<https://gemini.google.com/u/1/app/bf28f389cd093e55?is_sa=1&android-min-version=301356232&ios-min-version=322.0&campaign_id=bkws&utm_source=google&utm_medium=cpc&utm_campaign=2024enUS_gemfeb&pt=9008&mt=8&ct=p-growth-sem-bkws>

<https://gemini.google.com/u/1/app/980a7af1dc7f079a>

<https://gemini.google.com/u/1/app/b90970622259e225>

\* \* \* \* \*

### 3\. Updated Production-Ready Specification - `public.transport\_stop\_types\_master` (V2.1)

Version: 2.1 (Based on original V1.2, V2.1 Checklist REV 05-18-25-A applied)

Date: May 18, 2025

1. Purpose & Primary Use-Cases

The transport\_stop\_types\_master table defines the various types of public transportation stops (e.g., "Main Train Station," "Regional Bus Stop," "Ferry Terminal"). Its purpose is to provide a standardized, translatable classification that drives UI elements (map icons, filter options), helps users understand the nature of a transport stop, and ensures data consistency. Key user-story touchpoints include pilgrims identifying transport types when planning, filtering map views, and administrators categorizing waypoints. The system uses it for displaying icons and populating filters.

2. Schema

| column | data\_type | constraints | description |

| :---------------------- | :------------------------ | :------------------------------------------------------------------------------------------------------------------ | :--------------------------------------------------------------------------------------------------------------------------------------- |

| id | integer | Primary Key (Generated always as identity) | Unique identifier for the transport stop type. |

| 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., 'train\_station\_main', 'bus\_stop\_regional'). Snake\_case. |

| label | text | Not Null, CHECK (length(label) > 0 AND length(label) &lt;= 100) | Human-readable name in the primary reference language (English) for UI display and as a base for translation. (Translatable) |

| description | text | Nullable | Optional description in the primary reference language (English) of the transport stop type, providing more context. (Translatable) |

| 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 stop type. |

| 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 | If true, this transport stop type is active and can be used/displayed. |

| 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

-- Assumes a suitable updated\_at trigger function exists (e.g., public.set\_current\_timestamp\_updated\_at() or extensions.moddatetime())

-- Assumes public.cleanup\_related\_translations(TEXT, TEXT) function exists

-- Assumes public.has\_role(TEXT) function exists

CREATE TABLE public.transport\_stop\_types\_master (

id INTEGER GENERATED ALWAYS AS IDENTITY 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),

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.transport\_stop\_types\_master IS 'Master list of public transport stop types (e.g., train station, bus stop). `label` and `description` are primary language (English) and translatable. Version 2.1';

COMMENT ON COLUMN public.transport\_stop\_types\_master.id IS 'PK. Unique identifier for the transport stop type. V2.1';

COMMENT ON COLUMN public.transport\_stop\_types\_master.code IS 'Short, stable, machine-readable code (snake\_case). Max 50 chars. UNIQUE. V2.1';

COMMENT ON COLUMN public.transport\_stop\_types\_master.label IS 'Human-readable name in primary language (English) for UI and translation base. Max 100 chars. (Translatable via public.translations). V2.1';

COMMENT ON COLUMN public.transport\_stop\_types\_master.description IS 'Optional description in primary language (English) of the stop type. (Translatable via public.translations). V2.1';

COMMENT ON COLUMN public.transport\_stop\_types\_master.icon\_identifier IS 'Name, class, or path for a UI icon. Max 100 chars. V2.1';

COMMENT ON COLUMN public.transport\_stop\_types\_master.sort\_order IS 'Determines the display order in UI lists or filters. NOT NULL DEFAULT 0. V2.1';

COMMENT ON COLUMN public.transport\_stop\_types\_master.is\_active IS 'If true, this transport stop type is active and can be used/displayed. NOT NULL DEFAULT TRUE. V2.1';

