,000	$25,000	$12,500	$12,000	$122,500
10	$30,000	$50,000	$30,000	$25,000	$15,000	$150,000

11.4 Funding Gap Analysis

Years 1-2: GOODBOY operates at a deficit. Funded by team member contributions and skHighNet commercial profits.

Years 3-4: Near break-even. Capital expenditures minimal. Operating costs covered.

Years 5-10: Revenue positive. Surplus directed to GOODBOY-1 cubesat fund and endowment.

Year 10+: Full sustainability. Endowment + commercial revenue covers all operations with surplus for cubesat replacement.

---

12. Timeline and Milestones

12.1 Complete Timeline

```
 Year 0     2026    Project GOODBOY conceived. H1 planning begins.
Year 1     2027    Site 1 construction. Array operational Q3.
Year 1.5   2027    Orbital catalog reaches 90% coverage.
Year 2     2028    H1 complete. Anomaly detection protocol validated.
                   H2 begins: Transmitter design and construction.
Year 2.5   2028    Message design complete. Protocol testing begins.
Year 3     2029    First transmission (1420 MHz). Regular schedule
established.
Year 4     2030    Response protocol validated (against test signals).
Year 5     2031    H2 complete. Foundation formed.
                   H3 begins: Global expansion. Cubesat design starts.
Year 6     2032    Site 2 (Southern Hemisphere) operational.
Year 7     2033    Site 3 (Mid-Pacific) operational.
Year 7.5   2033    GOODBOY-1 cubesat complete. Launch integration begins.
Year 8     2034    GOODBOY-1 launch. Orbital monitoring begins.
Year 9     2035    Site 4 (Northern Europe) operational.
Year 10    2036    Site 5 (Equatorial) operational.
                   H3 complete. Global network fully operational.
                   H4 begins: Foundation transitions to institution.
Year 15    2041    Charter formalized. Council of HORUS established.
Year 20    2046    Embassy design complete. Virtual embassy operational.
Year 25    2051    Continuous operations for 25 years.
Year 30    2056    GOODBOY-3 (potential transmit-from-orbit capability).
Year 50+   2076+   Legacy measurement milestone.
```

12.2 Milestone Summary

Horizon	Key Milestone	Year	Verifiable
H1	Array operational	1	Site visit, data stream
H1	Orbital catalog >90%	1.5	Catalog review
H1	Anomaly detected	1-2	Anomaly report
H2	First transmission	3	Signal recorded
H2	Foundation formed	5	Legal documents
H3	3+ global sites	7	Site list, data streams
H3	Cubesat deployed	8	Space-track confirmation
H3	5+ global sites	10	Site list
H4	Charter formalized	15	Charter documents
H4	Embassy established	20	Facility or published protocol

13. Team and Organization

13.1 Current Team (Year 0-5)

Role	Primary Responsibility	Time Commitment
Architect (Randy)	Strategic direction, concept development, final authority	As needed
Handler	Operations management, team coordination, ground control	Part-time
Fabricator	Hardware design, construction, maintenance	Part-time
Archivist	Data analysis, catalog maintenance, anomaly detection	Part-time
Pilot	Flight operations, aerial support	Occasional
Nomad	Logistics, transport, site support	Occasional
Bank	Finance, budget, legal structure	Part-time
Fixer	Problem resolution, network, protective services	As needed
Ghost	Security, encryption, OPSEC	Part-time

13.2 Expanded Team (Year 5-10)

New Role	Source	Responsibility
Site 2 Operator	Local hire (Chile or Australia)	Daily site operations, maintenance
Site 3 Operator	Local hire (Pacific)	Daily site operations, maintenance
Rook — Handler	Trained replacement	Shadow Handler, take over in emergencies
Rook — Archivist	Trained replacement	Shadow Archivist, data analysis backup
Legal counsel	Contract	Legal compliance, foundation management

13.3 Remote Team (Year 10+)

Role	Quantity	Location	Responsibility
Site operator	1 per site	On-site	Daily operations, first-line maintenance
Site technician	1 per 2 sites	Regional	Second-line maintenance, upgrades
Data analyst	1-2	Remote	Catalog maintenance, anomaly analysis
Communications	1	Remote	Public relations, foundation outreach

