<https://gemini.google.com/u/1/app/9ed6b32c76b55d3a?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/8d62cfd96b565ac8>

<https://gemini.google.com/u/1/app/2d30425fc8a5984a>

\* \* \* \* \*

Updated Production-Ready Specification

--------------------------------------

Table Name: `public.routes`

1\. Purpose & Primary Use-Cases

This table defines specific, named paths or major variations within an overarching trail (e.g., "Northern Route: La Verna to Assisi"). Routes are the primary navigational choices for pilgrims, composed of an ordered sequence of segments. Key statistics like total distance and elevation gain are automatically aggregated from these segments.

Key User-Story Touchpoints:

- Pilgrim (Anna) - Story A1 (Route Exploration & Selection): Allows viewing different routes within a trail, understanding their characteristics (name, description, distance, duration, difficulty), and selection.

- Pilgrim (Anna) - Story A2 (Daily Stage Understanding): Routes form the basis for constructing and displaying suggested daily "stages".

- Pilgrim (Anna) - Story A5 (Checking Trail Conditions): `operational\_status` provides route-specific operational status.

- Pilgrim (Anna) - Story A7 (Using Pre-defined Itineraries): Routes can be components of curated itineraries.

- Platform Administrator (Admin Team) - Story D1 & D2: Admins manage route definitions and can feature specific routes.

\* \* \* \* \*

2\. Schema

| Column Name | Data Type | Constraints | Description (Translatable fields marked) |

| `id` | `bigint` | PRIMARY KEY, GENERATED ALWAYS AS IDENTITY | Unique identifier for each route. |

| `trail\_id` | `bigint` | NOT NULL, REFERENCES `public.trails(id)` ON DELETE CASCADE | The ID of the parent trail this route belongs to. |

| `name` | `text` | NOT NULL, UNIQUE (`trail\_id`, `name`), CHECK (char\_length(`name`) &lt;= 255) | Specific name of this route in English (e.g., "Northern Route: La Verna to Assisi"). (Translatable via `public.translations`) |

| `slug` | `text` | NOT NULL, UNIQUE, CHECK (`slug` ~ '^[a-z0-9]+(?:-[a-z0-9]+)\*$' AND char\_length(`slug`) &lt;= 255) | URL-friendly identifier for the route. |

| `route\_code` | `text` | UNIQUE, CHECK (`route\_code` IS NULL OR (`route\_code` ~ '^[A-Z0-9\_-]+$' AND char\_length(`route\_code`) &lt;= 50)) | Optional short code for this route (e.g., "VDF-N-LVA"). |

| `route\_alternate\_name` | `text` | | Common alternate name or subtitle for this route in English. (Translatable via `public.translations`) |

| `short\_description` | `text` | CHECK (`short\_description` IS NULL OR char\_length(`short\_description`) &lt;= 250) | Brief summary of this route in English (approx. 160-250 chars). (Translatable via `public.translations`) |

| `full\_description` | `text` | | Detailed description of this route in English. (Translatable via `public.translations`) |

| `route\_theme\_or\_focus` | `text` | | Specific theme or focus of this route in English. (Translatable via `public.translations`) |

| `route\_curation\_source` | `text` | | Origin or curator of this route definition. (V1: Translatable via `public.translations`; V2+ consider lookup) |

| `start\_point\_description` | `text` | | Textual description of the route's conceptual starting point in English. (Translatable via `public.translations`) |

| `end\_point\_description` | `text` | | Textual description of the route's conceptual ending point in English. (Translatable via `public.translations`) |

| `start\_town\_id` | `bigint` | REFERENCES `public.towns(id)` ON DELETE SET NULL | Optional FK to `towns` table for the primary starting town. |

| `end\_town\_id` | `bigint` | REFERENCES `public.towns(id)` ON DELETE SET NULL | Optional FK to `towns` table for the primary ending town. |

| `total\_distance\_km` | `real` | | 🔴 Auto-calculated total distance (km). Derived from constituent `segments` via `route\_segments` trigger. |

| `estimated\_duration\_days` | `text` | | Estimated range for typical completion duration (e.g., "7-9 days"). |

