<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\_facilities\_master` (V2.1)

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

Date: May 18, 2025

1. Purpose & Primary Use-Cases

The transport\_stop\_facilities\_master table lists various facilities and amenities that might be available at or immediately near a public transportation stop (e.g., "Toilets Available," "Ticket Office," "Waiting Room," "Wi-Fi"). Its purpose is to allow standardized tagging of stop facilities, enabling pilgrims to identify stops with useful amenities, and to support multilingual display and icon association for these facilities. Key user-story touchpoints include pilgrims checking for essential facilities, filtering for specific amenities, administrators tagging stops, and the system/UI displaying icons and facility lists.

2. Schema

| column | data\_type | constraints | description |

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

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

| 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., 'toilets\\_available', 'ticket\\_office\\_staffed'). Snake\\_case. |

| label | text | Not Null, CHECK (length(label) \> 0 AND length(label) \<= 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 facility, providing more context. (Translatable). |

| icon\\_identifier | text | Nullable, CHECK (icon\\_identifier IS NULL OR length(icon\\_identifier) \<= 100) | Name, class, or path for a UI icon associated with this facility. |

| category | text | Nullable, CHECK (category IS NULL OR (length(category) \> 0 AND length(category) \<= 50 AND category \~ '^[a-z0-9\\_]+$')) | Optional broad category code for grouping facilities (e.g., "basic\_needs", "ticketing"). Snake\_case. |

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

| is\_active | boolean | Not Null, Default true | If true, this facility is active and can be used/displayed. Essential for Array FK integrity checks on referencing tables. |

| 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\_facilities\_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),

category TEXT NULL CHECK (category IS NULL OR (length(category) > 0 AND length(category) <= 50 AND category ~ '^[a-z0-9\_]+$')),

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\_facilities\_master IS 'Master list of facilities available at transport stops. `label` and `description` are primary language (English) and translatable. Version 2.1';

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

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

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

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

COMMENT ON COLUMN public.transport\_stop\_facilities\_master.category IS 'Optional broad category code for grouping facilities (snake\_case). Max 50 chars. If category labels are needed, they are translatable via public.translations. V2.1';

COMMENT ON COLUMN public.transport\_stop\_facilities\_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\_facilities\_master.is\_active IS 'If true, this facility is active and can be used/displayed. Essential for Array FK integrity checks. NOT NULL DEFAULT TRUE. V2.1';

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

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

COMMENT ON COLUMN public.transport\_stop\_facilities\_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\_facilities\_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\_facilities\_master\_created\_by\_profile\_id ON public.transport\_stop\_facilities\_master (created\_by\_profile\_id) WHERE created\_by\_profile\_id IS NOT NULL;

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

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

-- Trigger for updated\_at

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

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

FOR EACH ROW

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

COMMENT ON TRIGGER trigger\_transport\_stop\_facilities\_master\_set\_updated\_at ON public.transport\_stop\_facilities\_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\_facilities\_master\_translations

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

FOR EACH ROW

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

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

```

4. JSON Schema Mirror

JSON

```

{

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

"description": "Master list of facilities available at transport stops. `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 facility.",

"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 facility. (Translatable via public.translations)."

},

"icon\_identifier": {

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

"maxLength": 100,

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

},

"category": {

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

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

"maxLength": 50,

"description": "Optional broad category code for grouping facilities (snake\_case). If category labels are needed, they are translatable."

},

"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 facility is active and can be used/displayed. Essential for Array FK integrity checks. 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\_facilities\_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\_facility\_ids` (an INTEGER[] column) contains IDs that reference `transport\_stop\_facilities\_master.id`. The integrity of these array elements (checking existence and `is\_active = true` status in this table) is handled by a database trigger on `transport\_stops\_details`.

- 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 Identifiers: The `code` and `category` fields are stable, machine-readable identifiers and are not directly translated. If `category` codes require user-facing translatable labels, these would be managed via `public.translations` (e.g., using `table\_identifier = 'facility\_categories'` and `row\_foreign\_key = [category\_code]`) or a separate master table for categories.

- Orphan Cleanup: An `AFTER DELETE` trigger (`trigger\_cleanup\_transport\_stop\_facilities\_master\_translations`) ensures associated translations are removed.

7. Role-Based Workflow & RLS Notes

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

- Lifecycle: The `is\_active` flag is critical for managing the availability of facilities and for the integrity of Array FKs referencing this table.

- RLS Policies:

- 🟢 Public users can read active facilities.