---

14. Risk Assessment and Mitigation

14.1 Risk Register

#	Risk	Probability	Impact	Mitigation
1	Equipment failure at remote site	High	Medium	Redundant systems, remote diagnostics, spare parts cache
2	Funding shortfall	Medium	High	Multiple revenue streams, endowment, team contributions
3	Team member departure	Medium	High	Documentation, Rook program, no single-person dependencies
4	Site compromise (discovery by unauthorized party)	Medium	Medium	Cover story, physical security, OPSEC protocols
5	Legal action (FCC or equivalent)	Low	High	Experimental license, legal counsel, low transmit power
6	Natural disaster at site	Low	High	Multi-site redundancy, off-site backups, insurance
7	Technology obsolescence	Medium	Low	Modular design, regular upgrades, open standards
8	Cubesat launch failure	Medium	High	Partial insurance, rebuild budget, multiple launch options
9	Hostile response to GOODBOY transmission	Very low	Catastrophic	Precautionary protocol, no location data, observation period
10	Contact event — miscommunication leads to conflict	Very low	Catastrophic	Diplomatic protocol, patience, red lines, non-weapons

14.2 Key Risk: Premature Disclosure

Scenario: GOODBOY's activities are discovered and publicized before the project is ready for public scrutiny.

Consequences: Project compromised. Team exposed. Equipment seized or destroyed. Legal action. Loss of the entire capability.

Mitigation: - Compartmentalization: No team member knows the full scope except the Handler and Architect. - Cover integration: Every GOODBOY activity has a legitimate explanation. - Gradual disclosure plan: GOODBOY controls when and how it is revealed. - If premature disclosure occurs: GOODBOY retreats to the cover story. All diplomatic and transmission equipment is disabled or converted to "research equipment." The project goes dormant for 5-10 years, then restarts under new cover.

14.3 Key Risk: Hostile Response

Scenario: A response to GOODBOY's transmission is received and is hostile in intent.

Consequences: Unknown. Potentially catastrophic.

Mitigation: - The precautionary protocol ensures GOODBOY does not provoke. - The 30-day observation period ensures any response is fully analyzed before a reply. - GOODBOY does not engage hostile signals. The channel is closed. - No location data is included in the transmission (only galactic coordinates of the solar system, which are already publicly known). - If a hostile entity can reach Earth based on the information GOODBOY transmitted, they could have done so based on any number of other broadcasts (TV, radar, Deep Space Network). GOODBOY does not increase this risk.

---

15. Integration with skHighNet Assets

15.1 Existing Asset Roles

Asset	Role in GOODBOY	Interface
Project HORUS	Sky monitoring umbrella. Coordinates all GOODBOY celestial observation.	Data pipeline from array → HORUS → Orbital catalog
DRAGONFLY	H3-H4 aerial relay platform. High-altitude balloon for extended-range signal relay.	DRAGONFLY-W carries a GOODBOY relay payload instead of intercept payload
DROPLET	Off-grid deployment model. GOODBOY's array sites use the same throw-deploy / solar-independent philosophy.	Design principles, not direct interface
SENTRY	Array security protocol. Detects and logs unauthorized access attempts.	Integrated with site security system
HERALD	Message protocol pattern. One question, one answer — efficient, verifiable, repeatable.	Message structure design
OGRE	Signal defense. If a hostile or deceptive signal is detected, OGRE's refusal principle applies — do not engage.	Anomaly classification (Charlie, Delta, Echo)
Ghost	Digital OPSEC for all GOODBOY infrastructure.	Team role
Bank	Long-term funding model for GOODBOY.	Team role

15.2 Asset Development Required

Asset	Development Needed	Timeline	Cost
DRAGONFLY-W (relay variant)	Custom payload: LoRa → SDR relay, extended battery, high-altitude flight profile	H2 (Year 2-3)	$1,000
HORUS data pipeline	Software integration between GOODBOY array and HORUS catalog	H1 (Year 1)	$500
Orbital catalog	Database design, import scripts, automated update system	H1 (Year 1)	$1,000
GOODBOY cubesat	Full satellite development (3U, SDR payload, solar, comms)	H3 (Year 5-7)	$100,000

---

16. Continuity and Succession

16.1 The 50-Year Mandate

GOODBOY is not a project. It is an institution designed to operate for a minimum of 50 years.

Requirements for continuity: 1. **Legal framework:** Foundation or trust with a binding 50-year mandate (Year 5) 2. **Financial independence:** Endowment that funds operations without external support (Year 10) 3. **Succession process:** Every role has a trained replacement (Year 5 onwards) 4. **Documented operations:** Everything is written down (ongoing) 5. **Institutional memory:** The project knows its own history. Mistakes are documented. They are not repeated.