| `estimated\_total\_elevation\_gain\_meters` | `integer` | | 🔴 Auto-calculated total elevation gain (m). Derived from constituent `segments` via `route\_segments` trigger. |

| `route\_difficulty` | `public.trail\_difficulty\_enum` | | Subjective difficulty level specific to this route. |

| `terrain\_summary\_for\_route` | `text` | | Narrative summary of typical terrain in English. (Translatable via `public.translations`) |

| `waymarking\_and\_navigation\_details` | `text` | | Specific waymarking/navigation details in English. (Translatable via `public.translations`) |

| `operational\_status` | `public.trail\_operational\_status\_enum` | NOT NULL DEFAULT 'information\_unavailable' | Operational status specific to this route. |

| `content\_visibility\_status` | `public.content\_visibility\_status\_enum` | NOT NULL DEFAULT 'draft' | Editorial status for public view. |

| `best\_seasons\_for\_route` | `text[]` | | Recommended seasons/months. (Each element Translatable via `public.translations`) |

| `is\_primary\_route\_for\_trail` | `boolean` | NOT NULL DEFAULT `false` | Flags if this is a main/default route for the parent trail. |

| `route\_category` | `public.route\_category\_enum` | | Categorizes the route's role or type (e.g., 'main\_section', 'official\_variant'). |

| `alternative\_to\_route\_id` | `bigint` | REFERENCES `public.routes(id)` ON DELETE SET NULL | If an official alternative, links to the ID of the other route. |

| `overall\_gpx\_media\_id` | `bigint` | REFERENCES `public.media(id)` ON DELETE SET NULL | Optional FK to `public.media` for a downloadable GPX file (media\_asset\_type='gpx\_file'). Replaces `overall\_gpx\_track\_url`. |

| `map\_overview\_media\_id` | `bigint` | REFERENCES `public.media(id)` ON DELETE SET NULL | FK to `media` for an overview map image. |

| `banner\_media\_id` | `bigint` | REFERENCES `public.media(id)` ON DELETE SET NULL | FK to `media` for a route-specific banner image. |

| `public\_transit\_at\_start\_end` | `text` | | Public transport access info in English. (Translatable via `public.translations`) |

| `accessibility\_notes` | `text` | | Accessibility notes in English. (Translatable via `public.translations`) |

| `general\_notes\_for\_route` | `text` | | Specific notes/advice for this route in English. (Translatable via `public.translations`) |

| `meta\_description\_seo` | `text` | CHECK (`meta\_description\_seo` IS NULL OR char\_length(`meta\_description\_seo`) &lt;= 160) | Optimized SEO meta description in English. (Translatable via `public.translations`) |

| `wordpress\_excerpt` | `text` | | Short summary for WordPress excerpts in English. (Translatable via `public.translations`) |

| `is\_featured\_route` | `boolean` | NOT NULL DEFAULT `false` | Flag to indicate if this route should be prominently featured. |

| `created\_at` | `timestamptz` | NOT NULL DEFAULT `now()` | Timestamp of record creation. |

| `created\_by\_profile\_id` | `uuid` | REFERENCES `public.profiles(id)` ON DELETE SET NULL | Profile ID of the user who created this route. |

| `updated\_at` | `timestamptz` | NOT NULL DEFAULT `now()` | Timestamp of last update (auto-updated by trigger). |

| `updated\_by\_profile\_id` | `uuid` | REFERENCES `public.profiles(id)` ON DELETE SET NULL | Profile ID of the user who last updated this route. |