COMMENT ON COLUMN public.transport\_stop\_types\_master.created\_at IS 'Timestamp of record creation. NOT NULL DEFAULT now(). V2.1';

COMMENT ON COLUMN public.transport\_stop\_types\_master.updated\_at IS 'Timestamp of last update. Auto-updated by trigger. NOT NULL DEFAULT now(). V2.1';

COMMENT ON COLUMN public.transport\_stop\_types\_master.created\_by\_profile\_id IS 'Profile ID of the user who created the record. FK to public.profiles(id) ON DELETE SET NULL. V2.1';

COMMENT ON COLUMN public.transport\_stop\_types\_master.updated\_by\_profile\_id IS 'Profile ID of the user who last updated the record. FK to public.profiles(id) ON DELETE SET NULL. V2.1';

-- Indexes

CREATE INDEX ix\_transport\_stop\_types\_master\_created\_by\_profile\_id ON public.transport\_stop\_types\_master (created\_by\_profile\_id) WHERE created\_by\_profile\_id IS NOT NULL;

CREATE INDEX ix\_transport\_stop\_types\_master\_updated\_by\_profile\_id ON public.transport\_stop\_types\_master (updated\_by\_profile\_id) WHERE updated\_by\_profile\_id IS NOT NULL;

CREATE INDEX ix\_transport\_stop\_types\_master\_active\_sort ON public.transport\_stop\_types\_master (is\_active, sort\_order);

-- Trigger for updated\_at

CREATE TRIGGER trigger\_transport\_stop\_types\_master\_set\_updated\_at

BEFORE UPDATE ON public.transport\_stop\_types\_master

FOR EACH ROW

EXECUTE FUNCTION public.set\_current\_timestamp\_updated\_at(); -- Or extensions.moddatetime()

COMMENT ON TRIGGER trigger\_transport\_stop\_types\_master\_set\_updated\_at ON public.transport\_stop\_types\_master IS 'Trigger to automatically update updated\_at timestamp on row modification. V2.1';

-- Trigger for orphan translation cleanup

CREATE TRIGGER trigger\_cleanup\_transport\_stop\_types\_master\_translations

AFTER DELETE ON public.transport\_stop\_types\_master

FOR EACH ROW

EXECUTE FUNCTION public.cleanup\_related\_translations('transport\_stop\_types\_master', 'id');

COMMENT ON TRIGGER trigger\_cleanup\_transport\_stop\_types\_master\_translations ON public.transport\_stop\_types\_master IS 'After deleting a transport stop type, remove its associated entries from the translations table using its ID. V2.1.';

```

4. JSON Schema Mirror

JSON

```

{

"title": "transport\_stop\_type\_master",

"description": "Master list of public transport stop types. `label` and `description` are primary language (English) and translatable. Version 2.1",

"type": "object",

"properties": {

"id": {

"type": "integer",

"description": "PK. Unique identifier for the transport stop type.",

"readOnly": true

},

"code": {

"type": "string",

"description": "Short, stable, machine-readable code (snake\_case). Max 50 chars. UNIQUE.",

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

"maxLength": 50

},

"label": {

"type": "string",

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

"maxLength": 100

},

"description": {

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

"description": "Optional description in primary language (English) of the stop type. (Translatable via public.translations)."

},

"icon\_identifier": {

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

"maxLength": 100,

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

},

"sort\_order": {

"type": "integer",

"default": 0,

"description": "Determines display order in UI lists or filters. NOT NULL."

},

"is\_active": {

"type": "boolean",

"default": true,

"description": "If true, this transport stop type is active and can be used/displayed. NOT NULL."

},

"created\_at": {

"type": "string",

"format": "date-time",

"description": "Timestamp of record creation. NOT NULL DEFAULT now().",

"readOnly": true

},

"updated\_at": {

"type": "string",

"format": "date-time",

"description": "Timestamp of last update. Auto-updated by trigger. NOT NULL DEFAULT now().",

"readOnly": true

},

"created\_by\_profile\_id": {

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

"format": "uuid",

"description": "Profile ID of the user who created the record. FK to public.profiles(id) ON DELETE SET NULL."

