

DESIGN LANGUAGE PATTERN BOOK

HONOLULU HIGH CAPACITY TRANSIT CORRIDOR PROJECT

CULTURAL REFERENCES AS A GUIDELINE FOR FACILITY DESIGN

The creation of a Honolulu-inspired specific architectural design language for the Project is of vital importance. Embodying Honolulu and Hawaii's rich cultural heritage in the physical form of its facilities, while enabling a meaningful integration into their immediate environs, will engender significant civic pride in the entire transit system. Resulting recognizability of the system throughout Honolulu will be key to the attraction of ridership, both local citizenry as well as many visitors.

The ultimate goal of the system's unified design language will be achievement of iconic status for Honolulu's transit system.

The guidelines are written from the perspective of indigenous Hawaiian design practices with their origin prior to 1778 AD. The intent is to base new designs on indigenous Hawaiian design practices, thus demonstrating that indigenous Hawaiian ideas still have relevance in the modern world.

The guidelines are illustrated with photo examples of 20th century Hawaii designs to show that indigenous Hawaiian ideas have both relevance and practical contemporary construction applications. Many of the ideas in this Book are restatements of classic Hawaiian design concepts used by Hawaii's designers in the late 20th century.

USING THE GUIDELINES

The guidelines are written in the "possibility tense" to show how indigenous Hawaiian design concepts may be used in design of transit stations and related structures.

As in any complex design exercise for public projects; site conditions, site circumstances, technical issues, budgets and numerous other considerations will shape final designs.

These guidelines can be both the starting point and the finishing point for evaluating whether or not the system has a strong cultural relationship to its Honolulu setting.





THE LAND – AS CREATED

The Hawaiian Islands are the most remote land on earth and were created by unique geological forces sculpted by eons of rainfall. Rising and falling ocean levels over millennia have also left their imprint on these islands. These primal forces are most apparent on the island of Oahu.

Underlying culturally inspired Transit design guidelines are guidelines based on the Land as created and then subsequently encountered by the first human inhabitants. The Transit route crosses several distinct geographical regions:



EWA PLAINS

A flat and arid coral-based plain with no running streams. The region is an ancient coral reef once submerged by high ocean levels during global warming periods. At left is the *makai* edge of the Ewa Plain.

WAI MOMI / PEARL HARBOR

A deeply eroded lower flank of the Koolau volcano where it intersects the Waianae volcano. Numerous stream courses are evident, with the word *wai*, meaning “water”, in over half of the land division names of this region.



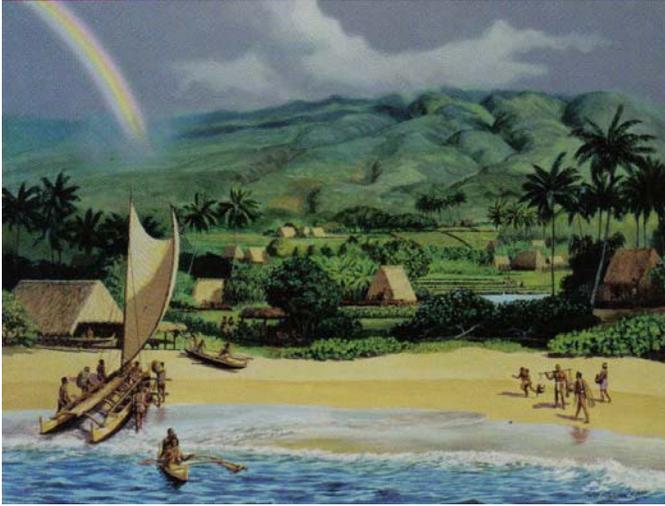
SALT LAKE

A series of geologically young volcanic eruptions that burst through the coral reef. This late-stage lava was interspersed with marshlands such as the “Salt Lake” and the wetlands of Mapunapuna.

HONOLULU

A level plain that is well watered by several perennial streams. Large sandbars front the gentle ocean. All combining to create an ideal setting for waves of human settlement. At left are taro pondfields irrigated by the Manoa Stream.

THE LAND – AS ORGANIZED



An idealized vision of the *ahupuaa* painted by Herb Kawainui Kane.

In ancient Hawaii the land was subdivided into *ahupuaa*. In a Pacific Island spatial concept these subdivisions consisted most frequently of a slice of an island that went from the top of a local mountain to the shore, with a stream running down the middle.

MAUKA TO MAKAI

In ancient Hawaii the *ahupuaa* had all of the climactic zones for supporting life and the economy. Spatial orientation paralleled a mountain to ocean – *mauka* to *makai* - orientation. In many areas it was easier to travel up and down streams than to travel across mountaintops: the typical boundaries of *ahupuaa*.

AHUPUAA OF OAHU

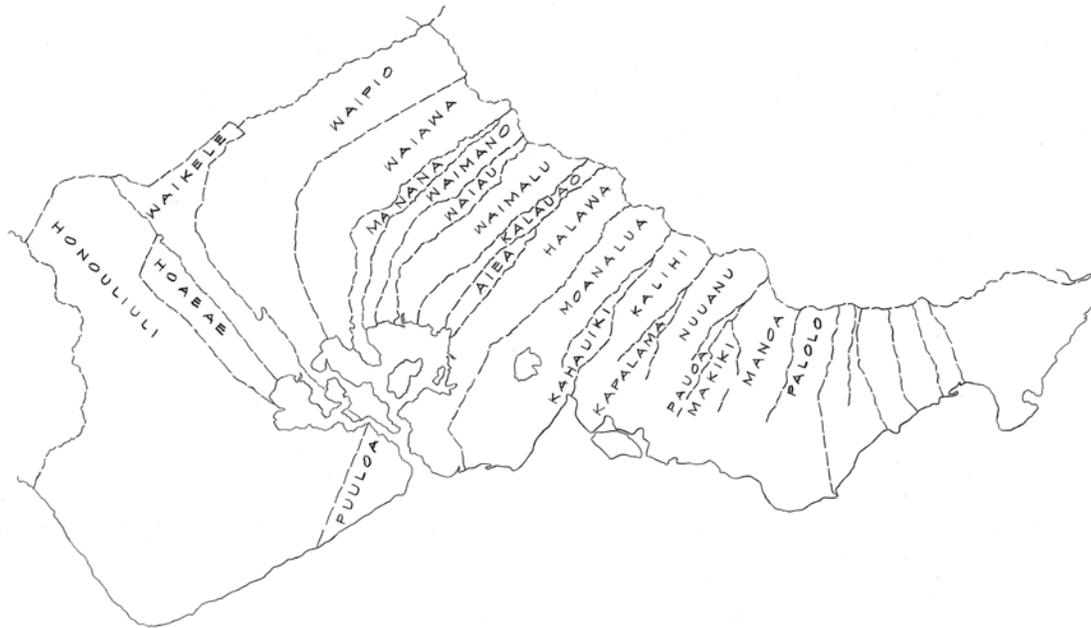
The Transit Corridor is perpendicular to all of the *ahupuaa* boundaries. The Corridor is at variance with indigenous spatial organization, but simply follows current transportation corridors and the growth pattern of urbanized Oahu.

RESPECTING THE LAND AS CREATED AND ORGANIZED

Despite the Transit Corridor contravening geographical regions and ancient spatial organization, site planning and design can still respect an indigenous understanding of the Land. This can be accomplished by magnifying differences between geographical regions and *ahupuaa* through station designs and some Guideway design elements.

The ancient Hawaiians also had a directional concept related to the movement of the sun across the sky. Hawaii island is the sun rising and Kauai island is the sun setting.

While transit planning documents designate the stations and segments from Kapolei to Waikiki, an indigenous Hawaiian concept would be to begin at the south end of the system and end at the north end in Kapolei.



THE LAND AS ORGANIZED

Ahupuaa of southern Oahu to be crossed by the transit system. The ancient land divisions and their Hawaiian names persist today in the land records of the state of Hawaii. These names also persist in everyday usage, such as in the names of streets and public schools.



LAND AS INSPIRATION

THE ULTIMATE OPEN SPACE

The ocean was the focused view of the *ahupuaa*. The ocean, or *kai*, was the flat surface upon which one traveled to reach distant places. The ocean was the space that united various parts of the islands and more distant places in Oceania. In the maritime mindset of the ancient Polynesians the ocean was not a limiting boundary, but was instead the ultimate open space upon which humans could travel. Therefore open ocean views should be maintained in the design.

“WHEN THE HEAVENS WEEP THE EARTH LIVES”

The ancient Hawaiian saying sums up the importance of *wai* or fresh water, to an island society. The Hawaiian word for law is *kanawai* and the word for wealth is *waiwai*: a repetition of fresh water. The design can recognize this importance by visually marking major streams that the Guideway will pass over.

VISUALLY MARKING STREAMS- LANDSCAPE DESIGN

Consider dense tree plantings parallel to the stream flow. This is a popular linear design feature in many of the world's great cities and parks. This is a common feature that is a visual marker for a waterway in naturally occurring environments.

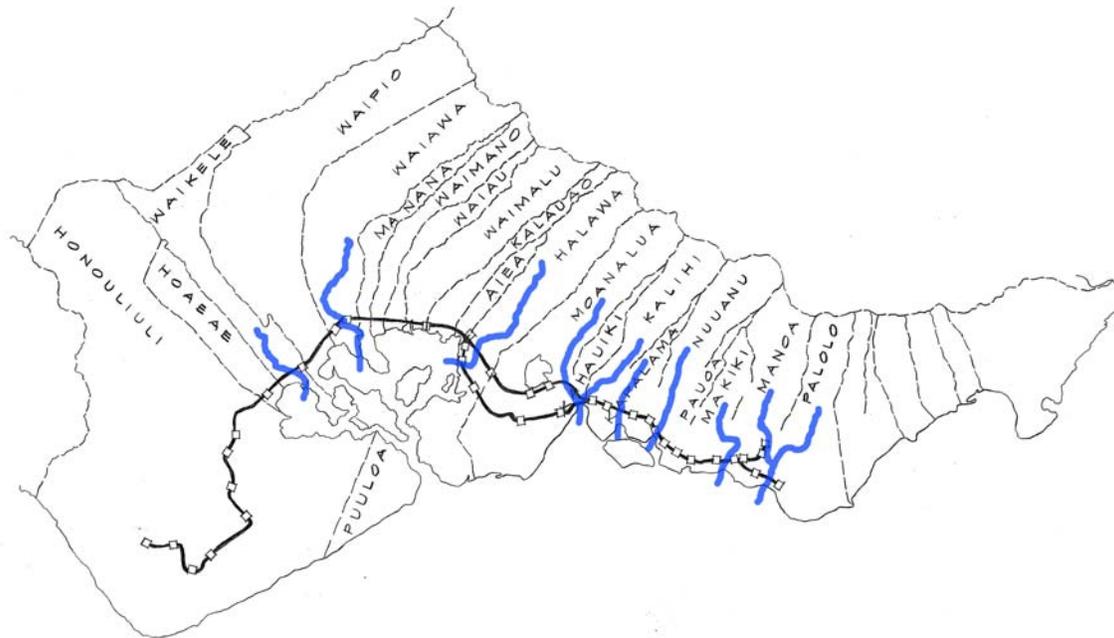
Even if the stream is channelized in concrete the upper banks can be tree-lined when viewed from the aerial perspective of the Guideway.

Rather than be uniform, tree selections can be specially chosen for each stream, thus magnifying the difference between regions.

Some tree lining of streams already exists as in the example for the Kapalama Station. In other cases, city parks and other public facilities line the stream. While the transit project itself may not fund the actual planting, a holistic view of public landscape should be taken by the City & County of Honolulu and other public agencies.

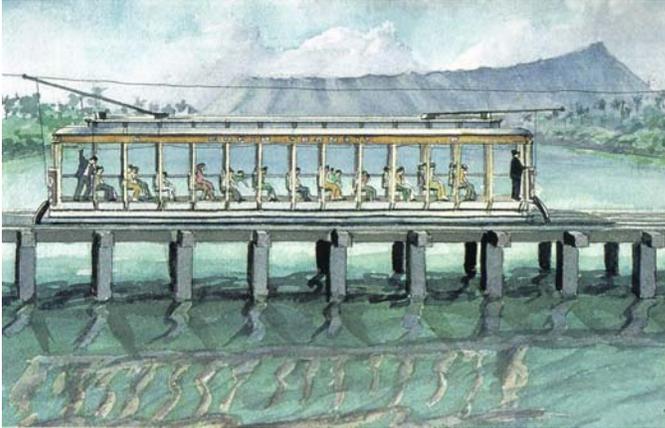


The modern drainage channel that continues the Niuhelewai Stream in the Kapalama *ahupuaa*. The photo is taken at ground level adjacent to the Kapalama transit station. The existing soil conditions are unfortunately not well suited to the Rainbow Shower trees.