| `deleted\_at` | `timestamptz` | | Timestamp for soft deletion. |

\* \* \* \* \*

3\. PostgreSQL DDL

SQL

```

-- ENUM Types

-- Assuming 'public.trail\_difficulty\_enum', 'public.trail\_operational\_status\_enum',

-- and 'public.content\_visibility\_status\_enum' are already created.

DO $$

BEGIN

IF NOT EXISTS (SELECT 1 FROM pg\_type WHERE typname = 'route\_category\_enum') THEN

CREATE TYPE public.route\_category\_enum AS ENUM (

'main\_section',

'official\_variant',

'unofficial\_variant',

'connector\_spur',

'extension',

'loop\_option',

'access\_route'

); -- [cite: 1802, 1803]

END IF;

END$$;

-- Assuming 'public.trails', 'public.towns', 'public.media', 'public.profiles' tables exist.

CREATE TABLE public.routes (

id BIGINT GENERATED ALWAYS AS IDENTITY PRIMARY KEY,

trail\_id BIGINT NOT NULL REFERENCES public.trails(id) ON DELETE CASCADE,

name TEXT NOT NULL CHECK (char\_length(name) <= 255),

slug TEXT NOT NULL UNIQUE CHECK (slug ~ '^[a-z0-9]+(?:-[a-z0-9]+)\*$' AND char\_length(slug) <= 255),

route\_code TEXT UNIQUE CHECK (route\_code IS NULL OR (route\_code ~ '^[A-Z0-9\_-]+$' AND char\_length(route\_code) <= 50)),

route\_alternate\_name TEXT,

short\_description TEXT CHECK (short\_description IS NULL OR char\_length(short\_description) <= 250),

full\_description TEXT,

route\_theme\_or\_focus TEXT,

route\_curation\_source TEXT,

start\_point\_description TEXT,

end\_point\_description TEXT,

start\_town\_id BIGINT REFERENCES public.towns(id) ON DELETE SET NULL,

end\_town\_id BIGINT REFERENCES public.towns(id) ON DELETE SET NULL,

total\_distance\_km REAL, -- 🔴 Auto-calculated by trigger on route\_segments

estimated\_duration\_days TEXT,

estimated\_total\_elevation\_gain\_meters INTEGER, -- 🔴 Auto-calculated by trigger on route\_segments

route\_difficulty public.trail\_difficulty\_enum,

terrain\_summary\_for\_route TEXT,

waymarking\_and\_navigation\_details TEXT,

operational\_status public.trail\_operational\_status\_enum NOT NULL DEFAULT 'information\_unavailable',

content\_visibility\_status public.content\_visibility\_status\_enum NOT NULL DEFAULT 'draft',

best\_seasons\_for\_route TEXT[],

is\_primary\_route\_for\_trail BOOLEAN NOT NULL DEFAULT FALSE,

route\_category public.route\_category\_enum,

alternative\_to\_route\_id BIGINT REFERENCES public.routes(id) ON DELETE SET NULL,

overall\_gpx\_media\_id BIGINT REFERENCES public.media(id) ON DELETE SET NULL, -- V2 Update: Changed from URL to media\_id

map\_overview\_media\_id BIGINT REFERENCES public.media(id) ON DELETE SET NULL,

banner\_media\_id BIGINT REFERENCES public.media(id) ON DELETE SET NULL,

public\_transit\_at\_start\_end TEXT,

accessibility\_notes TEXT,

general\_notes\_for\_route TEXT,

meta\_description\_seo TEXT CHECK (meta\_description\_seo IS NULL OR char\_length(meta\_description\_seo) <= 160),

wordpress\_excerpt TEXT,

is\_featured\_route BOOLEAN NOT NULL DEFAULT FALSE,

created\_at TIMESTAMPTZ NOT NULL DEFAULT now(),

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

updated\_at TIMESTAMPTZ NOT NULL DEFAULT now(),

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

deleted\_at TIMESTAMPTZ,

UNIQUE (trail\_id, name)

); -- [cite: 1805, 1806, 1807]

-- Indexes

CREATE INDEX IF NOT EXISTS idx\_routes\_trail\_id ON public.routes(trail\_id); -- [cite: 1808]

CREATE INDEX IF NOT EXISTS idx\_routes\_slug ON public.routes(slug); -- [cite: 1808]

CREATE INDEX IF NOT EXISTS idx\_routes\_route\_code ON public.routes(route\_code); -- [cite: 1809]

