

STRATEGY / TECHNICAL SPECIFICATION / PRODUCT PROPOSAL

Water systems as a creative production asset

Reusable 3D worlds and OMC 2.8 metadata for
Sail Straight Into the Storm
and San Francisco as New Venice 2047.

23,463

saved SF2047 objects

24

selected catalog files

1

bounded starter product proposed

Make the relationships that sustain a city available to storytellers: where water comes from, where it goes, what controls its movement, and how people live and work around it.

The proposed product joins source-qualified geography, editable infrastructure, narrative scenarios and repeatable production methods. OMC 2.8 supplies the metadata language that makes assets discoverable, versioned and connected to a creative work.

Decision requested of the product team

Develop a New Venice 2047 starter kit around one waterfront location and one operational story. Prove transfer to another storyteller before expanding the catalog.

Prepared from retained project files and a read-only inventory dated 30 September 2026. This is a strategy and scoped technical audit, not a hydraulic certification or a completed commercial release. "Like a Moonshot" remains a separate production.

01 / REASON TO EXIST

From a beautiful shot to a reusable world

A conventional scene can preserve its appearance while losing the reasons its objects exist. A reusable water-system asset should preserve both.

In New Venice 2047, a canal, gate, quay, ferry landing and maintenance platform can explain how an inhabited waterfront works. Water connects distant places and creates consequences: a barrier changes navigation; a service route determines who can reach a control; an upstream action may affect a downstream community. These relationships give a storyteller causes, choices and stakes—not merely scenery.

The creative use case

Sail Straight Into the Storm is the narrative anchor. San Francisco as New Venice 2047 is its authored future-world context. The reusable substrate should let a new creator stage a repair, crossing, evacuation, market exchange or infrastructure failure without rebuilding the city's geography and production logic from scratch.

Present-day observations and the 2047 scenario must remain distinguishable. A future canal is an authored design; its depiction is not evidence that a present street is a canal, that the city will flood in a particular way, or that a gate will deliver a specified protection level. A dramatic water level should carry its scenario, vertical reference and limitations.

Why keep hydrology in the production model?

- **Continuity:** upstream/downstream relationships remain consistent between shots and episodes.
- **Creative range:** the same location supports different viewpoints, seasons, operating states and narrative branches.
- **Reusable labor:** source acquisition, datum handling, topology checks and asset preparation become reusable procedures.
- **Accountability:** a visible assertion can be traced to retained evidence or explicitly identified as interpretation.

Strategic boundary

The initial offer is a production kit for filmmakers, educators and worldbuilders. It does not promise a calibrated flood model, an engineering design, a prediction of San Francisco in 2047, or permission to redistribute every underlying source. Success is a second storyteller producing a coherent derivative with intact provenance.

Evidence basis: SF2047 production specification [L1], round finalization and unresolved requirements [L2–L3].

What exists today

The inventory has two levels. The retained R14 ledger enumerates saved native Blender object datablocks. This audit adds a hash-bound, file-level catalog spanning the future city, geographic substrate, site worlds and workflow code. They describe overlapping representations and must not be added together as a total of unique reusable designs.

R14 native object type	Count	Production role
MESH	20,299	Geometry and modeled components
LIGHT	442	Lighting rigs
CAMERA	236	Saved viewpoints
EMPTY	345	Hierarchy and transform controls
CURVE	1,390	Paths, linework and geometric detail
FONT	703	Editable labels and signage
ARMATURE	48	Rig structures

23,463 saved objects → 46,926 existing OMC entities: one Asset and one AssetSC per saved object. Hidden and archive objects are included. Evaluated/procedural occurrences are not expanded. The count is neither a count of approved assets nor a measure of geometric accuracy. [L4–L5]

The native file contains exploration, story-sequence and wardrobe-study scenes with 21,274, 21,177 and 252 object memberships respectively. Objects can belong to multiple scenes; these counts are not additive. One linked architecture library is declared.

This audit’s new catalog

24 files; 52 OMC entities. Ten Blender files cover a city scene, a linked library, two gate prototypes, two terrain fixtures, two overlapping multi-site worlds and two facade studies. The remaining files are four databases, three source/terrain manifests, two legacy inventory/graph files and five workflow scripts. The graph also records one CreativeWork, Context, NarrativeLocation and Depiction.