MARKING STREAMS

Marked in blue are perennial and major streams that can be recognized in transit system design. While the ancient Hawaiians had discrete names for streams, the modern usage is for the stream to bear the same name as the *ahupuaa* that it is located in.



McCully Street bridge design of 1902 magnifies the distinction between land and water. *“On the open cars, some passengers became queasy as they passed over the span and turned their faces away from looking down at the water.”*



McCully Street Bridge as it exists today. Note the unfortunate planting that blocks views of water and blurs the distinction between land and water.



VISUALLY MARKING STREAMS

Streams can also be visually marked by the design of spanning and surrounding landscape elements, such as:

Very open-style guardrails on both sides of the Guideway to allow full views looking down to the water and streambed below. Consider WPA 1930s style or vertical pickets that allow a virtually uninterrupted view at train travel speeds. The example at bottom left is almost ideal, except for the horizontal bars that create a continuous interruption of water views.

Designing solid guardrails on the rest of the elevated Guideway to mark the presence of solid land below.

Bridge structure or abutment design that contrasts appropriately with the rest of the land-based Guideway structure. This can have a beneficial technical and cost impact on Guideway construction due to soft soil conditions associated with many perennial streams.

Avoiding vertical interruptions, such as bridge structure or planting, over water views. The Guideway should be supported only from below the track level.

At bridge abutments, massed tree planting at stream banks can be used to frame the open sensation about to be experienced by the rider.



A SENSE OF THE AHUPUAA ORGANIZATION

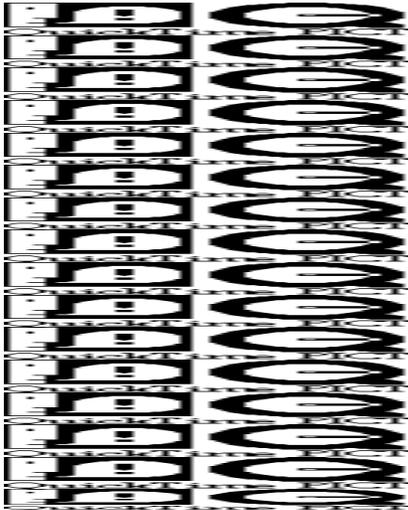
The Transit Corridor contravenes the indigenous organization of the Land because it is perpendicular to the ancient *ahupuaa* boundaries. This is unavoidable due to modern transportation needs. However the design can give recognition to the traditional mountain-to-ocean *mauka-makai* organization.

Some station names can bear the name of the *ahupuaa*. Bearing the name can be the greatest recognition afforded by the transit system, even if the station design bears no visual relationship to indigenous Hawaiian design. Indigenous Hawaiian place names remain in widespread popular usage among Honolulu's residents.

Maintain or create axial *mauka-makai* views from and through stations. Contravene the general Diamond Head-to-Kapolei alignment of the Guideway by designing localized station elements that are perpendicular to the Guideway.

Use architectural and landscape architectural design elements to mark different *ahupuaa* or regions.

Make major massed landscaped plantings perpendicular to the Guideway suggesting *ahupuaa* boundaries. These can be located on major cross streets and bus stops perpendicular to the Guideway; on public land fragments such as freeway shoulders and stream banks; and dense tree screening for the Maintenance Yard.



HAWAIIAN DESIGN - FORMS

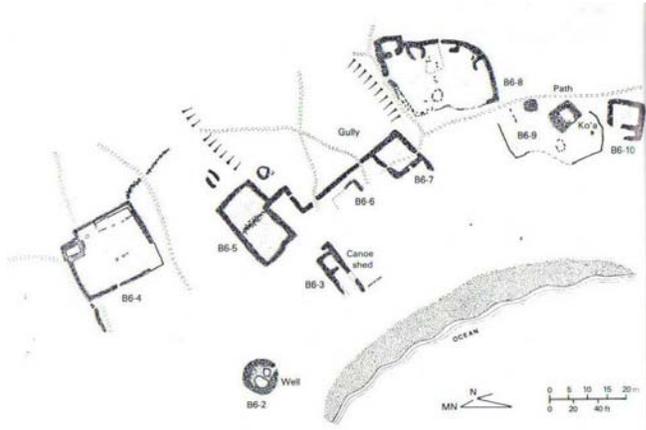
This discussion of Hawaiian forms considers “Hawaiian architecture” as man-made spaces or buildings constructed prior to 1778 AD, the date that Western explorers reached the Hawaiian Islands.

STONE TO CREATE SPACE

The civic and sacred architecture of ancient Hawaii was stone architecture. Temples and *ahupuaa* division markers were built of stone. Stone was used to create fishpond enclosures and house compound enclosures. Stone was also used to build platforms and terraces: leveling irregular ground as foundation for grass structures.

The space-defining stone construction can be said to be the “building”, while individual grass-roofed shelters make up the individual “rooms” of the building.

The site plan to the right shows a coastal settlement with the remains of space-creating stonewalls. Research has shown that, unlike some other cultures, there is no standard site plan for indigenous Hawaiian settlements. Topography and functionality dictate the spaces created by the builders.



Site plan of a coastal settlement in East Maui. Heavy bold lines indicate stone walls.

GRASS AND TIMBER TO CREATE SHELTER

Like most builders of sheltering construction, ancient Hawaiians used lighter-weight materials founded upon heavier materials. They used gravity defying building material contrasted with gravity-based building material.

Historic artworks dating from early periods of Western contact show that there was variety in roof forms and sections. There were differing building types based on interior functions.

Much of this difference has a technical basis in the wood resources available in a given district. Some districts built a distinctive ridgeline. Some houses show the high socio-economic status of their owners in section and detailing.

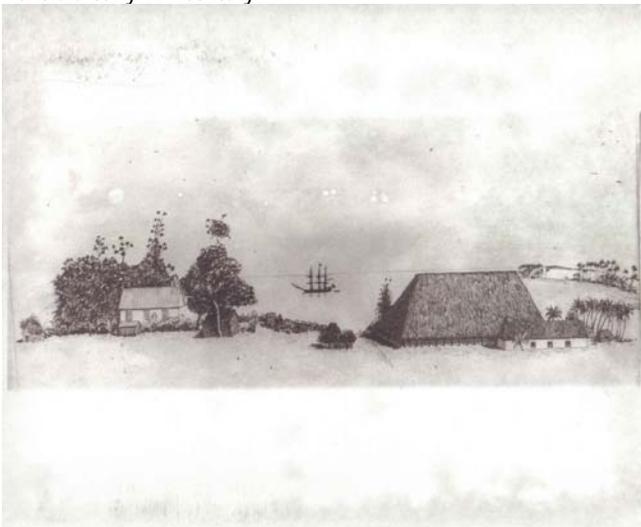




Lahaina – the peaked ridge characteristic of that district.



Indigenous buildings (left) and the Seaman's Bethel Church (right). Honolulu early 19th century..



Lyman Mission House (left) and thatched Haili Church (right) at Hilo.

INDIGENOUS HAWAIIAN FORM

Architecture for the Transit Project can evoke indigenous Hawaiian forms by:

Displaying a strong contrast between gravity-based building elements and gravity-defying building elements. Gravity-based building elements include retaining walls, terraces, planters, and other elements more closely related to grade levels. Consider use of stone materials or finishes for the lowest portions of stations.

Gravity-defying elements include sheltering roofs and portions of stations suspended from the elevated Guideway. The contrast can be magnified by increasing the visual mass of gravity-based elements, while decreasing the apparent mass / weight of gravity-defying elements.

PACIFIC-ASIAN ARCHITECTURE

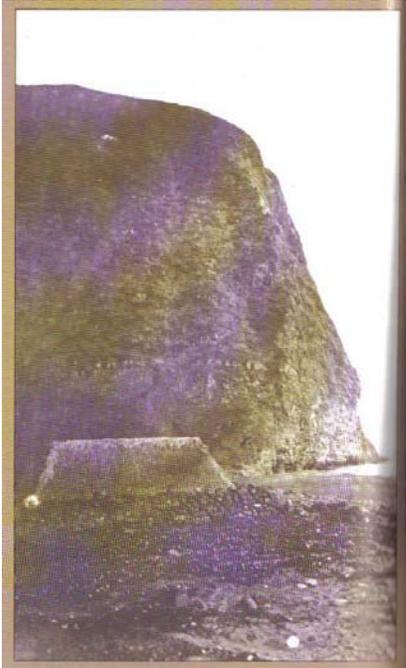
There is a difference between Pacific-Asian architecture and that of Euro-centric architecture. That difference is the design emphasis upon roof design versus wall design.

In much of Euro-centric architecture, consider Italian architecture as an example, the two-dimensional vertical wall surface is typically the place where the architectural style is communicated to the viewer.

In Pacific and East Asian architecture, the sheltering three-dimensional roof form is typically the place where the architectural style is communicated. Hence the transit station platform roof can be the place where a Hawaiian roof form is most effective in communicating a Hawaiian design orientation.

Pictures on the left show indigenous Hawaiian roof forms contrasted with Euro-centric or early 19th century American forms. Hawaiian roofs have contrasting characteristics that minimize vertical wall height and maximize the sheltering roof. In most cases there are no vertical walls or the eave height is very low in relationship to the ground level.

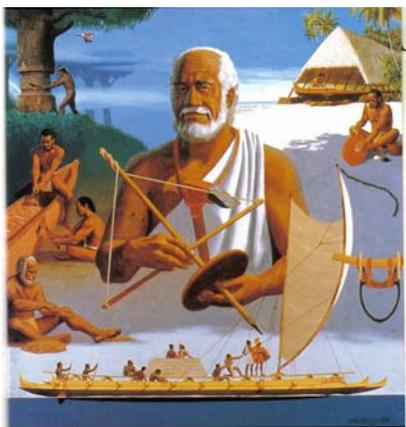
Whether to replicate traditional Hawaiian roof forms in modern materials is part of the design development that can occur as part of station designs.



Historic canoe *halau* in Waipio Valley.



Historic canoe *halau* on Niihau island.



An illustration of canoe features by Herb Kane. Indigenous canoe *halau* in the upper right corner.

CANOE HALAU

A *halau* is a special elongated building type in indigenous Hawaiian architecture. Its function is to shelter transportation equipment – the canoe.

Design characteristics include low eaves on its long sides and a high eave at one end for moving the canoe in and out of the *halau*. A typical canoe *halau*, like the one below at Keauhou, had low stone walls on the long sides for aid in supporting the large A-frame members.



Canoe *halau* were the largest buildings constructed in ancient Hawaii. It is speculated that these canoe shelters were also used as gathering places. The *halau* is conceptually the closest indigenous building type to a transit station shelter.

There are also historic and contemporary examples of flat roofed canoe *halau*. This supports the use of flat roofs at selected stations.



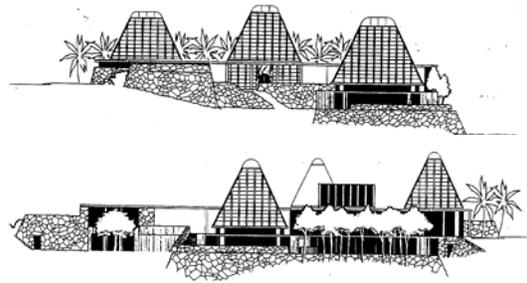
Kaunakakai Molokai flat roof of palm fronds



Makaha Canoe Halau is a contemporary structure based on the illustration at lower left. Built 2006.



Lightweight roof structure on heavy foundation platform of Waianae sandstone *Ohia* posts. Oahu 1983



University of Hawaii Center for Hawaiian Studies
A 1996 work of “de-colonized” Hawaiian architecture.



Indigenous roof to wall proportions. The roof profile evokes indigenous Hawaiian form by blending into the curved red fieldstone stone walls. Molokai 1997



Indigenous roof to wall proportions with a palm-fringed protocol entrance for greeting visitors. The entrance plan is concave, and not convex, in keeping with Hawaiian preferences. High roofs mark the high profile interior spaces. At right the stone platform is raised to the full height of the first story. Constructed 1996.