CREATE INDEX IF NOT EXISTS idx\_routes\_operational\_status ON public.routes(operational\_status); -- [cite: 1809]

CREATE INDEX IF NOT EXISTS idx\_routes\_content\_visibility\_status ON public.routes(content\_visibility\_status); -- [cite: 1810]

CREATE INDEX IF NOT EXISTS idx\_routes\_route\_category ON public.routes(route\_category); -- [cite: 1810]

CREATE INDEX IF NOT EXISTS idx\_routes\_alternative\_to\_route\_id ON public.routes(alternative\_to\_route\_id); -- [cite: 1811]

CREATE INDEX IF NOT EXISTS idx\_routes\_overall\_gpx\_media\_id ON public.routes(overall\_gpx\_media\_id); -- Index for new GPX media FK

CREATE INDEX IF NOT EXISTS idx\_routes\_is\_featured\_route ON public.routes(is\_featured\_route); -- [cite: 1811]

CREATE INDEX IF NOT EXISTS idx\_routes\_deleted\_at ON public.routes(deleted\_at) WHERE deleted\_at IS NULL; -- [cite: 1812]

CREATE INDEX IF NOT EXISTS idx\_routes\_start\_town\_id ON public.routes(start\_town\_id); -- [cite: 1812]

CREATE INDEX IF NOT EXISTS idx\_routes\_end\_town\_id ON public.routes(end\_town\_id); -- [cite: 1813]

-- Trigger for standard audit fields (created\_by, updated\_by, updated\_at)

CREATE OR REPLACE FUNCTION public.set\_route\_modification\_meta()

RETURNS TRIGGER AS $$

BEGIN

NEW.updated\_at = NOW(); -- [cite: 1814]

IF (TG\_OP = 'INSERT') THEN

NEW.created\_by\_profile\_id = auth.uid(); -- [cite: 1814]

NEW.updated\_by\_profile\_id = auth.uid(); -- [cite: 1814]

ELSIF (TG\_OP = 'UPDATE') THEN

NEW.updated\_by\_profile\_id = auth.uid(); -- [cite: 1816]

NEW.created\_at = OLD.created\_at; -- [cite: 1816]

NEW.created\_by\_profile\_id = OLD.created\_by\_profile\_id; -- [cite: 1816]

END IF;

RETURN NEW; -- [cite: 1816]

END;

$$ LANGUAGE plpgsql SECURITY DEFINER; -- [cite: 1817]

CREATE TRIGGER trigger\_routes\_modification\_meta

BEFORE INSERT OR UPDATE ON public.routes

FOR EACH ROW

EXECUTE FUNCTION public.set\_route\_modification\_meta(); -- [cite: 1817]

-- Comments

COMMENT ON TABLE public.routes IS 'Defines specific, named paths or major variations within an overarching trail, forming primary navigational choices. Composed of an ordered sequence of segments. Version: V2.'; -- [cite: 1818, 1819]

COMMENT ON COLUMN public.routes.name IS 'Specific name of this route in English (e.g., "Northern Route: La Verna to Assisi"). Max 255 chars. Must be unique within its parent trail. (Translatable via public.translations). Version: V2.'; -- [cite: 1820]

COMMENT ON COLUMN public.routes.total\_distance\_km IS '🔴 Auto-calculated total distance (km) of the route. This value is derived from the sum of distance\_km of its constituent segments, managed by a trigger on the public.route\_segments table. Version: V2.'; -- [cite: 1821, 1822]

COMMENT ON COLUMN public.routes.estimated\_total\_elevation\_gain\_meters IS '🔴 Auto-calculated total elevation gain (m) of the route. This value is derived from the sum of elevation\_gain\_meters of its constituent segments, managed by a trigger on the public.route\_segments table. Version: V2.'; -- [cite: 1823, 1824]

COMMENT ON COLUMN public.routes.overall\_gpx\_media\_id IS 'Optional FK to public.media table for a downloadable GPX file for the entire route (media\_asset\_type=''gpx\_file''). Replaces overall\_gpx\_track\_url. Version: V2.';

COMMENT ON COLUMN public.routes.deleted\_at IS 'Timestamp for soft deletion. If NOT NULL, the route is considered inactive and should be filtered from public views. Version: V2.'; -- [cite: 1827]

-- (Add comments for other translatable fields and key columns)