These are selected reusable production surfaces, not an exhaustive scan of all archives, photographs, simulation inputs, textures or renders. File hashes, paths, scope and readiness are in the supplied CSV and OMC JSON. R15 prototypes are listed separately; R14 validation does not transfer to them.

Measured catalog: asset-inventory.csv, inventory-summary.json and validation.json. Original native ledger and validation: [L4–L5].

03 / READINESS

A useful foundation, with explicit limits

Asset family	Available evidence	Limit on reuse claims
SF2047 future city	R14 object inventory, native hash, OMC schema PASS, scene and reference-flight records.	Finalized with backlog; physical acceptance false; release not promoted.
Mobility and gate systems	Three separate network roles: walking, vessel and hydraulic. Six named gate sites and operational prototypes.	R14 backlog records 23/30 clear vessel/gate lanes, six blind equalization ends and 14 closed-gate bypasses. These are historical R14 findings, not a new R15 assessment.
Bay / Hetch Hetchy terrain	Two saved canonical AOI fixtures; source manifests and retained numerical data.	Local fixture evidence is not whole-region accuracy or a universal datum transformation.
Water First site worlds	Five local sites plus regional scene. Each site has 640,000 core terrain vertices; 3.2 million across five site meshes.	Display mesh count is not independent source sample count. Rapp building identity remains inferred.
Western / Colorado networks	Retained natural-network data, source IDs and independent comparison fixtures.	The inspected network report says INCOMPLETE_OR_DISCREPANCIES, despite 14 passing fixtures.
Subsurface R4	Basin, well, observation and framework records with typed layers.	PARTIAL_IMPLEMENTATION; independent hydrogeologic validation not completed.
Baja regional context	18,550 hydrographic features and 61 basin polygons in the bounded regional extract; two CEM terrain sources.	Feature counts include adjacent mainland context. No cross-border traversal admitted; incompatible or unknown vertical references stay separate.
Photo-based architecture	Rapp and United Theatre facade studies with retained photos and editable geometry.	Dimensions and registration are estimates; materials and hidden details are interpreted. Theatre belongs to a separate production.

The first sellable package should contain a smaller, explicit accepted scope. Complex gates may ship as qualified narrative models while the product withholds hydraulic-performance claims. A schema pass must never remove a failed operational test from the record.

Readiness drawn from [L2–L3], Water First native checks [L6], Western network report [L7], R4 status [L8], Baja release guide [L9], and facade validation [L10–L11]. Counts are scoped to these records.

04 / INFORMATION ARCHITECTURE

Four connected layers, four different truths

1 • Observed geography

Terrain, bathymetry, mapped reaches, structures, dates, datums and missing-data masks.

2 • Interpreted systems

Derived catchments, admitted topology, documentary supply links, estimated architecture.

3 • Authored narrative world

New Venice 2047 canals, gates, operating scenarios and future adaptations.

4 • Production depictions

Blender collections, cameras, animation, materials, sound and rendered creative works.

Relationships connect the layers; copying an asset does not change its evidence class. A DEM-derived drainage path is not automatically a surveyed pipe. A supply relationship documented by a utility is not necessarily a mapped conveyance route. A basin polygon is not a volumetric aquifer. A water-level contour is not necessarily a mapped shoreline.

Use OMC for production meaning

OMC connects a CreativeWork and its Context to narrative entities, their Depictions and production Assets. AssetSC identifies a structural representation, such as a file or native component. Keep the narrative identity stable while publishing versioned depictions. Use asset-version relationships for a revision or derivation; preserve the source hash and original namespace. [W1–W3]

CreativeWork: *Sail Straight Into the Storm*

Context: New Venice 2047

NarrativeLocation: authored San Francisco waterfront

Depiction → Asset: hash-bound SF2047 R14 Blender model

AssetSC: file address; component-level inventory remains in the original graph.

Domain data stays explicit

Geographic CRS, vertical datum, hydraulic edge class, gate-state effects and evidence qualifiers belong in a documented project profile carried by namespaced custom data or referenced manifests. Those fields are project extensions, not claims that OMC itself defines hydraulic semantics. Existing canonical IDs and aliases should survive export.