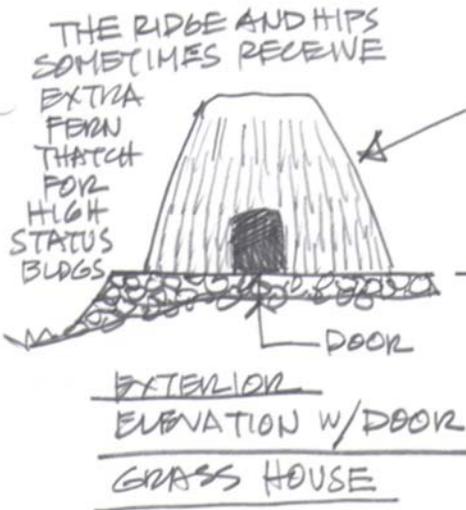


Indigenous roof to wall proportions. The same building material covers roof and walls. Stepped concrete platform in lieu of a stone platform. Molokai 1996.



Waianae sandstone shapes space for an entry designed by Vladimir Ossipoff. The building appears “roofless” thus reducing the effect of man-made building in what wants to be a largely natural experience.

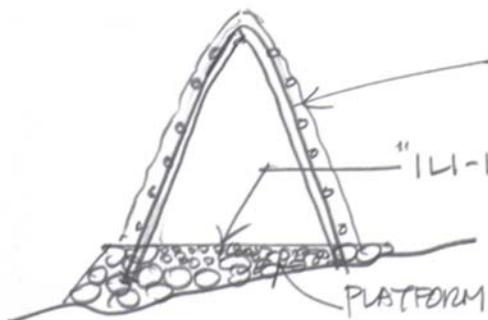
CONTEMPORARY EXAMPLES BASED ON INDIGENOUS ARCHITECTURAL CONCEPTS



ROOF OF TIMBER AND GRASS THATCH
 LIGHTWEIGHT BLDG MATERIALS TO CREATE SHELTER,

STONE PLATFORM TO CREATE LEVEL SURFACE ON SLOPING GROUND

HEAVY WEIGHT BLDG MATERIALS FOR SITE ADJUSTMENT,

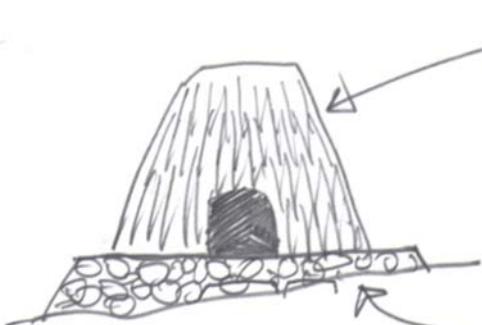


CROSS SECTION GRASS HOUSE

THE CROSS SECTION VARIES FROM PLACE TO PLACE DEPENDING ON TIMBER RESOURCES & SOCIAL STATUS (WHO CAN ACQUIRE/HAUL LONGER TIMBER)

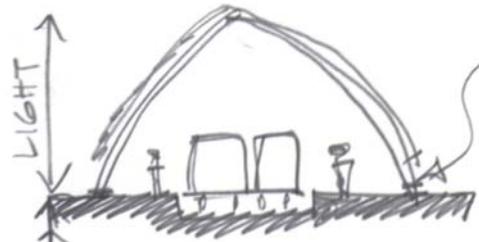


CROSS SECTION OF VARIOUS GRASS HOUSES



SHELTER FOR TRANSIT STATIONS
 LIGHT WEIGHT BLDG MATERIALS. DON'T USE CONC. FOR ROOFS. USE STEEL, METAL, OR WOOD.

SITE ADJUSTMENT USING STONE MASONRY



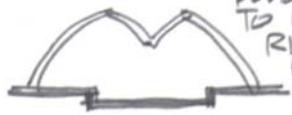
ROOF FRAMING IS CONNECTED TO PLATFORM.

THE HAWAIIAN HOUSE CAN BE SAID TO BE ALL ROOF AND NO VERTICAL WALLS. THIS INCREASES THE VISIBLE MASS / SCALE OF ROOF VS. MASSIVE TRACK STRUCTURE. IF YOU LOOK AT MOST POPULAR CONTEMPORARY ARCHITECTURE IN HAWAII, THE DESIGN EMPHASIZES ROOF FORM AND DEEMPHASIZES WALL SURFACE,

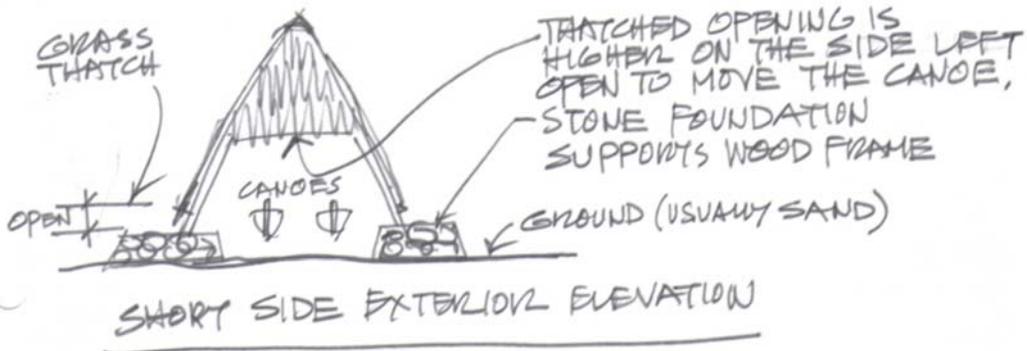
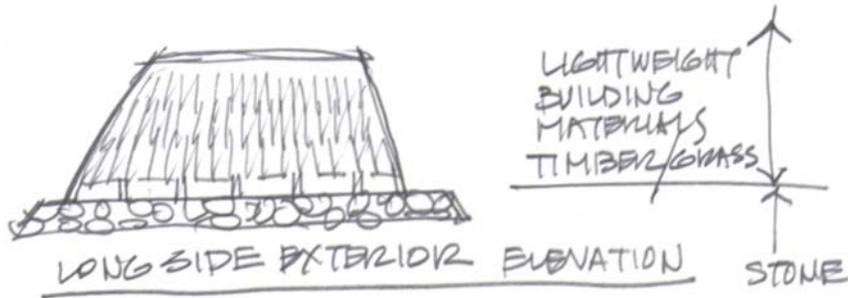
POSSIBLY OPEN BUT DECREASES RAIN SHELTERING, MAYBE FOR DAYLIGHT.



"DOUBLE ROOF" TO LOWER RIDGE HEIGHT



INSPIRATION FOR DESIGN LANGUAGE
GRASS HOUSE



A HALAU IS A LONG RECTANGULAR BLDG TYPE FOR STORING LONG OBJECTS LIKE CANOES. ONE SIDE OF THATCHING IS LEFT HIGHER SO THAT IS EASIER TO REMOVE/MOVE CANOE. "A-FRAME" STRUCTURE,

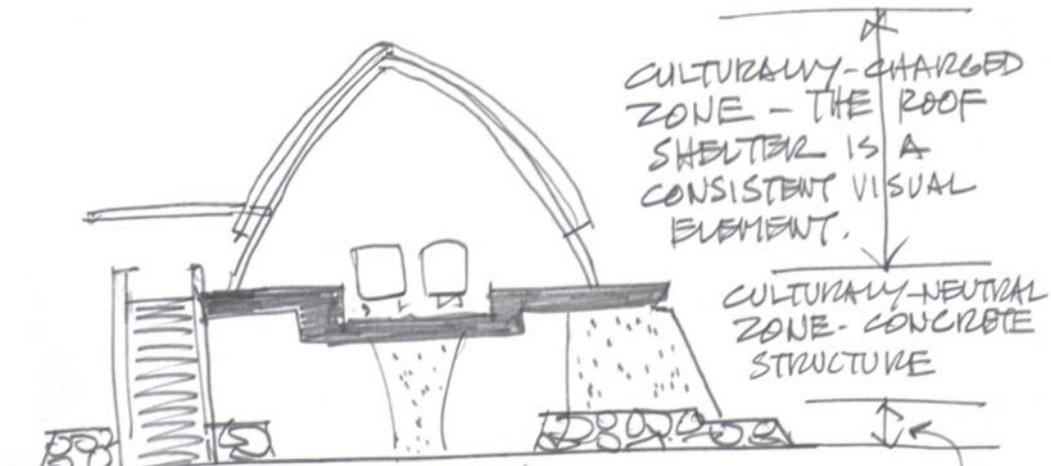
LOW ROOF EDGE FOR SHELTER



HIGHER ROOF EDGE TO ALLOW TRANSIT VEHICLE MOVEMENT

INSPIRATION FOR DESIGN LANGUAGE

CANOE HALAU



SECTION ELEVATED STATION

STONE TO CREATE # SHAPE SPACE
 ROOF SHELTER MAYBE GLAZED

CULTURALLY-CHARGED ZONE - HAWAIIAN STONE AND PLANTING CLOSEST TO THE LAND. DESIGN FOR SITE ADAPTATION - EACH TRANSIT STATION,

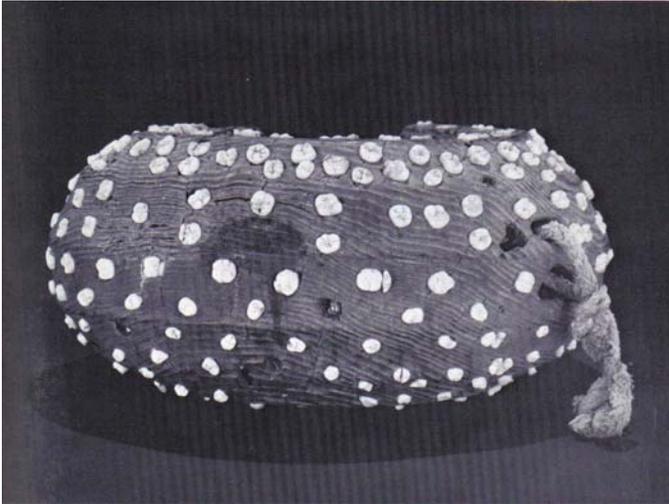


BELOW GRADE STATION

WALL SURFACE SHOULD BE CULTURALLY-CHARGED ZONE,

INSPIRATION FOR DESIGN LANGUAGE

CULTURALLY-CHARGED VS. CULTURALLY-NEUTRAL TRANSIT STATION SECTION.



Hawaiian refuse bowl studded with human molars.



Precast concrete planters. Hawaii State Capitol 1968.

STATION FURNITURE

Indigenous Hawaiian forms can be used to design station furniture such as trash containers, planters and benches.

Hawaiian containers generally have a form that is bulbous at the base for stability, with a more inwardly focused top. It is theorized that the ancients had an aesthetic preference for inwardly focused forms that express containment and concentration.

From a technical perspective, this is a necessity for containers crafted from solid wood. This general form can be used for all containers.

Generally avoid forms that are flared at the top and narrow at the base. These forms are much more common in European and Asian design. These forms can also be unstable in public places.



Consider smooth more polished materials if the container holds something desirable such as planting. Consider a rough-textured material for something undesirable like trash containers – concrete or laminated wood staves. A basket design of plaited metal can substitute for organic materials that are not adequately durable for station furniture.





Two-level bench integrated with paving / protects planting in high traffic areas.



Bench cut from a natural boulder. Waikiki 2008.



Two-level bench protects planter area. Instead of planter shrubbery there is a lawn for lounging in the shade. Two rows of dark lava stones salvaged from demolition of the previous stone structure.

BENCHES

Station designs can consider a two level bench that makes a better visual transition from the ground plane to the next highest level. Such a design increases the horizontal effect of station designs by using two horizontal lines instead of a single horizontal line.

Horizontality suggests the stone platforms of indigenous site planning and adds to the graciousness of station design. And such a bench design is directional by guiding station users to an entry.

A long bench increases seating opportunities in public places where some users are reluctant to sit too closely to other people. The two level design allows for child use.

The design also protects planting from heavy pedestrian traffic.

NATURAL BOULDER BENCHES

Saw cut Hawaiian basalt boulders can be fashioned into benches that convey a naturalness to Honolulu's transit stations, when compared to the typical precast concrete model used for most transit stops. The irregular shapes also lend themselves to a more casual non-geometric arrangement on sites.