},

"updated\_by\_profile\_id": {

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

"format": "uuid",

"description": "Profile ID of the user who last updated the record. FK to public.profiles(id) ON DELETE SET NULL."

}

},

"required": [

"code",

"label",

"sort\_order",

"is\_active",

"created\_at",

"updated\_at"

],

"primary\_key": ["id"],

"unique\_constraints": [

{"columns": ["code"], "name": "transport\_stop\_types\_master\_code\_key"}

],

"foreign\_keys": [

{"columns": ["created\_by\_profile\_id"], "references\_table": "public.profiles", "references\_columns": ["id"], "on\_delete": "SET NULL"},

{"columns": ["updated\_by\_profile\_id"], "references\_table": "public.profiles", "references\_columns": ["id"], "on\_delete": "SET NULL"}

]

}

```

5. Relationships & Integrity

- Primary Key: `id` (INTEGER, Generated always as identity).

- Unique Constraint: `code` must be unique.

- Foreign Key References FROM other tables: `transport\_stops\_details.stop\_type\_id` will reference `transport\_stop\_types\_master.id` (ON DELETE RESTRICT).

- Foreign Key References TO other tables: `created\_by\_profile\_id` and `updated\_by\_profile\_id` reference `public.profiles(id)` ON DELETE SET NULL.

6. Multilingual Strategy

- Translatable Fields: `label` and `description` store their primary reference language (English) text directly. These fields are designated for translation via the `public.translations` table.

- Stable Identifier: The `code` field is a stable, machine-readable identifier and is not translated.

- Orphan Cleanup: An `AFTER DELETE` trigger (`trigger\_cleanup\_transport\_stop\_types\_master\_translations`) ensures associated translations are removed from `public.translations` when a record is deleted.

7. Role-Based Workflow & RLS Notes

- Content Management: This table is typically managed by Platform Administrators.

- Lifecycle: The `is\_active` flag controls whether a type is available for use.

- RLS Policies:

- 🟢 Public users can read active transport stop types.

SQL

```

CREATE POLICY "select\_active\_transport\_stop\_types" ON public.transport\_stop\_types\_master

FOR SELECT USING (is\_active = true);

```

- 🟢 Platform Administrators (identified by `public.has\_role('admin\_platform')`) can manage all transport stop types.

SQL

```

CREATE POLICY "manage\_transport\_stop\_types\_for\_admins" ON public.transport\_stop\_types\_master

FOR ALL

USING (public.has\_role('admin\_platform')) -- Ensure 'admin\_platform' is a defined role

WITH CHECK (public.has\_role('admin\_platform'));

```

- Deletion of types in use will be restricted by the `ON DELETE RESTRICT` constraint from `transport\_stops\_details.stop\_type\_id`. Deactivating (`is\_active = false`) is the preferred method for retiring types.

8. ENUM vs Lookup Discussion

🟢 Decision: This table (transport\_stop\_types\_master) correctly serves as a lookup table, replacing a previous ENUM approach.

Reason: Provides richer data (translatable names/descriptions, icons, sort order), flexibility, maintainability, and auditability, superior to a hardcoded ENUM.

9. UI/UX Enablement

- Display: `label` (translated) for names, `icon\_identifier` for icons.

- Ordering: `sort\_order` ensures consistent presentation in UI elements.

- Filtering: `is\_active` and `code` can be used for filtering in admin interfaces or by the system.

10. Auditing & Lifecycle Management

- Standard Audit Columns: `created\_at`, `updated\_at` (auto-updated), `created\_by\_profile\_id`, `updated\_by\_profile\_id`.

- Lifecycle: Managed by the `is\_active` boolean flag. Records are not typically hard-deleted if referenced.

11. Scalability & Future-Proofing

- Lookup Table: Structure is inherently scalable for a manageable list of types.

- Audit Fields: Provide history of changes.

- The number of distinct stop types is expected to be relatively small.

12. Seed Data (V1)

- Seed data should be inserted with `is\_active = true` and `created\_by\_profile\_id` and `updated\_by\_profile\_id` set to a valid admin/system user's UUID.

<!-- end list -->

SQL