Keep walking, vessel and hydraulic graphs separate. Join them through named infrastructure and explicit operating states. Neither visual coincidence nor an OMC reference establishes traversability, contact, flow or legal access.

The catalog demonstrates a proposed metadata mapping; it does not rewrite the original production graph. OMC sources: [W1–W4]. Local network and namespace contract: [L1].

05 / PROPOSED ASSET CONTRACT

Specifications for a reusable release

Contract field	Minimum product requirement	Present baseline
Identity and version	Canonical asset ID, production namespace, revision/derivation links, immutable file hash; no IDs based solely on display names.	R14 identifiers and hashes exist; new catalog is file-level.
Geospatial frame	Source CRS, render frame, local origin, metres, axes, vertical datum or UNKNOWN, transform lineage and tests.	Native local frames and mixed regional references exist; portability needs a normalized profile.
Evidence	Source URL/path, acquisition date, applicable date, resolution, masks, qualification and retained receipt.	Existing acquisition machinery provides receipts; coverage varies.
Native geometry	Editable collection, component IDs, origin/pivot, dependencies, units, bounds, materials, UV policy and LOD meaning.	Blender scenes exist; a creator-facing asset specification remains to be packaged.
System behavior	Typed endpoints, admitted edge IDs, direction evidence, operating state and declared effect on each network.	Separate contracts exist; unresolved operating faults remain scoped failures.
Rights and attribution	Creator/source ownership, license, redistribution scope, required attribution and restricted references.	Not cleared by this audit; retain per-source restrictions.
Replay	Pinned tool versions, offline build recipe, dependency hashes, saved review cameras and test fixtures.	Python, Blender and FFmpeg pipelines exist; clean-machine portability remains a product gate.
Acceptance	Separate metadata, geography, topology, operation, visual and editorial results; recorded reviewer and date.	Local reports exist; a single unqualified "validated" badge would overstate them.

Format policy

Native: Blender is the editable authoring reference. **Exchange:** propose glTF for lightweight review and USD for production interchange, each tested against the native source. These exports are roadmap items, not existing blanket guarantees. **Geography:** retain source rasters and vectors plus bounded render derivatives. **Metadata:** OMC 2.8 JSON, profile schema, source receipts and validation reports.

LOD is purpose-specific: regional context, neighborhood production and hero detail should declare source resolution separately from mesh density. Upsampling or decorative detail must not imply improved measurement accuracy.

Packaging: a manifest declares required libraries, optional large data, runtime versions and file sizes. A creator should be able to load a bounded scene without downloading the entire western atlas.

06 / REUSABLE SKILLS

Turn production practice into teachable workflows

The durable product includes executable recipes and their evidence rules. A skill card should specify purpose, inputs, allowed transformations, outputs, failure conditions, checkpoints and a worked example. The first edition should be usable from a command line and a documented Blender workflow; an agent wrapper is an optional interface.

Skill / input	Output	Required checkpoint
Acquire & qualify / AOI, sources, budget	Bounded source cache, receipts and masks	Source version, CRS, datum and license recorded; download cap enforced.
Build geography / qualified terrain and vectors	Local-origin terrain, bathymetry and context collections	Sample checks, no-data preservation and frame round trip.
Assemble water systems / source IDs and typed relations	Natural, engineered, subsurface and documentary layers	No proximity-only joins; unknown direction and depth remain unknown.
Interpret architecture / photos, footprint, lidar	Editable facade and components with observation links	Visible details separated from dimensional estimates; lighting not baked into geometry evidence.
Author scenario / future-world branch	Versioned gate, quay or canal depiction and operating states	Scenario cannot modify retained source truth; effects declared per network.
Stage & render / shot brief and scene	Cameras, sequence, preview, contact sheet and source index	Continuous camera clearance where claimed; resumable render and offline reopen.
Publish & extend / candidate package	OMC graph, attribution, acceptance reports and derivative recipe	Schema and references pass; rights and scoped acceptance complete.