The example at left is in Waikiki. Specifications should require acid staining of the cut boulders to better match other stones on site, an oversight that detracts from the natural appearance of the example. Acid staining hastens the photochemical reaction of lava to darken when exposed to sunlight over a period of years.

Such stone benches can be heavily durable and are unlikely to show any signs of abuse in public areas. The example is also suitable as a bollard detail.

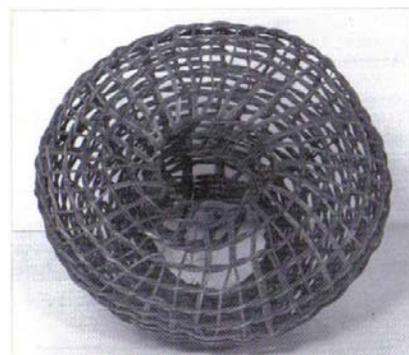
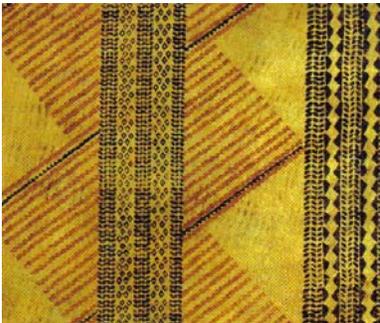
MINIMIZE VERTICALITY

Station design can minimize the number of vertical objects in the entry plaza. Every vertical object becomes another obstacle for the user to have to negotiate. Consideration can be given to locating exterior lights either in the planters, on station walls, or on overhead structures such as bridges and mezzanines.

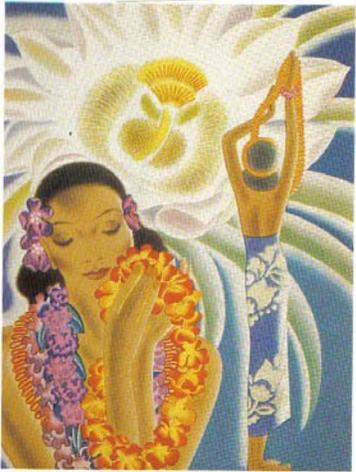
HAWAIIAN DESIGN - PREFERENCES

What kind of aesthetic preferences are in evidence from ancient Hawaii? Hawaii was an oral culture and there are no pre-contact sources available today that set down native aesthetic preferences. Therefore these preferences have to be discerned using observation, and with visual comparisons to other Polynesian and Oceanic cultures. Some comparisons with other cultures show the following indigenous Hawaiian preferences:

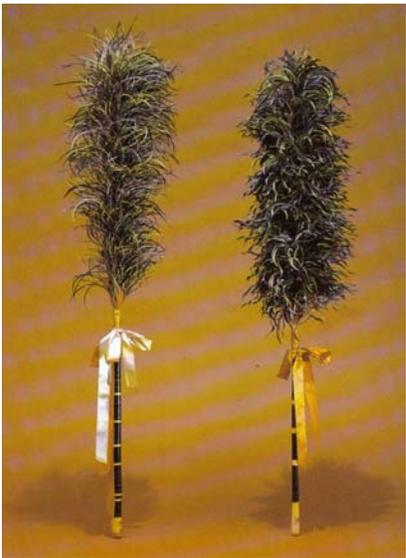
- A practical and spare design aesthetic, likely based on the scarcity of raw material.
- Manipulation of three-dimensional form rather than two-dimensional surface ornament.
- Inwardly focused forms that express containment and concentration.
- A preference for geometric ornamentation: if any ornament is added, ornament is placed only on objects close to the body.
- Neatly crafted edges and borders. Borders are often highlighted with a contrasting color.
- A fixation with high and low social status. See the further discussion on *Kapu*.



Hina' indigenous Hawaiian fish trap.



Hawaii menu cover from the 1930s.



INDIGENOUS DESIGN PREFERRED

Hawaiian design inspiration is most preferred if it predates 1778 AD, the year that Western explorers first reached the Hawaiian Islands. This would be inspiration based on indigenous design sources.

Using indigenous or antique design sources is a debatable one in many cultures. But a study would show that a recurring interest in the antique as design inspiration occurs in other world cultures ranging from Italy to China.

The act of replicating has its detractors, but the last few decades of a Hawaiian renaissance has seen a strong local Hawaii desire to use the indigenous past as the basis for current efforts for cultural renewal and survival. It is also the means of perpetuating Hawaii's uniqueness under the stress of world influences.

A design source is secondarily preferred if it originates from within Hawaii and it predates the Second World War – the moment when Hawaii lost most of its isolation from outside influences. At upper left is an example of mid 20th century Hawaiian design. There is no reason to use sources other than Hawaiian for design inspiration.

KAPU

Hawaii was the most status conscious society in Oceania. It is theorized that this is due to relatively broad valleys available for cultivation and a regimented society.

The design must not use sacred or royal images and symbols in a profane manner or location.

Despite the use of sacred wooden images in this Book to discuss sculptural surface texture, transit design will generally avoid use of human figures. Exceptions can be made within the confines of functional signage and selected public artwork.

The design will avoid imagery and symbolism representative of Hawaiian royalty such as *kahili* feather standards and crowns. A very few contemporary Hawaii buildings do use such imagery, but these have been built for royal trusts with royal purposes in mind.

The Transit system is a peoples' transit system, so the ornamentation should have a *makaainana* or commoners' orientation.



Kapolei Oahu



Blaisdell Concert Hall circa 1964.



Honolulu Hale City Hall entry.



Waikiki Beachwalk 2007.

HAWAIIAN DESIGN - SEQUENCES

ANCIENT ARRIVAL

In an age of airplane travel the sensation of an ocean arrival has been lost. We no longer experience the ancient Hawaiian arrival sequence where hills come down to the ocean and embrace a bay, at the end of which is a flat sandy beach for setting foot on fast land. If the arriving party were friendly, greeting protocols would take place here.

The visual qualities of a palm-fringed bay and sandy beach can inspire selected station site planning and landscape design.

HIGH PROFILE STATIONS

Certain stations can be designated as "high-profile" stations with open spaces that evoke a palm-fringed bay and sandy beach where arrival and departure protocol ceremonies took place in ancient times.

Design elements of such stations include gracious intermodal transfer space, more orientation information, relatively broad and flat plaza, and coconut palm grove.

Where possible, the station design can include a visual connection to a body of natural water. High profile designation can be reserved for stations that have a higher percentage of visitor traffic.

- Aloha Stadium Station
- Honolulu International Airport Station
- Downtown Station (Honolulu)
- Convention Center Station.



A protocol space for greeting visitors at Lanikuhonua near the City of Kapolei.

MATERIALS - BUILDING

STONE IS SYMBOLIC OF THE LAND

*"We do not value the government's sums
of money.
We are satisfied with the stones:
astonishing food of the Land."*

These words, translated from a popular Hawaiian patriotic song of 1893, make stones into a symbol of the Land itself. While the Transit Project uses world technology for modern transportation, its design can be tied more closely to the Land when Hawaiian stone is selectively used in its design.



POLYNESIANS CREATE STONE ARCHITECTURE

In popular imagination the grass house represents ancient Polynesian and Hawaiian architecture. But the civic and sacred structures of ancient Hawaii were stone constructions, many of which endure into modern times. Atop and within this stone construction were shelters of grass and timber.

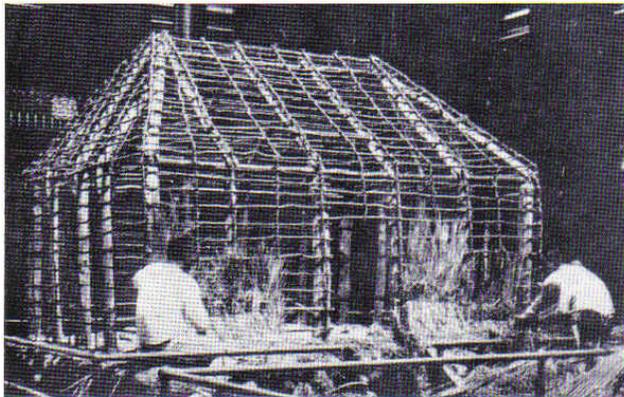


GRASS AND TIMBER CREATE SHELTER

Like most builders of sheltering construction, ancient Hawaiians used lighter-weight materials founded upon heavier foundation materials.

The sheltering roof of the station platform can evoke indigenous Hawaiian roof forms while using modern industrialized structural and roofing systems.

At center left is an 18th century lithograph of indigenous Hawaiian houses at Kealakekua Bay. The artist has depicted a variety of roof forms, a practice that seems to reflect the varied conditions and resources available in different parts of ancient Hawaii. Low stone foundation platforms are visible at the center.



At lower left is the wood frame of a Kauai house being reconstructed in a museum setting.



Waianae sandstone platform and seawall in Ewa.

Use of different stone materials can distinguish transit stations in the various regions.

EWA PLAINS

The region is an ancient reef once submerged by high ocean levels. Consider light colored coral stone and Waianae sandstone materials.



Red stone *pohaku ula*. Note the red staining of concrete.

WAI MOMI / PEARL HARBOR

A deeply eroded lower flank of the Koolau volcano where it intersects the Waianae volcano. Consider stones stained with red oxide coloring. Any concrete paving in this region will be stained a deep reddish color from the native soil.



Distinct horizontal rock strata at Kamehameha Highway and Makalapa Crater. Close to the site of Pearl Harbor Naval Base Station.

SALT LAKE

A series of geologically young volcanic eruptions that burst through the coral reef. Consider a stone finish that simulates the distinct horizontal rock strata at Makalapa Crater. A cool medium gray color. This finish can be made with custom rock molds or with a layered installation that mimics the strata



Dark moss rock (lava fieldstone)



Sawn lava basalt stone paving.



Imported red brick and Hawaiian cut basalt in historic Chinatown.

HONOLULU

A level plain that is well watered by several perennial streams. Large sandbars front the gentle ocean. Consider several stone finishes in this region to reflect more varied context in this long-settled and architecturally diverse region.

Dark "moss rock" resembles field stones from the various valleys of the region.

Indigenous basalt sawn into flagstones to complement a highly urbanized design context such as Bishop Street Station and Halekauwila Station.

There will be other reasons for considering varied paving materials in the Honolulu region due to existing development where existing paving might want to be matched or complemented.

Honolulu also has a number of special design districts where distinctive paving may be needed to satisfy city zoning regulations. While station platform and canopy design can have a resemblance to system-wide architecture, grade level facilities and building materials can have a strong relationship to the site of each station.

NUUANU / CHINATOWN STATION

Chinese granite paving for the Nuuanu / Chinatown Station matches imported ballast stones used for district sidewalks. Wall finish of roughly cut dark lava with wide white mortar joints match the rear court walls of Chinatown buildings.

While most masonry wants to be Hawaiian in origin, the Station is close to the harbor where the outside world met Hawaii.



Chinese granite paving stones on North King Street. Hawaiian cut basalt curbing.



Genuine lava fieldstone veneer University of Hawaii Manoa 1996. This stone is relatively plentiful on Oahu.



Artificial coral stone Ala Moana Shopping Center escalators.



Genuine cut coral.

Genuine Waianae sandstone.

ARTIFICIAL STONE VENEER

In recent years Hawaii has seen increasing use of thin artificial stone veneer due to high construction labor costs, decreasing availability of natural stone material, and less space available in buildings for thicker natural stone.



Artificial lava fieldstone veneer at Ala Moana Shopping Center.

Genuine Waianae sandstone and coral stone are more difficult to obtain nowadays because the quarry sources have largely closed down. Coral stone has a tendency to become blackish over time if it is laid in a wet environment.

Artificial stone veneers have allowed architects to use more stone-like surfaces that have the continued design advantage of natural appearance and lower maintenance than some other exterior finishes. Some stone veneers are made in Honolulu with the express intent of duplicating certain Hawaiian stone finishes.

Artificial stone made in Honolulu includes simulated lava fieldstone and simulated coral. A red-colored stone is likely possible from the same fieldstone molds. Stone for transit stations can be produced from custom molds if the quantity warrants it.

Use of these Honolulu-made artificial stone veneers allows for a stronger design connection to Hawaii, while controlling construction costs and shipping costs. Lava stone veneer made in other states does not simulate Hawaiian stone like the Honolulu-made product due to the molds used.

CULTURALLY CHARGED MATERIALS

Certain building materials convey a very strong cultural connection to Hawaii due to their prevalence in indigenous Hawaiian architecture or due to their origin in Hawaii.

