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Updated Production-Ready Specification: Waypoint Categories Master Table (Version 1.2)

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This document details the structure, purpose, and considerations for the `waypoint\_categories\_master` table. This table is crucial for categorizing entries in the main `waypoints` table. Version 1.2 updates RLS policies to align with the platform-wide security architecture, utilizing standardized helper functions and roles. Version 1.1 incorporated the `is\_active` flag and standard V2 audit/indexing.

1\. Purpose & Primary Use-Cases

The `waypoint\_categories\_master` table defines the broad classifications for all waypoints within the pilgrimage platform (e.g., "Accommodation Location," "Attraction," "Food & Water Source"). Its primary purpose is to provide a standardized, translatable, and richer way to categorize waypoints than a simple ENUM. This categorization drives UI elements, helps users understand waypoint nature, and ensures data consistency. Key uses include pilgrim POI identification/filtering and admin content classification.

2\. Updated Schema (Markdown Table)

| column | data\_type | constraints | description |

| id | integer | Primary Key (Generated as identity always) | Unique identifier for the waypoint category. |

| code | text | Unique, Not Null, CHECK (length(code) > 0 AND length(code) &lt;= 50 AND code ~ '^[a-z0-9\_]+$') | Short, stable, machine-readable code (e.g., 'accommodation\_location'). Snake\_case, max 50 chars. |

| label | text | Not Null, CHECK (length(label) > 0 AND length(label) &lt;= 100) | Human-readable name for the category. (Translatable via `public.translations`). Primary reference language (English). Max 100 chars. |

| description | text | Nullable | Optional description of the category. (Translatable via `public.translations`). Primary reference language (English). |

| icon\_identifier | text | Nullable, CHECK (icon\_identifier IS NULL OR length(icon\_identifier) &lt;= 100) | Name, class, or path for a UI icon associated with this category. Max 100 chars. |

| requires\_detail\_table | text | Nullable, CHECK (requires\_detail\_table IS NULL OR length(requires\_detail\_table) &lt;= 100) | Optional: Name of the specific detail table this category typically links to (e.g., 'accommodations'). Max 100 chars. |

| sort\_order | integer | Not Null, Default 0 | Determines the display order in UI lists or filters. Lower numbers appear first. |

| is\_active | boolean | Not Null, Default true | True if the category is active and available for use; false if retired. |

| created\_at | timestamp with time zone | Not Null, Default now() | Timestamp of record creation. |

| updated\_at | timestamp with time zone | Not Null, Default now() | Timestamp of last update (auto-updated by trigger). |

| created\_by\_profile\_id | uuid | Nullable, Foreign Key to profiles(id) ON DELETE SET NULL | Profile ID of the user who created the record. |

| updated\_by\_profile\_id | uuid | Nullable, Foreign Key to profiles(id) ON DELETE SET NULL | Profile ID of the user who last updated the record. |