Extension example

A creator forks the waterfront location into a new creative-work namespace, retains references to the original geography and asset hashes, revises the quay, and publishes a new depiction. The build records which walking, vessel and hydraulic edges changed. Unchanged source data is shared; revised behavior is retested. A new review camera and explanation travel with the asset.

Automation with a human boundary

Automate acquisition receipts, geometry generation, inventories, schema checks and render assembly. Require explicit review for ambiguous source identity, unverified route connections, scenario plausibility and final audience comprehension. An AI-generated description or inferred connection is not source evidence.

Reusable implementation starting points are catalog rows 020–024. Existing Water First offline commands and facade interpretation methods are documented in [L6, L10–L11]. A distributed skill pack is proposed, not yet delivered.

07 / INITIAL PRODUCT

Water Story Kit

New Venice 2047 Starter

A bounded, editable waterfront story package that lets another creator make—and explain—a new scene.

First customer and first task

Serve small film teams, environmental storytellers, educators and creative studios that need a coherent location faster than they can build its evidence and infrastructure themselves. Their first task: create a 60–90 second sequence showing a waterfront workday interrupted by a change in water or access conditions.

Version 0.1 deliverables — proposed

1. **One accepted waterfront precinct:** a bounded location selected from the existing SF2047 world after dependency and clearance review; use Embarcadero/waterworks as the initial candidate.
2. **A small reusable asset set:** quay, boarding interface, gate prototype, service access, boat and control/gauge elements. Publish individual readiness rather than claiming all are operationally accepted.
3. **Observed and scenario layers:** geographic context plus a separate New Venice 2047 branch with explicit assumptions.
4. **Two worked scenes:** ordinary activity and one authored disruption, with reusable cameras and editable timing.
5. **Creator workflow pack:** seven skill cards, build commands, extension template and troubleshooting fixtures.
6. **Evidence and handoff package:** OMC graph, source index, attribution, validation dashboard, contact sheet and a bounded review viewer.

The user journey

Choose a location and read its readiness card → **open** the scene offline → **fork** a narrative context → **change** a component or operating state → **test** affected dependencies → **render** → **publish** a derivative package with lineage intact.

What makes the product defensible?

The value is the combination of geography, semantic identity, repeatable methods and demonstrated handoff. More polygons alone do not establish reuse. The differentiating artifact is a scene whose sources, assumptions, dependencies and revision consequences remain inspectable after it leaves the original team.

Commercial hypothesis: test a supported creator starter package with optional team onboarding and production support. Price and demand are untested; do not forecast revenue before pilots. Keep source-data rights distinct from licenses for original geometry and workflow code.

Prove reuse before scale

Stage	Work	Exit evidence
A · Product extraction	Select one precinct; identify linked libraries, ownership, source restrictions and current accepted scope.	Complete dependency manifest and explicit inclusion/exclusion list.
B · Hardening	Normalize asset contracts, resolve blockers in the chosen sequence, package offline build and OMC profile.	Fresh-machine load, bounded replay and no missing dependencies; network checks pass at advertised scope.
C · External creator pilot	Three creators each produce a distinct derivative and one asset/workflow extension.	Observed completion logs, usable derivatives and returned metadata with no lost provenance.
D · Starter release	Improve onboarding from pilot evidence; publish assets, skill cards, samples and reports.	Rights review and editorial review complete; support scope and limitations visible.

Acceptance targets — proposed, not measured results

- 100% of shipped assets have stable IDs, file hashes, required dependencies and an explicit rights disposition.
- Zero unresolved required OMC references; no schema errors against the pinned 2.8 schema and agreed profile.
- All three pilot creators can open the bounded scene and reproduce the reference shot offline.
- Target first editable shot within 30 minutes and first derivative preview within one working day; measure against each creator’s experience and hardware.
- Every changed operational component identifies affected network edges; inherited tests remain scoped to the exact version and state.
- Every displayed physical assertion is either source-qualified, derived with a method, or labeled as an authored scenario.

Benchmark the workflow

Record acquisition bytes, peak working storage, build time, viewport-update latency (median and p95), render seconds per frame, first-shot time and handoff failure rate. Use the same AOI, hardware, software versions and cache state for comparisons. The existing request to log “Updating visible data...” provides a useful performance instrument; this paper does not invent a latency result.