A building of culturally charged materials is said to be built of “the flesh and bones of the land.” Examples of culturally charged building materials include lava stone, coral stone, and *koa* and *ohia* wood.

Locating culturally charged building materials in prominent locations on the station can convey a stronger cultural orientation in the design.

CULTURALLY NEUTRAL MATERIALS

Certain building materials do not convey a strong connection to Hawaii due to their ubiquitous use in many other parts of the world.

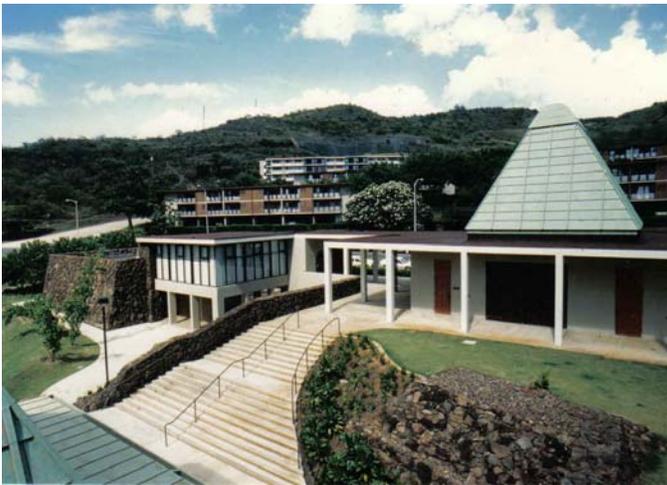
Plain concrete is the best example of a ubiquitous material that is widespread due to its functional purpose and due to its plastic design properties. Glass is another good example. It is universally used while conveying no culturally specific message.

The landscape equivalent of a culturally neutral material is lawn grass. The trees and shrubbery can convey the desired cultural orientation.

Transit system and station design can make use of a significant amount of culturally neutral building materials due to function, budget, and the fact that most of the system does not want to be visually and mentally prominent.

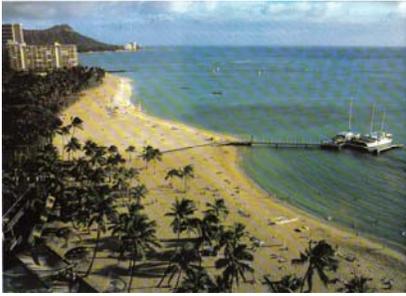


Culturally charged entry doors of Waianae lava fieldstone and *koa* wood frame and overdoor. The half moon overdoor is shaped like the house doors of ancient Hawaii. This is the entry to a high status conference room. A low status door, such as to public toilets, will not warrant these materials or design treatment.



Culturally charged forms and materials contrast with culturally neutral building materials. A high status roof form on this academic building contrasts with the lower status flat roofed housing in the background. Concrete of plain simple detailing is the culturally neutral functional building material.

In the right foreground is a lava fieldstone tomb for ancient Hawaiian human remains from an adjacent infrastructure construction project. Of course it is built of a culturally charged building material.



Lagoon at Honolulu's Ala Moana Park.



Honolulu War Memorial Natatorium



Kukui lined mall at the University of Hawaii Molokai Education Center

MATERIALS - PLANTING

COCONUT GROVE

Across Oceania and Hawaii coconut groves shading a flat beachfront space remain an archetypical image of Polynesian welcome and ease.

The palms should be planted closely to one another approximating a grid arranged in diagonal orientation to the station. When palms are planted on the diagonal any sky view is then filled with palms.

This geometric arrangement suggests that the palms are an entrance canopy, alive and natural instead of being created from typically inanimate building materials. Palms can be planted in the entrance plaza paving or lawn without underlying shrubbery; evoking the sun-dappled expanse of oceanfront spaces.

At some station sites, such as Downtown Station and Aloha Stadium Station, the coconut grove can be some distance from the actual station to draw riders toward an arrival point.

Except for the Kakaako Station and the few listed "high profile" stations, no other stations should have any coconut palms as part of the station landscaping.

KUKUI MALAMALAMA

Aleurites moluccana or Candlenut Tree is associated with light because the ancient Hawaiians used its oily kernels for lighting. The tree has "thin" leaves that allow sunlight to be readily seen when hiking under the otherwise dark green canopy of the Hawaiian forest. In Hawaiian song the phrase "*Kukui malamalama*" links the *kukui* with nurturing light. *Malamalama*, translated as "nurturing the light of knowledge" is the motto of the University of Hawaii.

The future University of Hawaii Manoa Station and the UH West Oahu station can feature *kukui* trees in the station landscape. In order to highlight this distinction, no other tree species should be planted at UH stations and no other stations should have *kukui* tree plantings.

LOST LANDSCAPES

Selected transit stations can be planted to reflect historic features of landscapes now lost to Honolulu's urbanization.

Kakaako Station

Before 20th century urbanization, a landscape of wetlands and other ponds fringed with coconut palms was the dominant landscape of the level lands between Honolulu Harbor and Waikiki.

At left is a 1915 view near the proposed Kakaako Station location. The coconut palms are the Ward family copra plantation.

A coconut planting also makes a visual connection to the extensive existing coconut grove shading the Blaisdell Center, the destination for many transit riders using the Kakaako Station.



EVEN A POND WITH LIVE FISH

The old Ward estate, lying between Kapiolani Boulevard and King Street, offered a slumberous touch of old Hawaii in 1915 with its placid pond mauka of the residence "Old Plantation." Skiffs could travel the coco palm bordered waterway where goldfish and carp rippled its quiet surface.¹



"Sugar Country" by Ben Norris 1937.

Waipahu Station

Sugar cane plantings can make a connection to the historic industry that brought most immigrant labor here and sustained Oahu's economy for over a century.

At left is a painting of the foothills above Waipahu when plantation-style buildings and sugar cane were dominant features of Oahu's landscape.

Waipahu Station can be the location for such cane plantings because it still styles itself as a plantation town.

Waikiki Stations

The coconut palm is the predominant tree form in Waikiki, but its use at transit stations here might not create distinguishing visual landmark features for Waikiki stations.

Consideration can be given to a single very large tree as the dominant design element at each Waikiki station plaza. This makes a connection to the now-lost Princess Kaiulani banyan and large existing banyan trees at the Royal Hawaiian and Moana Hotels.

Very large canopy trees are uncommon in other American cities, but are distinctive features of urban Honolulu.



Moana Hotel Banyan Court. Waikiki.

FINISHES – TEXTURES AND ORNAMENTATION



Sculpture from Aotearoa. New Zealand

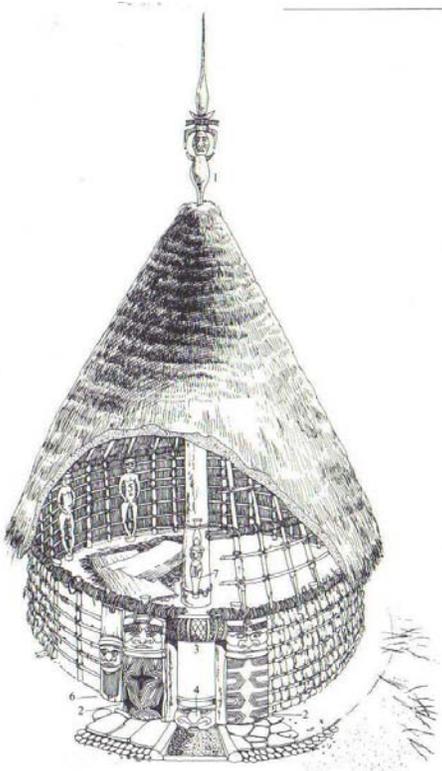
“Surface richness and elaboration is most noticeable in the arts of the Maori of New Zealand, the Marquesans, and the Cook and Austral islanders. True sculptural form had its place in these cultures as well, especially in the Maori and Marquesan carvings, but such form was seldom dominant to the surface decorations. The sculpture of Hawaii, Easter Island, Mangareva, Tonga, and Nukuoro, which emphasizes volume rather than surface, seems to have developed in the opposite direction. The Hawaiian sculpture is distinguished even further by adding emphasis on sculptural volumes the inclination toward sculptural movement and axial dynamics. Furthermore, the Hawaiians never decorated a material that could be manipulated as sculptural movement. In media in which sculptural shaping was impossible, such as on the natural surface of a gourd, on the human body, and on tapa, the Hawaiians did apply surface decoration, but even then usually with delicacy and restraint.”

Excerpts from Hawaiian Sculpture
J. Halley Cox and William H. Davenport



Unlike the Maori example above, the general paucity of applied ornamentation in indigenous Hawaiian architecture and art can guide design of the Transit system. Taking direction from the cited quotation, sculptural shaping is preferred over surface decoration. An overall Guideway design that is inspired by movement reduces the perception of massive structure that the Guideway might present in Honolulu's often densely built environment.

As in indigenous design, selected surfaces can receive ornamentation. In ancient times ornament appeared on the floor mats of houses and on personal clothing. For Transit design these surfaces are akin to the floor of the Platform Level and to fabrics used for employee uniforms.



A house in Kanaky, New Caledonia, shows the preference for elaborated buildings in the southwestern Pacific islands – New Zealand and Papua New Guinea. Features include the finial and the heavily carved door frame.



FACETED SURFACE TEXTURE – GUIDEWAY COLUMNS

“The surfaces of Hawaiian sculpture are finished either by grinding and polishing or by faceting (leaving the adz marks exposed). Faceting is found on all types of images and on other carvings such as house posts, tools, and canoe fittings.”

“The faceting, a series of bands running parallel to the axis of the volume, was made not from a single adz cut nor by planning action, but by a carefully controlled series of advancing adz strokes that lifted the chips away almost in one piece.”

“... the sculptors adjusted the final adz marks to best reinforce the volume movements and left them exposed.”

“The faceting does not become a decorative surface, and it is apparent that the sculptors did not think of it as such but as a means to produce the form. When viewing the images, one does not separate the perception of the facet pattern from the sense of the volume that it produces, as is the case in most of the Marquesan images and Maori carving.”

Excerpts from Hawaiian Sculpture
J. Halley Cox and William H. Davenport



Hawaiian sculpture articulates the legs and arms of the human body. Faceting reinforces the sense of the volume by following the stress lines resisted by muscles of the legs and arms. This also coincides with the Hawaiian aesthetic preference for shaping objects as compared with decorating objects.

Hawaiian sculpture also emphasizes ridges and joints by notching out the connections between different volumes of the body.

Guideway columns can be textured with faceting following the stress lines of the columns. Consider notching where vertical structural stress changes to horizontal structural stress.





COLUMNS FOR THE GUIDEWAY

Consider texturing to add design expression and mask construction challenges, such as joint intersections and finishing, have a strong tradition in other world cultures. Below are classical Greek fluted texture examples.



Consider Hawaiian sculptural concepts and texturing. The column is like the supporting legs and arms of the body. So the Guideway columns will be efficient and express their structural purpose. As the texturing follows the muscles of the body, the Guideway column textures follow the reinforcing / stress lines.

Consider subtle notches at the change of orientation in column geometry. This also makes it easier to form the concrete texture at change in orientation.



Fluted columns at Hawaii State Capitol using a board formed texture.

FINISHES - PATTERNS

Indigenous Hawaiian design made no use of patterns on large scaled material objects such as buildings or canoes. Hawaiians did use patterns on objects close to human contact, on bed clothing and on personal adornment.

It is important to place new patterns in the same context as these patterns were used by indigenous Hawaiians. For example, a pattern from bark clothing should not be used as a floor pattern.

MAKALOA MATS

The Hawaiian house had a floor covered with plaited mats. The finest quality of mats *moena pawehe* were plaited from *makaloa* sedge (*Cyperus laevigatus*).



Indigenous Hawaiian house at Kealakekua Bay.