16.2 The Dead-Man Protocol

If no member of the original team confirms their status for 12 consecutive months:

1. **Stage 1 (No contact for 30 days):** Automated system sends a notification to all team members via secondary communication channels.
2. **Stage 2 (No contact for 90 days):** The Rook (if trained) assumes Handler responsibilities. Foundation board is notified.
3. **Stage 3 (No contact for 180 days):** Legal dead-man switch activates. All assets are transferred to the foundation. Core team (Rook-level) assumes all responsibilities.
4. **Stage 4 (No contact for 365 days):** Foundation board assumes governance. If no qualified operators exist, the array is powered down and placed in long-term storage. Data is made public (or destroyed, per original team's instructions). The project enters hibernation, awaiting future operators.

16.3 The Succession Charter

Each original team member designates a successor or establishes a process for selecting one.

Succession requirements: - Successor understands and accepts the full scope of the project - Successor has been trained for at least 2 years - Successor's appointment is confirmed by the Handler and Architect (or their successors) - If no successor exists, the role's responsibilities are distributed among remaining team members - If no team members remain, the foundation board selects a successor from qualified candidates

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17. Appendices

Appendix A: Communication Protocol Specification

```
 GOODBOY Interstellar Communication Protocol v1.0
==================================================

LAYER 1: Physical
  Frequency: 1420.40575177 MHz (hydrogen line)
  Polarization: Circular (RHCP)
  Bandwidth: 1 kHz
  Modulation: QPSK (Quaternary Phase Shift Keying)
  Symbol rate: 100 baud
  Bit rate: 200 bits per second (2 bits per symbol)

LAYER 2: Link
  Frame sync: 13-bit Barker code (1111100110101)
  Forward error correction: Reed-Solomon RS(255, 223)
  Interleaving: Block interleaver, depth 4
  Frame size: 255 bytes (223 data + 32 parity) + 3 bytes framing
  Frame rate: ~0.1 frames per second

LAYER 3-7: See sections 5.4 and 9.1 above

TRANSMISSION SCHEDULE:
  Primary: 1420.405 MHz, 1 hour daily at local sidereal noon
  Secondary: Rotating, 30 minutes weekly
  Backup: No transmission if frequency not clear

POWER:
  Transmitter: 2W into 3m dish (35 dBi gain)
  EIRP: ~8,000W
  Detectability: Arecibo-class telescope at 1,000 ly (theoretical)

CODE IDENTIFIER: GOODBOY-1.0-2028-P
```

Appendix B: Site Requirements Checklist

```
 GOODBOY SITE REQUIREMENTS CHECKLIST
=====================================

RF ENVIRONMENT
  [ ] Noise floor < -100 dBm (100 MHz - 6 GHz)
  [ ] No licensed transmitters within 1 km
  [ ] Distance from major roads: > 2 km
  [ ] No known radar installations within 20 km

PHYSICAL ENVIRONMENT
  [ ] Unobstructed sky view > 180° (azimuth), > 10° (elevation)
  [ ] Flat area for equipment enclosure: > 2m × 2m
  [ ] Accessible by vehicle (at least 4x4 trail)
  [ ] No flood zone, landslide risk, or fire hazard

POWER
  [ ] Solar access: > 4 peak sun hours average
  [ ] Battery capacity: > 24 hours runtime without sun
  [ ] Backup generator connection available

DATA
  [ ] Cellular coverage (LTE, any carrier)
  [ ] Starlink coverage (if cellular unavailable)
  [ ] Power for data equipment included in budget

LEGAL
  [ ] Land use permitted (ownership, lease, or permit)
  [ ] No zoning restrictions on radio equipment
  [ ] No environmental restrictions on construction
  [ ] Distance from international borders: > 50 km

LOGISTICS
  [ ] Accessible within 4 hours drive from team base
  [ ] Emergency services: < 2 hours response
  [ ] Supplies (fuel, water, food): available within 50 km
```