Risk controls that affect the product

Version sprawl: publish a release manifest instead of “latest” by filename. **Overclaiming:** separate schema conformity from operational acceptance. **Source rights:** ship acquisition recipes or pointers where raw redistribution is unresolved. **Large downloads:** make regional context optional. **Usability:** expose meaningful creative controls, with technical evidence available on demand.

09 / INVENTORY REGISTER

Selected assets and production boundaries

This register summarizes the companion 24-row CSV. Each row there includes its workspace-relative path, bytes, SHA-256, production namespace and readiness. Every source file was present and hashed during this audit. A file-level entry does not certify the contents for every downstream use.

ID	Asset	Scope / readiness
001	SF2047 integrated R14	finalized with backlog
002	SF2047 linked architecture	required linked dependency
003	SF2047 G03 R15	draft not r14 certified
004	SF2047 G05 R15	prototype not r14 certified
005	R14 native object ledger	retained inventory
006	R14 OMC object graph	retained local schema pass
007	Bay canonical composite	source qualified fixture
008	Hetch Hetchy canonical AOI	source qualified fixture
009	Water First baseline	retained baseline
010	Water First Rapp revision	photo revision estimated alignment
011	Rapp facade detail	photo referenced estimates
012	United Theatre facade detail	photo referenced estimates
013	California hydrography	source topology with scoped validation
014	Colorado hydrography	incomplete or discrepancies reported
015	Subsurface catalog	partial no independent hydrogeologic acceptance
016	Baja network	no cross border traversal admitted
017	Baja release manifest	retained source qualifications
018	Western terrain manifest	retained source qualifications
019	Water First acquisition receipts	per source rights review
020	Water First builder	existing implementation
021	Water First Blender builder	existing implementation
022	Rapp photo builder	existing implementation
023	Theatre photo builder	existing implementation
024	Baja builder	existing implementation

No aggregate “unique asset” or total-disk-value claim is made: the two multi-site worlds overlap, prototype scenes contain shared content, and the legacy graph inventories objects inside another catalog entry. Like a Moonshot assets are workflow examples, not assets silently reassigned to Sail Straight Into the Storm.

What “validated” means in this delivery

New catalog: 24 Assets + 24 AssetSCs + one CreativeWork, Context, NarrativeLocation and Depiction = 52 entities. Locally checked with Python jsonschema against the retained OMC 2.8 schema; zero schema errors, duplicate IDs or unresolved references. The domain profile is proposed. No external MovieLabs validator was run.

Existing R14 inventory: counted directly from its 23,463 object records. Its native file, object ledger and OMC graph hashes match the retained validation report. The legacy schema PASS is a retained result; its full 46,926-entity schema validation was not rerun for this paper. Later prototypes and new site models do not inherit that result.

“OMC 2.8 validated creative works”: use the phrase only with scope. OMC conformity concerns the production metadata representation and relationships. Geographic accuracy, topology, physical behavior, rights clearance, editorial truthfulness and creative quality require their own evidence and review. No MovieLabs certification, engineering approval or endorsement is implied.

Reproducibility: rerun inventory.py to compute file hashes and validate the new catalog, then build_paper.py to regenerate this source HTML. The PDF is printed from that HTML. Source binaries are referenced, not copied into the white-paper package.

[L1] SF2047 OMC audit / production specification

[L2] R14 finalization: hashes, promotion and physical-acceptance status

[L3] R14 next-round backlog: mobility, hydraulics and editorial limits

[L4] R14 saved native object inventory

[L5] R14 OMC validation report

[L6] Water First native validation

[L7] Western network comparison results

[L8] R4 subsurface implementation status

[L9] Baja R1 release scope, datums and rights qualifications

[L10] Rapp photo iteration methods

[L11] United Theatre photo iteration methods

[W1] MovieLabs: OMC 2.8 release — collections, CG and custom data

[W2] MovieLabs: Creative Works introduction

[W3] MovieLabs: Asset provenance and versions

[W4] MovieLabs: OMC validator

Local references resolve in the shared workspace; the accompanying source-index.json preserves paths and hashes. Web references were consulted on 30 September 2026. Recommendations and acceptance targets are this paper’s proposals, not claims made by the cited sources.