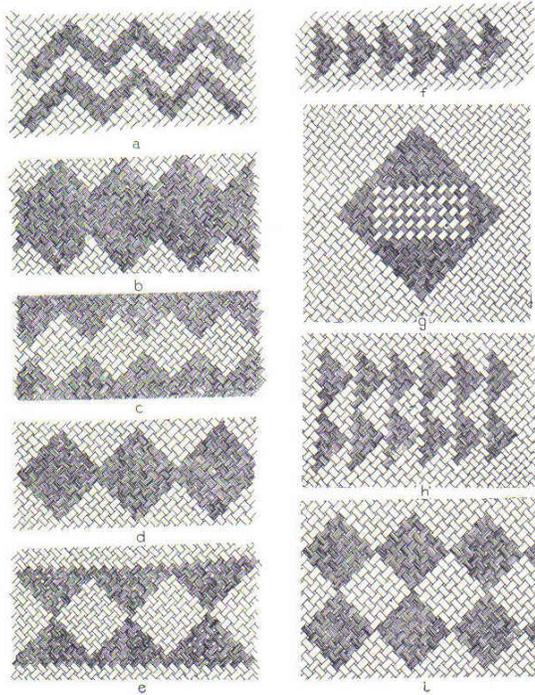
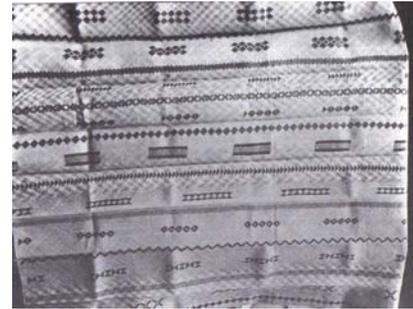


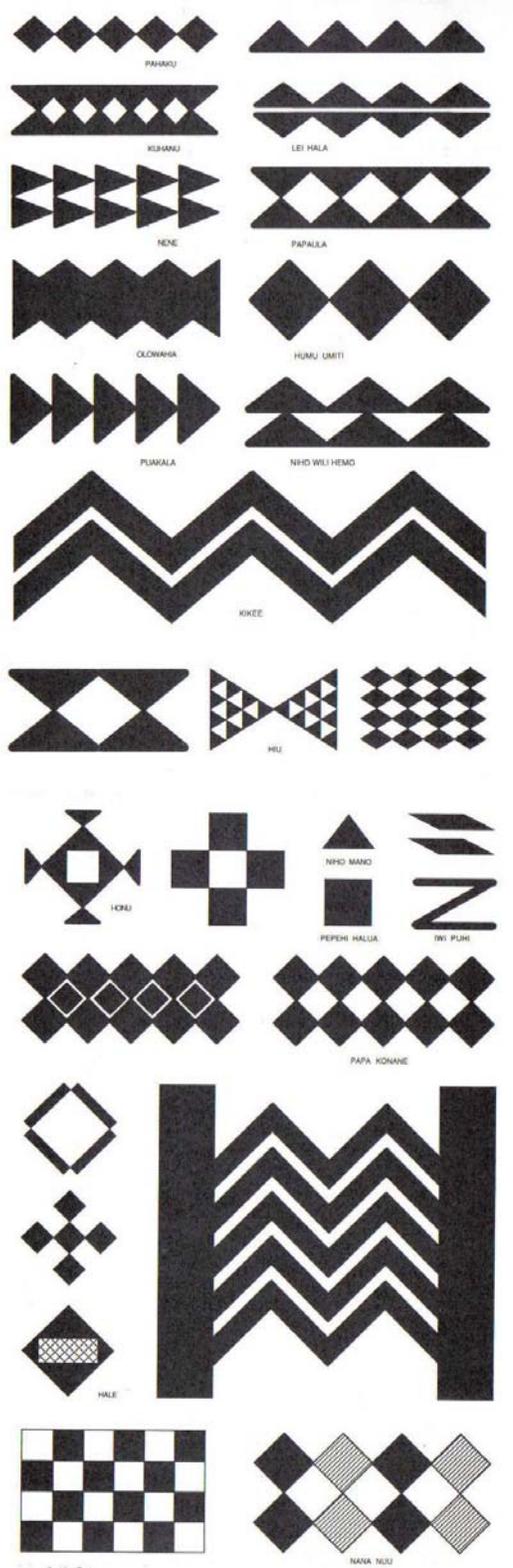
FIGURE 89.—Colored motifs used on *makaloa* mats: a, *ke'eke'e*; b, *olowahia*; c, *kuhanu*; d, *humuniki*; e, *papaula*; f, *pua hala*; g, *hale*; h, *nene*; i, *papa konane*.



As depicted above these mats were sometimes decorated with colored geometrical motifs created by overlaying colored wefts on the diagonal foundation wefts. The motifs named on the left included:

- *ke'eke'e* = zig zag lines
- *olowahia* = a pawehe mat pattern
- *kuhanu* = a pawehe mat pattern
- *humuniki* = a pattern
- *papa'ula* = a platform of reddish color
- *pua hala* = pandanus flower

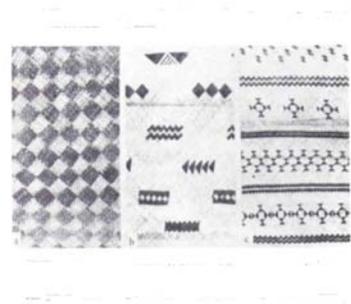
Surviving mat examples show that these motifs were themselves grouped into larger scaled arrangements, displaying the creativity of the mat plaiter



MOTIFS FOR CERTAIN STATIONS

At left are examples of *moena pawehe* patterns from the island of Niihau, where the plaiting of these mats was highly developed.

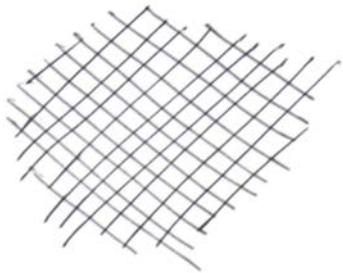
Some motifs appear more appropriate for certain stations. For example the *ke'eke'e* motif suggests the English letter "w" and can be used where station names include *wai*: the Hawaiian word for "water."



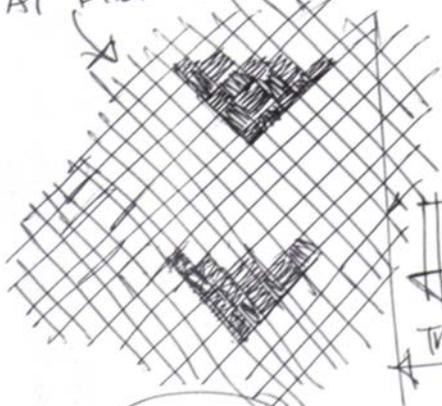
New motifs can be invented, provided that these can be created from diagonally laid square tiles.

The two following pages have sketches depicting some design possibilities for various stations.

FLOOR PATTERN



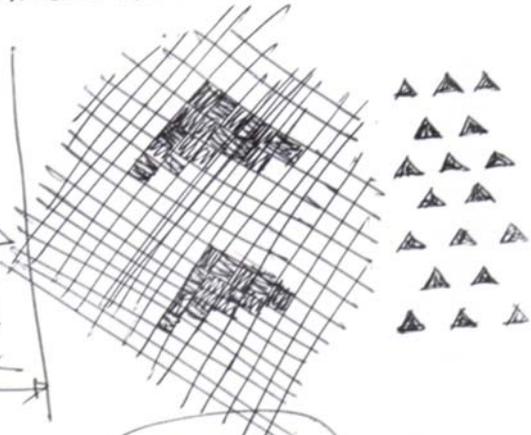
DARKER MATERIAL FOR PATTERN HINTS AT DIRECTION OF TRAVEL



INBOUND

LAUHALA MAT

THE FLOOR OF GRASS HOUSE WAS COVERED WITH PANDANUS MATS. LEAVES WERE STRIPPED INTO UNIFORM WIDTHS AND THEN PLAITED. IT IS A TAN/BEIGE COLOR OF DRIED LEAVES, THE PATTERN IS ON THE DIAGONAL, DIAGONAL SQUARE

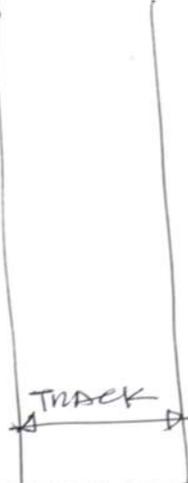


OUTBOUND

THERE WAS ALSO A VERY FINE GRADE OF MAT CALLED "MAKALDA MAT" MADE OF A SEDGE GRASS, THE LEAVES ARE NARROWER, SO IT MADE A SOFTER/PIABLE MAT. THE NIHAU VERSION WAS OFTEN DECORATED WITH DARKER COLORED STRIPS INSERTED IN THE PLAITING, ABOVE IS AN EXAMPLE OF THESE DESIGNS, THESE WERE GROUPED: CREATING A LARGER SCALE DESIGN.

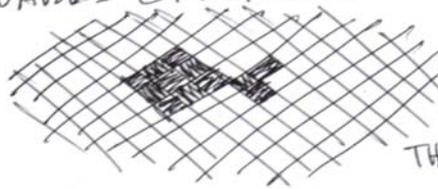


INBOUND PATTERN



OUTBOUND PATTERN

- THE "WATER" PATTERN FOR TRANSIT STATIONS WHOSE NAMES HAVE "WAI" IN THEM OR NEAR THEM - IE: WAIKIKI / WAIAWA / WAIPAHU
- THE GROUPINGS CAN BE SOMEWHAT RANDOM, DESIGNS ARE ONLY UNDER A ROOFED AREA, NOT OUTDOORS UNCOVERED.
- WE CAN INVENT SOME NEW DESIGNS, PROVIDED THAT THESE CAN BE MADE IN DIAGONAL SQUARES GROUPINGS.



"WAIAWA" = MILKFISH WATER

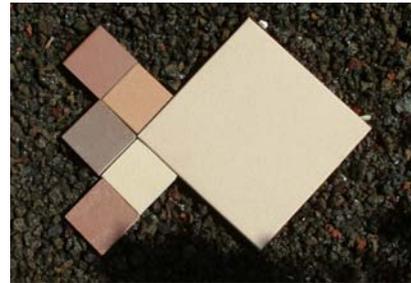
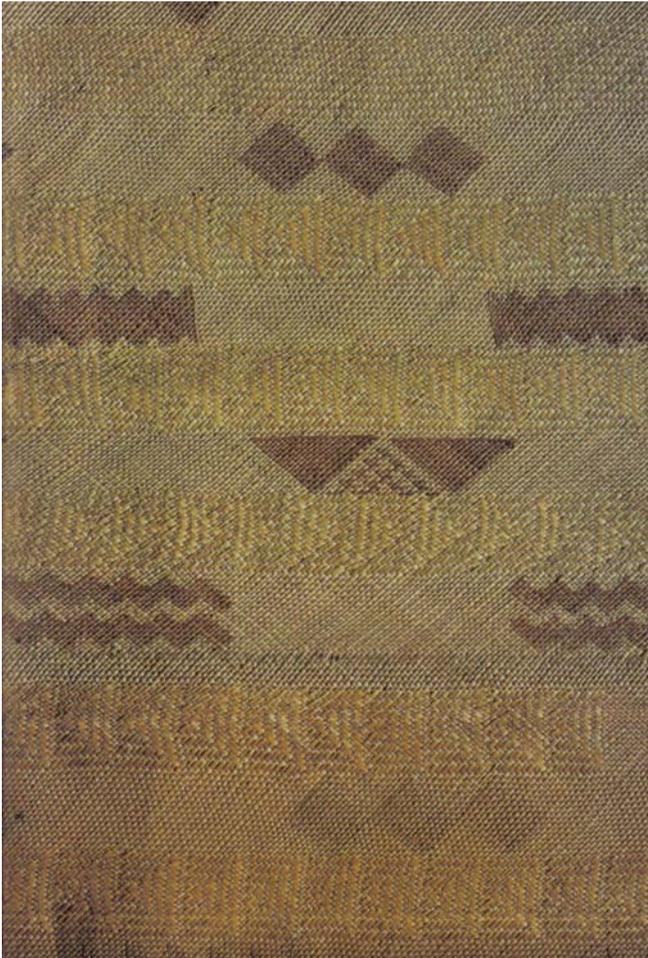
- THE FISH SWIM IN THE DIRECTION OF TRAVEL.

FLOOR MATERIALS

It is impractical to use anything other than very durable floor covering materials for transit stations. However, the idea of *makaloa* matting can be considered for covered waiting areas such as the elevated platforms.

The natural colors of mats are shown on the left. No dyes were used. These colors are integral to the reed materials themselves.