3\. PostgreSQL DDL

SQL

```

-- Assumes public.profiles table exists and has a `roles TEXT[]` column.

-- Assumes RLS helper function public.has\_role(TEXT) RETURNS BOOLEAN exists.

-- Assumes public.set\_current\_timestamp\_updated\_at() function exists.

-- Assumes public.cleanup\_related\_translations(TEXT) function exists (adapted to pass OLD.id::TEXT as second arg internally or takes one arg).

CREATE TABLE public.waypoint\_categories\_master (

id SERIAL PRIMARY KEY,

code TEXT UNIQUE NOT NULL CHECK (length(code) > 0 AND length(code) <= 50 AND code ~ '^[a-z0-9\_]+$'),

label TEXT NOT NULL CHECK (length(label) > 0 AND length(label) <= 100),

description TEXT NULL,

icon\_identifier TEXT NULL CHECK (icon\_identifier IS NULL OR length(icon\_identifier) <= 100),

requires\_detail\_table TEXT NULL CHECK (requires\_detail\_table IS NULL OR length(requires\_detail\_table) <= 100),

sort\_order INTEGER NOT NULL DEFAULT 0,

is\_active BOOLEAN NOT NULL DEFAULT true,

created\_at TIMESTAMPTZ NOT NULL DEFAULT now(),

updated\_at TIMESTAMPTZ NOT NULL DEFAULT now(),

created\_by\_profile\_id UUID NULL REFERENCES public.profiles(id) ON DELETE SET NULL,

updated\_by\_profile\_id UUID NULL REFERENCES public.profiles(id) ON DELETE SET NULL

);

COMMENT ON TABLE public.waypoint\_categories\_master IS 'Master list of broad waypoint categories (e.g., accommodation, attraction). `label` and `description` are translatable. Version 1.2';

COMMENT ON COLUMN public.waypoint\_categories\_master.id IS 'Unique identifier for the waypoint category.';

COMMENT ON COLUMN public.waypoint\_categories\_master.code IS 'Short, stable, machine-readable code (snake\_case). Max 50 chars. E.g., ''accommodation\_location'', ''attraction''.';

COMMENT ON COLUMN public.waypoint\_categories\_master.label IS 'Human-readable English label for UI and translation base. Max 100 chars. (Translatable via public.translations).';

COMMENT ON COLUMN public.waypoint\_categories\_master.description IS 'Optional English description of the category. (Translatable via public.translations).';

COMMENT ON COLUMN public.waypoint\_categories\_master.icon\_identifier IS 'Name, class, or path for a UI icon. Max 100 chars.';

COMMENT ON COLUMN public.waypoint\_categories\_master.requires\_detail\_table IS 'Optional: Name of the specific detail table this category implies (e.g., ''accommodations''). For system logic. Max 100 chars.';

COMMENT ON COLUMN public.waypoint\_categories\_master.sort\_order IS 'Determines the display order in UI lists or filters. Lower numbers appear first.';

COMMENT ON COLUMN public.waypoint\_categories\_master.is\_active IS 'True if the category is active and available for use; false if retired. Defaults to true.';

COMMENT ON COLUMN public.waypoint\_categories\_master.created\_at IS 'Timestamp of record creation.';

COMMENT ON COLUMN public.waypoint\_categories\_master.updated\_at IS 'Timestamp of last update (auto-updated by trigger).';

COMMENT ON COLUMN public.waypoint\_categories\_master.created\_by\_profile\_id IS 'Profile ID of the user who created the record.';

COMMENT ON COLUMN public.waypoint\_categories\_master.updated\_by\_profile\_id IS 'Profile ID of the user who last updated the record.';

-- Indexes

CREATE INDEX IF NOT EXISTS idx\_wc\_master\_created\_by ON public.waypoint\_categories\_master(created\_by\_profile\_id);

CREATE INDEX IF NOT EXISTS idx\_wc\_master\_updated\_by ON public.waypoint\_categories\_master(updated\_by\_profile\_id);

CREATE INDEX IF NOT EXISTS idx\_wc\_master\_sort\_order ON public.waypoint\_categories\_master(sort\_order);

CREATE INDEX IF NOT EXISTS idx\_wc\_master\_is\_active ON public.waypoint\_categories\_master(is\_active);

CREATE INDEX IF NOT EXISTS idx\_wc\_master\_label ON public.waypoint\_categories\_master(label); -- For sorting by label

-- Trigger for updated\_at

CREATE TRIGGER trigger\_waypoint\_categories\_master\_set\_updated\_at

BEFORE UPDATE ON public.waypoint\_categories\_master

FOR EACH ROW

EXECUTE FUNCTION public.set\_current\_timestamp\_updated\_at(); -- Or extensions.moddatetime if that's the standard

COMMENT ON TRIGGER trigger\_waypoint\_categories\_master\_set\_updated\_at ON public.waypoint\_categories\_master IS 'Trigger to automatically update updated\_at timestamp on row modification.';

-- Trigger for orphan translation cleanup

-- Ensure public.cleanup\_related\_translations is adapted or called correctly, e.g., it might take (TEXT, TEXT)

-- or the trigger function itself constructs the arguments for a generic cleanup function.

-- Assuming a generic function exists that can derive PK column name or it's passed.

-- For simplicity, if cleanup\_related\_translations expects table\_name and then casts OLD.id:

CREATE TRIGGER trigger\_cleanup\_waypoint\_category\_translations

AFTER DELETE ON public.waypoint\_categories\_master

FOR EACH ROW

EXECUTE FUNCTION public.cleanup\_related\_translations('waypoint\_categories\_master'); -- OLD.id will be implicitly available to the trigger function

COMMENT ON TRIGGER trigger\_cleanup\_waypoint\_category\_translations ON public.waypoint\_categories\_master IS 'Cleans up orphaned translations when a waypoint category is deleted. The trigger function should pass OLD.id::TEXT as the row foreign key.';