Appendix C: Budget Summary

```
 GOODBOY BUDGET SUMMARY — YEARS 1-10
=====================================

CAPITAL EXPENDITURE
  Year  1: Site 1 array + infrastructure   $5,000
  Year  2: Transmit system (dish + PA)     $3,000
  Year  3: Software/tools                  $2,000
  Year  5: Legal (foundation)              $5,000
  Year  6: Site 2                          $8,000
  Year  7: Site 3 + GOODBOY-1 (dev)       $68,000
  Year  8: GOODBOY-1 (launch)             $40,000
  Year  9: Site 4                          $8,000
  Year 10: Site 5                          $8,000
  Total Capex:                            $147,000

OPERATING EXPENDITURE (ANNUAL)
  Year  1:  $3,000
  Year  2:  $5,000
  Year  3:  $10,000
  Year  4:  $15,000
  Year  5:  $40,000
  Year  6:  $45,000
  Year  7-10: $64,400/year average
  Total Opex (10 years):                ~$416,000

TOTAL (10 years):                       ~$563,000

FUNDING SOURCES
  Team contributions:                     $50,000
  SaaSy Menu:                           $165,000
  Consulting:                           $310,000
  Foundation grants:                      $105,000
  Endowment draw:                         $42,500
  Private donations:                      $52,000
  Total Funding:                        ~$724,500

NET POSITION (10 years):               ~$161,500 surplus
  (Directed to endowment for future operations)
```

Appendix D: Legal Framework Reference

```
 GOODBOY LEGAL FRAMEWORK
========================

PRIMARY DOCUMENTS:
  • Outer Space Treaty (1967) — UN General Assembly Resolution 2222 (XXI)
  • Rescue Agreement (1968) — UN General Assembly Resolution 2345 (XXII)
  • Liability Convention (1972) — UN General Assembly Resolution 2777
(XXVI)
  • Registration Convention (1975) — UN General Assembly Resolution 3235
(XXIX)

RADIO REGULATIONS:
  • ITU Radio Regulations, Edition 2024 — Article 5 (Frequency
Allocations)
    - Footnote 5.149: 1400-1427 MHz band allocated to passive services
    - Footnote 5.340: All emissions prohibited in 1400-1427 MHz band
  • GOODBOY Position: Experimental transmissions at very low power (< 2W
into high-gain antenna) do not cause harmful interference to passive
services. Field strength at 1 km is below regulatory limits.

UNITED STATES:
  • Communications Act of 1934 (47 U.S.C. § 151 et seq.)
  • FCC Part 5 — Experimental Radio Service (47 C.F.R. § 5)
  • FCC Part 15 — Unlicensed intentional radiators (47 C.F.R. § 15)
  • National Defense Authorization Act — No current prohibition on private
METI

POST-DETECTION PROTOCOLS:
  • SETI Post-Detection Protocol — International Academy of Astronautics
  • Declaration of Principles Concerning Activities Following the
Detection of Extraterrestrial Intelligence (1989, updated 2010)
  • GOODBOY Position: Full compliance with post-detection protocols

LIABILITY:
  • GOODBOY maintains liability insurance for all site operations
  • Foundation structure limits individual liability
  • All team members operating under limited liability entity
```

Appendix E: Succession Documents Checklist

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 GOODBOY SUCCESSION DOCUMENTS
=============================

To be completed by each permanent team member:

[ ] Role description and responsibilities
[ ] Operational procedures for all routine tasks
[ ] Troubleshooting guide for common problems
[ ] Emergency procedures (what to do when something goes wrong)
[ ] Contact list (encrypted) for all project-relevant contacts
[ ] Vendor list for all equipment and supplies
[ ] Continued operations plan (how to continue without this person)
[ ] Training materials for successor
[ ] Designation of successor (or process for selection)
[ ] Legal documents (will, power of attorney, foundation instructions)

CENTRAL PROJECT DOCUMENTS:
[ ] Project charter
[ ] Strategic plan (this document)
[ ] Budget model
[ ] Asset inventory
[ ] Site documentation (construction, maintenance, operations)
[ ] Communication protocols
[ ] Team roster and contact information
[ ] Crypto key management plan
[ ] Dead-man switch configuration
[ ] Insurance policies
[ ] Legal documents (foundation charter, licenses, permits)
[ ] Annual review records
```

Closing

Jonnie Goodboy Tyler was told he couldn't win. He was told the Psychlos were too advanced, too powerful, too entrenched. He proved them wrong not by matching their technology — he had none — but by matching their thinking. He learned their system, found the seams, and pulled.

GOODBOY does the same. We don't need to be the most advanced species in the galaxy. We just need to be the one that showed up prepared.

The universe is old. The stars are many. Someone has to extend the hand first.

It might as well be us.

Theme: Jonnie Goodboy Tyler, Battlefield Earth **Under:** Project HORUS / skHighNet **Project lead:** Randy Pesek (The Architect)

"Man is an endangered species." — Jonnie Goodboy Tyler