```

-- Example structure for seed data INSERT statements:

INSERT INTO public.transport\_stop\_types\_master (code, label, icon\_identifier, sort\_order, is\_active, created\_by\_profile\_id, updated\_by\_profile\_id) VALUES

('train\_station\_main', 'Main Train Station', 'icon-train-main', 10, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('train\_station\_local', 'Local Train Station', 'icon-train-local', 20, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('train\_halt\_unmanned\_platform', 'Train Halt/Platform (Unmanned)', 'icon-train-halt', 30, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('bus\_station\_terminal', 'Bus Station/Terminal', 'icon-bus-station', 40, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('bus\_stop\_urban\_line', 'Urban Bus Stop', 'icon-bus-stop-urban', 50, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('bus\_stop\_regional\_intercity\_line', 'Regional/Intercity Bus Stop', 'icon-bus-stop-regional', 60, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('tram\_stop', 'Tram Stop', 'icon-tram', 70, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('metro\_subway\_station', 'Metro/Subway Station', 'icon-metro', 80, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('funicular\_station\_bottom', 'Funicular Station (Bottom)', 'icon-funicular', 90, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('funicular\_station\_top', 'Funicular Station (Top)', 'icon-funicular', 91, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('cable\_car\_station\_bottom', 'Cable Car Station (Bottom)', 'icon-cable-car', 100, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('cable\_car\_station\_top', 'Cable Car Station (Top)', 'icon-cable-car', 101, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('ferry\_terminal\_port', 'Ferry Terminal/Port', 'icon-ferry', 110, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('airport\_shuttle\_stop\_designated', 'Airport Shuttle Stop (Designated)', 'icon-airport-shuttle', 120, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('shared\_taxi\_rank\_official', 'Shared Taxi Rank (Official)', 'icon-shared-taxi', 130, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('park\_and\_ride\_facility\_stop', 'Park and Ride Facility Stop', 'icon-park-ride', 140, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('other\_public\_transport\_hub', 'Other Public Transport Hub', 'icon-transport-other', 900, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]');

```

\*(Note: `[ADMIN\_UUID\_PLACEHOLDER]` must be replaced with an actual admin user's UUID during seeding).\*

13. Next-Action Checklist

- 🔴 Helper Functions: Ensure `public.set\_current\_timestamp\_updated\_at()` (or `extensions.moddatetime`), `public.cleanup\_related\_translations(TEXT, TEXT)`, and `public.has\_role(TEXT)` functions are defined and operational.

- 🔴 Create Table: Execute the DDL for `public.transport\_stop\_types\_master` (Version 2.1), including the `is\_active` column.

- 🔴 Create Indexes: Apply all defined indexes (`ix\_transport\_stop\_types\_master\_created\_by\_profile\_id`, `ix\_transport\_stop\_types\_master\_updated\_by\_profile\_id`, `ix\_transport\_stop\_types\_master\_active\_sort`).

- 🔴 Apply Triggers:

- `trigger\_transport\_stop\_types\_master\_set\_updated\_at`.

- `trigger\_cleanup\_transport\_stop\_types\_master\_translations`.

- 🔴 RLS Policies: Review, adapt (especially role names like `admin\_platform`), and apply the RLS policies.

- 🔴 Initial Population: Insert seed data as defined, populating `is\_active` and `created\_by\_profile\_id`/`updated\_by\_profile\_id` correctly.

- 🟢 Iconography: Document `icon\_identifier` conventions and ensure assets are available.

- 🟢 Translation Entries: Plan for populating `public.translations` for the `label` and `description` fields.

\* \* \* \* \*