```

4\. JSON Schema Mirror

JSON

```

{

"title": "waypoint\_category\_master",

"description": "Master list of broad waypoint categories (e.g., accommodation, attraction). `label` and `description` are translatable. Version 1.2",

"type": "object",

"properties": {

"id": {

"type": "integer",

"description": "Unique identifier for the waypoint category. Primary Key.",

"readOnly": true

},

"code": {

"type": "string",

"description": "Short, stable, machine-readable code (snake\_case). Max 50 chars. E.g., 'accommodation\_location', 'attraction'.",

"pattern": "^[a-z0-9\_]+$",

"maxLength": 50

},

"label": {

"type": "string",

"description": "Human-readable English label for UI and translation base. Max 100 chars. (Translatable via public.translations).",

"maxLength": 100

},

"description": {

"type": ["string", "null"],

"description": "Optional English description of the category. (Translatable via public.translations)."

},

"icon\_identifier": {

"type": ["string", "null"],

"maxLength": 100,

"description": "Name, class, or path for a UI icon."

},

"requires\_detail\_table": {

"type": ["string", "null"],

"maxLength": 100,

"description": "Optional: Name of the specific detail table this category implies (e.g., 'accommodations'). For system logic."

},

"sort\_order": {

"type": "integer",

"default": 0,

"description": "Determines the display order in UI lists or filters. Lower numbers appear first."

},

"is\_active": {

"type": "boolean",

"default": true,

"description": "True if the category is active and available for use; false if retired."

},

"created\_at": {

"type": "string",

"format": "date-time",

"description": "Timestamp of record creation.",

"readOnly": true

},

"updated\_at": {

"type": "string",

"format": "date-time",

"description": "Timestamp of last update.",

"readOnly": true

},

"created\_by\_profile\_id": {

"type": ["string", "null"],

"format": "uuid",

"description": "Profile ID of the user who created the record."

},

"updated\_by\_profile\_id": {

"type": ["string", "null"],

"format": "uuid",

"description": "Profile ID of the user who last updated the record."

}

},

"required": [

"code",

"label",

"sort\_order",

"is\_active"

]

}

```

5\. Relationships & Integrity

- Primary Key: `id` (SERIAL -> INTEGER)

- Unique Constraint: `code` must be unique.

- Foreign Key References FROM other tables:

- `waypoints.waypoint\_primary\_category\_id` REFERENCES `public.waypoint\_categories\_master(id)` (ON DELETE RESTRICT).

- Foreign Key References TO other tables:

- `created\_by\_profile\_id` REFERENCES `public.profiles(id)` ON DELETE SET NULL.

- `updated\_by\_profile\_id` REFERENCES `public.profiles(id)` ON DELETE SET NULL.

- Data Integrity Notes:

- Deletion of a category will be restricted by the Foreign Key constraint from the `waypoints` table if any waypoint is actively using that category.

- Retiring a category should be done by setting `is\_active = false`.

6\. Multilingual Strategy

- Translatable Fields:

- `label`: The English name for the category. (Translatable via `public.translations`)

- `description`: The English description for the category. (Translatable via `public.translations`)

- Non-Translatable Fields:

- `code` is a stable identifier and is not translated.

- Translation Management:

- An `AFTER DELETE` trigger (`trigger\_cleanup\_waypoint\_category\_translations`) is implemented to call `public.cleanup\_related\_translations` to remove orphaned translations when a category record is deleted.

7\. Role-Based Workflow & RLS Notes

- Content Management: This table defines core system categories. It is typically managed by users with the `platform\_admin` role. Other roles like `content\_manager` or `admin` might have read access.