```

\* \* \* \* \*

4\. JSON Schema Mirror

JSON

```

{

"title": "route",

"description": "Defines a specific, named path or major variation within an overarching trail, composed of an ordered sequence of segments. Key statistics are auto-calculated from these segments. Version: V2.",

"type": "object",

"properties": {

"id": { "type": "integer", "format": "int64", "description": "Unique identifier for the route. Read-only.", "readOnly": true },

"trail\_id": { "type": "integer", "format": "int64", "description": "Foreign key to the parent public.trails this route belongs to." [cite: 1829] },

"name": { "type": "string", "maxLength": 255, "description": "Specific name of this route in English. (Translatable via public.translations)" [cite: 1830] },

"slug": { "type": "string", "maxLength": 255, "pattern": "^[a-z0-9]+(?:-[a-z0-9]+)\*$", "description": "URL-friendly identifier for the route. Must be unique." [cite: 1831] },

"route\_code": { "type": ["string", "null"], "maxLength": 50, "pattern": "^[A-Z0-9\_-]+$", "description": "Optional short code for the route (e.g., VDF-N-LVA). Must be unique if provided." [cite: 1832] },

"route\_alternate\_name": { "type": ["string", "null"], "description": "Common alternate name or subtitle for this route in English. (Translatable via public.translations)" [cite: 1833] },

"short\_description": { "type": ["string", "null"], "maxLength": 250, "description": "Brief summary of this route in English (approx. 160-250 characters). (Translatable via public.translations)" [cite: 1834] },

"full\_description": { "type": ["string", "null"], "description": "Detailed description of this route in English. (Translatable via public.translations)" [cite: 1835] },

"route\_theme\_or\_focus": { "type": ["string", "null"], "description": "Specific theme or focus of this route in English. (Translatable via public.translations)" [cite: 1836] },

"route\_curation\_source": { "type": ["string", "null"], "description": "Origin or curator of this route definition (e.g., 'Official VdF Committee'). (V1: Translatable; V2+ consider lookup table)" [cite: 1837] },

"start\_point\_description": { "type": ["string", "null"], "description": "Textual description of the route's conceptual starting point in English. (Translatable via public.translations)" [cite: 1838] },

"end\_point\_description": { "type": ["string", "null"], "description": "Textual description of the route's conceptual ending point in English. (Translatable via public.translations)" [cite: 1839] },

"start\_town\_id": { "type": ["integer", "null"], "format": "int64", "description": "Optional foreign key to the public.towns table for the primary starting town." [cite: 1840] },

"end\_town\_id": { "type": ["integer", "null"], "format": "int64", "description": "Optional foreign key to the public.towns table for the primary ending town." [cite: 1841] },

"total\_distance\_km": { "type": ["number", "null"], "format": "float", "description": "🔴 Auto-calculated total distance (km) of the route, derived from its segments. Read-only.", "readOnly": true },

"estimated\_duration\_days": { "type": ["string", "null"], "description": "Estimated range for typical completion duration (e.g., '7-9 days', 'Approx. 2 weeks')." [cite: 1842] },

"estimated\_total\_elevation\_gain\_meters": { "type": ["integer", "null"], "description": "🔴 Auto-calculated total elevation gain (m) of the route, derived from its segments. Read-only.", "readOnly": true },

"route\_difficulty": { "type": ["string", "null"], "enum": ["easy", "moderate", "challenging", "strenuous", "variable", null], "description": "Subjective difficulty level specific to this route." [cite: 1843] },

"terrain\_summary\_for\_route": { "type": ["string", "null"], "description": "A narrative summary of the typical terrain encountered on this route in English. (Translatable via public.translations)" [cite: 1844] },

"waymarking\_and\_navigation\_details": { "type": ["string", "null"], "description": "Specific waymarking or navigation details pertinent to this route in English. (Translatable via public.translations)" [cite: 1845] },

"operational\_status": { "type": "string", "enum": ["fully\_operational", "partially\_closed\_detours\_in\_place", "seasonal\_access\_only", "under\_development", "closed", "information\_unavailable"], "default": "information\_unavailable", "description": "Operational status specific to this route." [cite: 1846] },

"content\_visibility\_status": { "type": "string", "enum": ["draft", "pending\_review", "published", "archived"], "default": "draft", "description": "Editorial status indicating if the route content is ready for public view." [cite: 1847] },