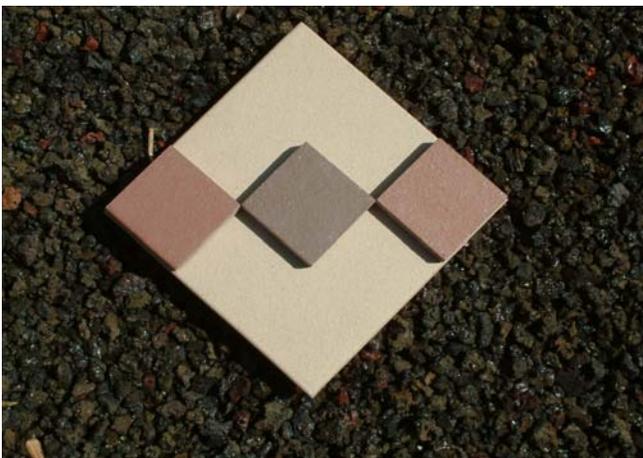
Note that the colors resemble standard quarry tile colors pictured below. Quarry tile has integral colors that can always be matched in the future. And the tile is a common finish in many transit stations in the United States.



Differing tile colors can be considered for the different regions of the transit system.

The Ewa Plains stations could use the standard *makaloa* coloration of beige with red accents.

The Pearl Harbor region could have a color reversal where the tile field is red and the ornament is beige due to red dirt staining problems in this region.





Roof and wall batten pattern matches indigenous house framing. Aluminum skylight of indigenous Hawaiian roof form: complete with the oval smoke hole at the gable end. Rounded roof ridges evoke the softness of thatched roof construction.



University of Hawaii at Manoa / Center for Hawaiian Studies.

ROOF AND CEILING - PATTERNS

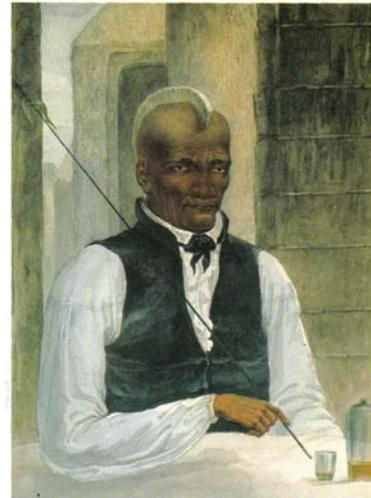
Roof and ceiling patterns can be inspired by indigenous wood framing of rafters and thatch purlins.

Indigenous Hawaiian buildings had a roof structural system akin to a large inverted basket. Relatively thin structural members were lashed into a rectangular pattern under the grass thatch, as seen below.



In keeping with sparse indigenous building practices, roof and ceiling patterns should be based on a functional layout of the chosen roof structural system.

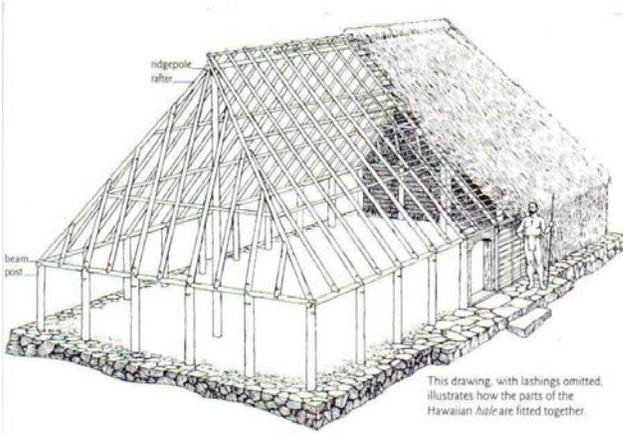
Trussed roof systems should be used with care because these were not used in indigenous roof framing and trusses encourage birds perching on the intermediate members.



King Kamehameha the Great in his palace compound. The rectangular patterned interior visible on the right. Houses in the far background show the continuity of roof and wall surface and material.



Ceiling decking is vertical as thatch direction is vertical.



Ceiling of standard t-bar and perforated metal panels.

ROOF AND CEILING SPACE

The relatively high ridge and the low eave height typical of indigenous Hawaiian interior space can be evoked in modern construction. The design strategy is not to design a high roof, but to design a low eave.

Such a roof section can create a deep shade for comfort under the strong Hawaiian sun.



Interior of chief's house.

SURFACE PATTERNS

While indigenous builders did not place bold patterns on the exterior of buildings, the Hawaiian craftsman did use patterns on small scale objects intended for close human contact and personal distinction.

Pictured below is a reception desk veneered with an indigenous "checkerboard" pattern recycled from trees cut down for the project. Dark wood is *milo* (*Thespesia populnea*) and the light wood is coconut palm (*Cocos nucifera*).



FINISHES - COLOR



The dominant color of Hawaii's natural environment is the blue of the sky and the ocean. With these two overwhelming sources of naturally blue color, there should be NO artificially blue color anywhere in the design of the system.

There should be NO artificially green color. Green color should be contributed by the landscape planting.

NATURAL COLORS

Colors perceived as "natural" colors of the selected building materials are generally to be used. Natural and manufactured stones are already discussed as building materials.

The Guideway is typically to be perceived as concrete colored to make it more of a ubiquitous object in the urban landscape. Selected sections of the Guideway can be a darker color if the general background is dark and will afford more concealment.

Emphasizing "natural" color can be extended to emphasizing integral color: a technical response to the very high public usage and low maintenance associated with transit systems.



ROOF COLOR

The solid portions of roofing material can be a neutral color evoking the dried grass thatch of indigenous architecture.

A light neutral color also minimizes the visual impact of station platform roofs and allows the station to visually co-exist with surrounding construction.

An alternative is whitish roofing that gives the effect of a cloud in the blue sky.



Whitish roofs seem like clouds in the sky.



ISLAND COLORS

Each of the major Hawaiian Islands is represented by an "official" color assigned by Hawaii's Territorial legislature and based on folk tradition.

Hawaii island is red, Maui is pink, Oahu is yellow, Kauai is purple, Molokai is green, Kahoolawe is silver, Niihau is white.

Many of these colors are associated with flowers used for making lei. Floral parades, popularized in the 20th century, feature equestrian riders clothed in individual island colors and garlanded with appropriate island color lei.



Sida fallax, a member of the mallow or hibiscus family, is the official flower of Oahu. The natural habitat of *ilima* is the arid coastal zone found on leeward sides of the Hawaiian Islands. The transit route is entirely situated in this arid coastal zone.

YELLOW IS THE COLOR OF OAHU

The peoples of Oceania often use bird feathers to add color to human adornment. Across most of Polynesia, red feathers connote the highest status. But in Hawaii yellow is the color of highest status because in Hawaii yellow bird feathers are the most rare.

Ilima lei are among the most labor-intensive flower lei. Hundreds of blossoms are needed to create flower lei that resemble yellow feather lei: an ancient symbol of high social status.

YELLOW IS THE COLOR OF THE BUS

Either by design or serendipity, the existing livery of The Bus is shades of yellow, the color of Oahu. Yellow is also a safety-oriented highly visible color used for fire engines and school buses. These colors can also be used for rail transit vehicles.



A new arrangement and proportions of a range of yellows can be considered by the vehicle designer.

The range of yellows can be based on flowers of *ilima* (*Sida fallax*) and its close flowering plant relatives. Colors can also be inspired by feather colors of the indigenous birds of Oahu pictured at lower left.

Yellow and orange are considered by many people as “tropical” colors; thus being appropriate to a Hawaii-based transit system.

At appropriate vehicle locations a pattern of *ilima* flowers, similar to what most designers in the world would call an “aloha print”, can be considered.



FLOOR COLOR

Car flooring may be earth-colored because some portions of the Transit route have native soils that leave an extremely persistent earth-colored residue on flooring. This is especially the case with the “red dirt” so prevalent in Segments B and D.

NAMING CONVENTIONS – SIGNS & SYMBOLS

“In Hawaii about 86 percent of the place names are in the language of the aboriginal population. On the [United States] mainland, place names have been taken from a great many languages ...some of them are of bewildering phonetic complexity that is not revealed in the spelling ... the stories behind the names have been distorted, lost, or sentimentalized. Hawaiian names, in contrast, usually have understandable meanings”

Samuel H. Elbert

The City & County of Honolulu most likely has the highest percentage of place names originating in the language and geophysical perception of its indigenous human inhabitants of any other major city in the United States. These place names are more than words appearing on legal documents and geodetic surveys. These place names are in common every day usage.

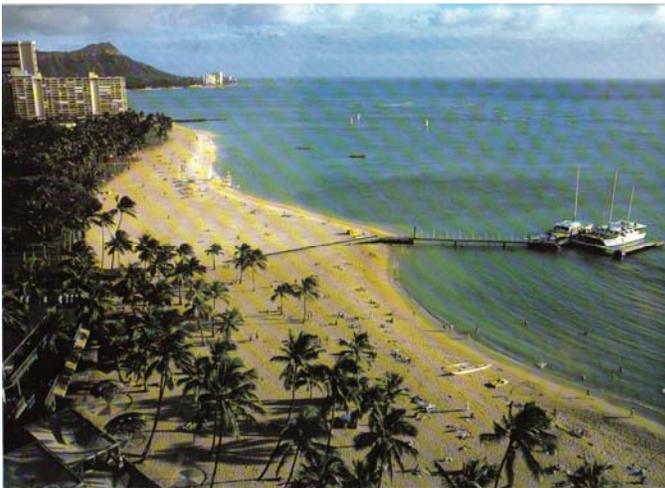
Honolulu already has statutory criteria for naming streets in the Hawaiian language. The first Criterion says “The Hawaiian names, words, or phrases must be appropriate to cultural, scenic and topographic features.” The same statutory criteria can be used for naming transit stations.

The established Street Naming Committee, or an expert in Hawaiian language, can assist with final name selection and interpretation.

Most Hawaiian place names have their origin in geophysical perception – what the statutory criteria calls “scenic and topographic features.” The “cultural” basis for place names typically has a human activity, such as yam planting, or an event in oral history.

A place name can have layered meanings; a literal meaning, an often hidden meaning or *kaona*, and sometimes an erotic meaning as well.

All of this word play is connected with the intellectual sprightliness of the indigenous language.



At top left is the world famous landmark called “Diamond Head” by British sailors. But its indigenous Hawaiian name is *Leahi*. Hiiaka, the younger sister of Pele, named it for its resemblance to the brow of an *ahi* fish. *Leahi* is now the name of an avenue, a hospital and the geodetic survey point for much of Honolulu.

The beach area is called Waikiki or “spouting water” for the natural springs that formerly watered the area. The ancient coconut grove of some 10,000 palms shading the sandbar was called *Helumoa* or “the chicken that scratched.”



Indigenous red stone walls in the land division of Kalamaula meaning "the red torch or red *lama* tree." Note the progressive red soil staining of the concrete paving.



Interpretive reconstruction of Princess Bernice Pauahi Bishop birth home *Aikupika / Haleakala*. *Aikupika* is the Hawaiian word for "Egypt." *Haleakala* is frequently translated as "House of the Sun" or sometimes as "Pink House." All three meanings of the place name are interpreted in the architectural design of the foreground building.

PLACE NAMES INSPIRE DESIGN

"Hawaiian place names, then, hold other attractions beyond their pleasant and mellifluous sounds, for they describe the Islands, the deeds of Hawaiian heroes, the links between Hawaiians and their Polynesian kin to the south, and intimacy Hawaiians have always felt with natural forces that surround them, physically and spiritually."

Samuel H. Elbert
Atlas of Hawaii, Second Edition

Connected with a Hawaiian place name, station designs can make references to geophysical features and other aspects of their respective place name. These references can range from specific landscape planting material to a finish material color.

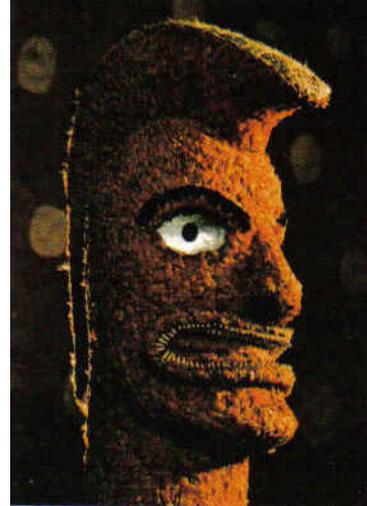
As with the layered meaning of place names, there can be layering of design influences from the literal to the extremely subtle.

The design influence can range from something literal like color to something deeply symbolic. Sometimes a design will achieve many meanings.