- Lifecycle: Categories are made inactive for new assignments by setting `is\_active = false`. This is preferable to deletion if the category has been used historically.

- RLS Policies:

- Enable RLS:

SQL

```

ALTER TABLE public.waypoint\_categories\_master ENABLE ROW LEVEL SECURITY;

```

- Anonymous & Authenticated Users (Read-Only for Active Categories):

SQL

```

CREATE POLICY "Allow public read access to active waypoint categories"

ON public.waypoint\_categories\_master FOR SELECT

USING (is\_active = true);

```

- Platform Administrators (Full Control):

SQL

```

CREATE POLICY "Allow platform\_admins full access to waypoint categories"

ON public.waypoint\_categories\_master FOR ALL

USING (public.has\_role('platform\_admin'))

WITH CHECK (public.has\_role('platform\_admin'));

```

- Other Admin/Manager Roles (Read-Only for All Categories - Example):

SQL

```

CREATE POLICY "Allow admins read access to all waypoint categories"

ON public.waypoint\_categories\_master FOR SELECT

USING (public.has\_role('admin')); -- Or a broader role if needed

```

- Note: Ensure the `public.has\_role(TEXT)` function is defined and correctly checks the `roles` array in the `public.profiles` table for the current `auth.uid()`. The RLS strategy implies that only `platform\_admin` can create/update/delete these master categories. Other roles like `admin` or `regional\_content\_manager` would use these categories but not manage their definitions.

8\. ENUM vs Lookup Discussion

- 🟢 Decision: This `waypoint\_categories\_master` table correctly promotes an original ENUM concept.

- Reasoning: Using a master lookup table provides significant advantages:

- Richness: Allows additional attributes (description, icon, sort order, detail table linkage, active status).

- Internationalization (i18n): `label` and `description` are translatable.

- Maintainability: Easier to manage categories without complex enum migrations.

- Data Integrity: Standardized `code` field with constraints.

- Auditability: Standard audit columns track changes.

9\. UI/UX Enablement

- `label` (translated): Used for display names in filters, legends, and waypoint detail views.

- `icon\_identifier`: Drives the display of map icons and list icons.

- `sort\_order`: Ensures consistent presentation of categories in UI lists.

- `requires\_detail\_table`: Can inform UI/application logic about fetching further details.

- `is\_active`: UI should only display/allow selection of active categories for new waypoints.

10\. Key Considerations & Definitions

- Comprehensiveness: The initial list of categories should cover all V1 POI types.

- `code` vs. `label`: `code` is a stable system identifier; `label` is for human-readable, translatable display.

- Icon Strategy: Ensure UI assets or classes match `icon\_identifier` values.

- `requires\_detail\_table` Logic: Application must correctly interpret this for linking to detail tables.

- Role for Management: Clearly define that only `platform\_admin`s manage these records.

11\. Scalability & Future-Proofing

- Lookup Table Structure: Supports adding new categories or modifying attributes without schema changes to `waypoints`.

- Manageable List: The number of primary categories is expected to be relatively small.

- Audit Fields & Soft Lifecycle: Provide change history and allow retiring categories.

12\. Next-Action Checklist

- 🔴 Define Global RLS Helper Functions: Ensure `public.has\_role(TEXT)` is implemented securely and available. This is a prerequisite for the RLS policies defined here.

- 🔴 Create Table: Execute the DDL for `public.waypoint\_categories\_master` (Version 1.2).

- 🔴 Apply Triggers: Ensure `set\_current\_timestamp\_updated\_at` and `cleanup\_related\_translations` triggers are created and applied. Confirm `cleanup\_related\_translations` function is correctly set up to handle the primary key from this table.

- 🔴 Initial Population: Insert defined waypoint categories, including `is\_active = true` and setting `created\_by\_profile\_id` to a designated system administrator's `profile\_id`.

- 🟠 RLS Policies: Implement and thoroughly test the RLS policies defined in section 7.

- 🟢 Iconography: Coordinate `icon\_identifier` list with UI team for asset preparation.

- 🟢 Translation Entries: Prepare initial English entries for `label` and `description` in the `public.translations` table, correctly linked.

\* \* \* \* \*