SQL

```

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

FOR SELECT USING (is\_active = true);

```

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

SQL

```

CREATE POLICY "manage\_transport\_stop\_facilities\_for\_admins" ON public.transport\_stop\_facilities\_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 facilities actively referenced in `transport\_stops\_details.stop\_facility\_ids` should be handled carefully. Deactivating (`is\_active = false`) is the preferred method for retiring facilities to maintain referential integrity for historical data if needed, and because the array FK check on `transport\_stops\_details` will check `is\_active`.

8. ENUM vs Lookup Discussion

🟢 Decision: This table (transport\_stop\_facilities\_master) correctly serves as a lookup table, having been promoted from an ENUM array concept.

Reason: Offers richer data (translatable names/descriptions, icons, categories, sort order), improved flexibility, maintainability, and auditability compared to a hardcoded ENUM array.

9. UI/UX Enablement

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

- Grouping: `category` can be used to group related facilities in the UI.

- Ordering: `sort\_order` ensures consistent and logical presentation.

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. This flag is essential for the trigger on `transport\_stops\_details` validating `stop\_facility\_ids`.

11. Scalability & Future-Proofing

- Lookup Table: The structure is inherently scalable for a list of facilities that is expected to remain manageable.

- Flexibility: Easy to add new facility types or attributes.

- Audit Fields: Provide a history of changes.

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\_facilities\_master (code, label, icon\_identifier, category, sort\_order, is\_active, created\_by\_profile\_id, updated\_by\_profile\_id) VALUES

('toilets\_available', 'Toilets Available', 'icon-toilets', 'basic\_needs', 10, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('accessible\_toilets\_available', 'Accessible Toilets Available', 'icon-toilets-accessible', 'basic\_needs', 20, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('waiting\_room\_shelter\_available', 'Waiting Room/Shelter', 'icon-waiting-room', 'comfort', 30, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('cafe\_bar\_kiosk\_on\_site', 'Cafe/Bar/Kiosk On-site', 'icon-cafe-stop', 'food\_drink', 40, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('shops\_on\_site\_nearby', 'Shops On-site/Nearby', 'icon-shops-nearby', 'retail', 50, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('luggage\_lockers\_available', 'Luggage Lockers Available', 'icon-luggage-lockers', 'services', 60, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('left\_luggage\_office', 'Left Luggage Office', 'icon-left-luggage', 'services', 70, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('ticket\_office\_staffed', 'Ticket Office (Staffed)', 'icon-ticket-office', 'ticketing', 80, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('ticket\_machine\_automated', 'Ticket Machine (Automated)', 'icon-ticket-machine', 'ticketing', 90, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('wifi\_at\_stop', 'Wi-Fi at Stop', 'icon-wifi-stop', 'connectivity', 100, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('atm\_at\_station\_nearby', 'ATM at Station/Nearby', 'icon-atm-nearby', 'financial', 110, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('taxi\_rank\_at\_station\_nearby', 'Taxi Rank at Station/Nearby', 'icon-taxi-rank', 'transport\_links', 120, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('bicycle\_parking\_secure', 'Bicycle Parking (Secure)', 'icon-bicycle-parking-secure', 'transport\_links', 130, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('bicycle\_rental\_nearby', 'Bicycle Rental Nearby', 'icon-bicycle-rental', 'transport\_links', 140, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('realtime\_departure\_boards', 'Real-time Departure Boards', 'icon-departure-board', 'information', 150, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('information\_desk\_staffed', 'Information Desk (Staffed)', 'icon-info-desk', 'information', 160, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('car\_parking\_at\_station\_nearby', 'Car Parking at Station/Nearby', 'icon-car-parking', 'transport\_links', 170, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('water\_fountain\_potable', 'Potable Water Fountain', 'icon-fountain-potable-stop', 'basic\_needs', 180, true, '[ADMIN\_UUID\_PLACEHOLDER]', '[ADMIN\_UUID\_PLACEHOLDER]'),

('mobile\_charging\_station', 'Mobile Charging Station', 'icon-mobile-charge', 'connectivity', 190, 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\_facilities\_master` (Version 2.1), including the `is\_active` column.

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

- 🔴 Apply Triggers:

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

- `trigger\_cleanup\_transport\_stop\_facilities\_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.

- 🟠 Array FK Integrity: Confirm that the trigger on `transport\_stops\_details` correctly validates against the `is\_active` status of facilities in this table. This table now has the necessary `is\_active` flag.

- 🟢 Iconography & UI Grouping: Coordinate `icon\_identifier` and `category` usage with the UI team.

- 🟢 Translation Entries: Plan for populating `public.translations` for the `label`, `description`, and potentially for `category` codes if their labels need translation.

\* \* \* \* \*