In the Hawaiian spirit of *kaona*, or hidden meaning, the design influences should not be the subject of station plaques or other official explanations. It should be left to the keen observer of Hawaiian culture to decipher and discover.



The oculus at University of Hawaii *Kamakakuokalani* Hawaiian Studies Center. *Maka* is the Hawaiian word for "eye." *Ku* connotes an upright position. *Lani* is the word for "heaven" or the space above the earth.

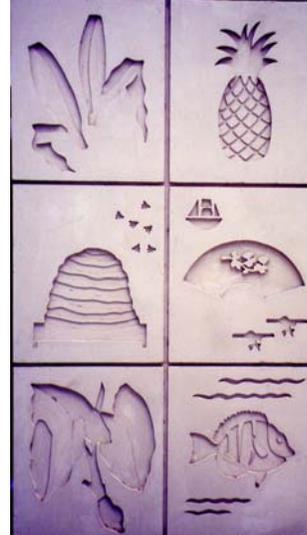


Kukaillimoku a feathered god with oval eyes fashioned from shells.



The Royal Pew at the Kamehameha Schools Chapel in the *ahupuaa* of Kapalama – meaning "the enclosure of *lama* wood." Pew shape is concave, not convex, in keeping with Hawaiian aesthetic preferences for inwardly focused forms. At each corner are erect wood staves with segments of whitish *lama* wood. Segmented color contrasts are a feature of Hawaiian design for personal objects. The wood staves define a high status space forbidden to commoners.

"Pillars of the Molokai Economy"



Concrete entry columns symbolizing successive "Pillars of the Molokai Economy" at the University of Hawaii Molokai Education Center.

The arrangement is chronologically accurate with prehistoric taro and aquaculture at the base; honeybees and sandalwood in the center; pineapple and seed corn at the top.

In the Molokai hills is a boat-shaped depression to measure the felled volume of sandalwood for export to China. The bee-hive design is taken from the copperplate engraved at Lahainaluna Seminary in 1843 to print Hawaiian paper "money". The beehive scrip was worth 3 cents and symbolized "Industry."



Concrete bas relief "Hawaiian Holiday" by artist Hon-Chew Hee at Wilder and Piikoi Streets.



Inspired by Hawaiian petroglyphs. Concrete panel by artist Edward Stasack. South King and Fort Streets.

ART IN PUBLIC PLACES

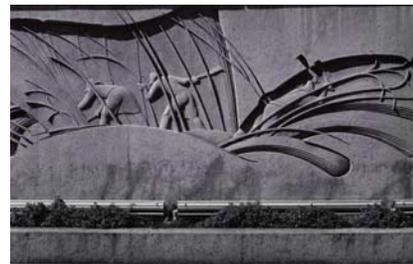
Hawaii has one of the original Art in Public Places laws. Honolulu will set aside 1 percent of the construction cost of transit stations to commission public art.

Not every station may be the location for commissioned artwork. Instead the "set aside" can be combined to commission significantly scaled artwork for selected stations.

Commissioned artwork is particularly appropriate if there is an activity or event connected with the station name.

Locations for commissioned artwork should be selected during station site design to aesthetically and technically support the artist's vision.

The funds set aside for public art typically cannot be used to pay for construction items such as decorative railings, tile floor patterning, and similar items designed by the station architect.



Sugar cane bas relief in concrete by artist Tom Van Sant. Waipahu was a historic center for Hawaii sugar cane cultivation and it still dubs itself as "the plantation town."



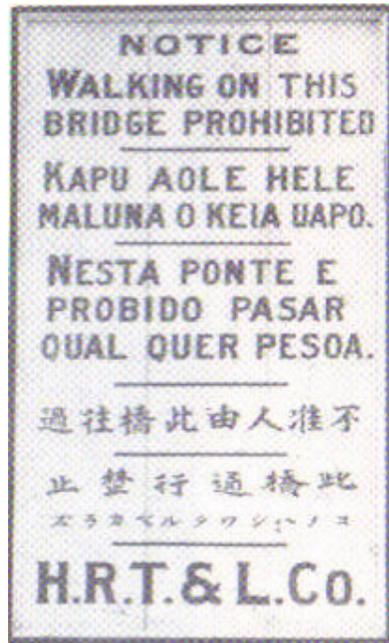
University of Hawaii Arena sculpture by Shige Yamada. Literal rainbow motif in bronze and glass mosaic. The erotic aspects of the sculpture do not appear from this angle view.

NAMING CONVENTIONS - CHARACTERS

HALAWA / ALOHA STADIUM

NUUANU / CHINATOWN

ALIAPAAKAI / SALT LAKE BOULEVARD



Historic sign of the Honolulu Rapid Transit & Land Company in various languages based on the diversity of Honolulu's population. The various languages were arranged in a rough "social pecking order" of the era. Recognizing indigenous Hawaiian place names before other place names can give renewed primacy to the Hawaiian language.

Both Hawaiian and English are designated official languages in the state of Hawaii.

Indigenous Hawaiian place names remain in very common usage among Honolulu residents due to a land tenure system that dates back to the Hawaiian Monarchy. Honolulu has widespread and mandatory use of Hawaiian street names.

Non-indigenous place names can be used for some stations. Consideration should be given to a longer sign with the correct Hawaiian place name followed by a non-Hawaiian name in more common usage.

The official City & County of Honolulu Street Naming Committee can also be tasked with composing some new station names using current statutory street naming criteria.

The increasingly frequent practice of selling the primary station name to commercial advertisers should not be practiced in Honolulu.

The most correct Hawaiian diacritical marks are to be used for station signage. Some use of Hawaiian language, along with English, can be made in public area signage to convey the uniqueness of Honolulu.

One possibility for increasing the everyday usage of Hawaiian language would be to employ the language on small regulatory signs, such as "No entry" signs where the Hawaiian word would say "Kapu." Such signs frequently bear a universal symbol, and the English language text can always be placed below the Hawaiian.

A sans serif typeface, one that is more suggestive of a Pacific-based culture, can be selected for station and system signage. The use of hand symbols to indicate direction is to be avoided as finger pointing is considered an impolite gesture.



A TRANSIT SYSTEM FOR HAWAII'S PEOPLE

Transit systems develop reputations and personalities over time. Transit ideas and technology is imported, but the system must develop a connection with the place and people that it serves. Some of these connections can only develop over time. But other connections result from planning and design that can either support or hinder the experience of a system for Hawaii's people.

ISLAND HOSPITALITY

Hawaii's early contacts with the outside world were generally friendly and based on the allure of a hospitable spot in the mid-Pacific for provisions. Honolulu's harbor was soon widely known in international commerce. Nestled in the mouth of Nuuanu Stream, the best harbor in the Hawaiian Islands was dubbed "Fair Haven" in a rough English translation of *Honolulu* the Hawaiian word for "peaceful or protected bay."

In contrast to "peaceful", many of the world's transit systems may be characterized as "mean systems" based on the crush of commuting millions. These driving and commuting habits are community-based habits arising from the attitude of that community.

An ideal of gentle hospitality, fostered through the past two centuries, can inspire the design and operation of Honolulu's Transit system.

Aspects of gentle hospitality include:

- Putting the riders interest at the forefront of design and operation.
- Easy intermodal connections.
- Sheltering and shading.
- Adequate circulation.
- Special attention to elderly / disabled / and young users.
- Helpful signage and instructions,
- Ample seating for those awaiting transportation.



Lanai – open air circulation in Honolulu’s ideal climate. Beach sand columns of the most minimal diameter. Natural wood finishes.



Interior views to the exterior. Stone paving and a rainwater channel relate to Hawaii’s natural environment. The stone is a low maintenance substitute for planting in a high traffic setting.



Puerto Rico rail station. Ferns and other lush planting on vertical purposely-designed walls create a natural tropical effect. A similar vertical planting can occur along Kona Street where the Ala Moana Station is set in a narrow space between mid-rise parking garages.

SUSTAINABLE DESIGN

The ancient Hawaiians lived in isolation from the outside world and were totally dependent on local resources. Honolulu requires that county-financed buildings attain a minimum LEED Silver rating.

LAYING LIGHTLY ON THE LAND

Hawaii’s attractively dramatic natural features mean that its architecture and man-made environment have an impossible task of exceeding that appeal.

“The true work of art is but a shadow of the divine perfection.”

Local residents and visitors want to believe that Hawaii is a kind of Garden of Eden where buildings and other built things are not needed for human survival. But buildings and other public works are required for contemporary living.

The local desire for buildings and other man made objects to be unnecessary can translate into a careless disregard of whatever is designed and built: thus resulting in the worst of both situations.

By laying as lightly on the land as possible, Honolulu’s station designs can set aside aggressive architectural design that frequently characterizes contemporary international transportation design.

Instead Honolulu station designs can be thoughtful recessive architectural design that maximizes natural experiences and relies upon natural materials and planting.



Singapore the garden city.

Examples of natural experiences include non-geometric designs, strong daylighting, open air circulation, interior views to near and distant exterior views, and intensive landscape planting.



Building mass disguised by planting, neutral wall color, wall trellis, and absence of visible roof form.



Honolulu Chinatown Gateway. Planted roofs compensate for lack of planting space at street level. Building form similar to transit station street level facilities.



Ficus pumila reduces the visual bulk of the Hilo Hattie Store in Honolulu. Building has been detailed to receive and contain the evergreen creeper. Building surfaces can be more resistant to graffiti. An annual trimming is typically required.

“They paved paradise and put up a parking lot.”

While it is physically impossible to make the Transit system invisible, it is possible to mitigate adverse visual effects upon Honolulu through good urban design, architecture and landscape architecture. The Transit system can reduce what might be an even broader “asphalt jungle” of freeways and parking lots if Honolulu’s transit system is not constructed.

Tree cover of appropriate scale and screening hedges are common landscape features that can reduce adverse visual effects. The location of most stations, elevated in the street median, often precludes this design strategy. In the case of some stations, large tree cover can be designed to shade the adjoining bus stop.

Honolulu’s subtropical setting affords two other landscaping opportunities not as feasible for systems in colder climates.

Planted roofs can be considered over street level portions of the stations. Prototype building sections show street level plans that do not exactly align with higher level plans: an opportunity for introducing roof planting.

To satisfy sustainable design requirements these roof planters can intercept rainwater from high platforms, delaying rainwater entry into the municipal storm water system. Roof planting can visually compensate for tight grade level areas available for the stations, where there is little or no space for street level planting.

Another landscape visual mitigation can be creeping tropical plant materials like *Ficus pumila* (Creeping fig) and *Scindapsus aureus* (Pothos vine) that cling to cementitious surfaces without any need for supporting wall trellises.

Vertical planting can be considered for blank station walls and Guideway columns in selected areas. A green planted column can be a design mitigation for existing trees that must be removed from street medians, such as for the Group H1 Extension along Kapiolani Boulevard.

Living here in a Garden of Eden, an inspired landscape planting design is more important here in Honolulu than in any other transit system in the world. It may be more important than the architecture of the system.

TALES OF THE CITY

Story telling through design of the transit system can add uniqueness to Honolulu. These cultural design guidelines already discuss distinctive landscaping, architecture, building materials, tile patterns, color, public art, and station names.

The story of Honolulu can also be told in appropriately designed ways including historic markers, plaques bearing first person impressions of the region, poetry and chant extolling the beauty of the spot.

Avoid ubiquitous cast metal rectangles that often appear in other institutional settings. Instead consider durable yet unique designs whose storytelling is direct to the source such as contemporary accounts of historic events from Honolulu newspapers or first person writings.

Ideally the information can be placed with a strong relationship to the station site ground plane, and with less relationship to the elevated system

CELEBRATION AND SUSTENANCE

Honolulu's multi-cultural society supports a wide variety of culturally oriented celebrations and food selection.

While the primary reason for all Transit is moving passengers, Honolulu's system can support Hawaiian and multi-cultural features that give added life experiences to residents and visitors to these islands.

It can be expected that selected stations will be the access to these cultural activities. Examples of this include the Waipahu Transit Center and the Chinatown Station.

During special events the Transit system will be most useful in reducing parking demand and may have ridership that may not be using the system on a regular basis. A prime example of this is the Aloha Stadium Station and other locations for athletic and community cultural events. Station design needs to acknowledge these activities even if these are periodic events.



Memorial inscription written in the first person from an 1883 last will and testament. Gold-leafed hand carved lettering on *koa* boards.



A small inconspicuous plaque with sentimental lyrics, only to be delightfully discovered after multiple visits to the large facility.