"best\_seasons\_for\_route": { "type": ["array", "null"], "items": { "type": "string" }, "description": "Recommended seasons/months for undertaking this route. (Each element Translatable via public.translations)" [cite: 1848] },

"is\_primary\_route\_for\_trail": { "type": "boolean", "default": false, "description": "Flags if this is considered a main or default route for the parent trail." [cite: 1849] },

"route\_category": { "type": ["string", "null"], "enum": ["main\_section", "official\_variant", "unofficial\_variant", "connector\_spur", "extension", "loop\_option", "access\_route", null], "description": "Categorizes the route's role or type." [cite: 1850] },

"alternative\_to\_route\_id": { "type": ["integer", "null"], "format": "int64", "description": "If this route is an official alternative to another route, this links to the ID of that other route (public.routes.id)." [cite: 1851] },

"overall\_gpx\_media\_id": { "type": ["integer", "null"], "format": "int64", "description": "Optional FK to public.media for a downloadable GPX file for the entire route (media\_asset\_type='gpx\_file')." },

"map\_overview\_media\_id": { "type": ["integer", "null"], "format": "int64", "description": "Foreign key to the public.media table for an overview map image of this route." [cite: 1853] },

"banner\_media\_id": { "type": ["integer", "null"], "format": "int64", "description": "Foreign key to the public.media table for a banner image specific to this route." [cite: 1854] },

"public\_transit\_at\_start\_end": { "type": ["string", "null"], "description": "Information on public transport access at the start and end points of the route in English. (Translatable via public.translations)" [cite: 1855] },

"accessibility\_notes": { "type": ["string", "null"], "description": "Notes regarding accessibility for users with mobility challenges for this route in English. (Translatable via public.translations)" [cite: 1856] },

"general\_notes\_for\_route": { "type": ["string", "null"], "description": "Specific notes or advice for pilgrims undertaking this route in English. (Translatable via public.translations)" [cite: 1857] },

"meta\_description\_seo": { "type": ["string", "null"], "maxLength": 160, "description": "Optimized SEO meta description for this route in English. (Translatable via public.translations)" [cite: 1858] },

"wordpress\_excerpt": { "type": ["string", "null"], "description": "Short summary suitable for WordPress excerpts for this route in English. (Translatable via public.translations)" [cite: 1859] },

"is\_featured\_route": { "type": "boolean", "default": false, "description": "Flag to indicate if this route should be prominently featured on the platform." [cite: 1860] },

"created\_at": { "type": "string", "format": "date-time", "description": "Timestamp of record creation. Read-only.", "readOnly": true },

"created\_by\_profile\_id": { "type": ["string", "null"], "format": "uuid", "description": "Profile ID (public.profiles.id) of the user who created this route record. Read-only.", "readOnly": true },

"updated\_at": { "type": "string", "format": "date-time", "description": "Timestamp of the last update to this route record. Read-only.", "readOnly": true },

"updated\_by\_profile\_id": { "type": ["string", "null"], "format": "uuid", "description": "Profile ID (public.profiles.id) of the user who last updated this route record. Read-only.", "readOnly": true },

"deleted\_at": { "type": ["string", "null"], "format": "date-time", "description": "Timestamp for soft deletion. If present, the route is considered inactive. Read-only.", "readOnly": true } [cite: 1861]

},

"required": [

"trail\_id",

"name",

"slug",

"operational\_status",

"content\_visibility\_status",

"is\_primary\_route\_for\_trail",

"is\_featured\_route",

"created\_at",

"updated\_at"

],

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

"unique\_constraints": [

{"columns": ["slug"], "name": "routes\_slug\_key"},

{"columns": ["route\_code"], "name": "routes\_route\_code\_key"},

{"columns": ["trail\_id", "name"], "name": "routes\_trail\_id\_name\_key"}

]

}

```

\* \* \* \* \*

5\. Relationships & Integrity

- Foreign Key Targets & `ON DELETE` Actions:

- `trail\_id` references `public.trails(id)`: `ON DELETE CASCADE`.

- `start\_town\_id` references `public.towns(id)`: `ON DELETE SET NULL`.

- `end\_town\_id` references `public.towns(id)`: `ON DELETE SET NULL`.

- `alternative\_to\_route\_id` references `public.routes(id)` (self-reference): `ON DELETE SET NULL`.

- `overall\_gpx\_media\_id`, `map\_overview\_media\_id`, `banner\_media\_id` reference `public.media(id)`: `ON DELETE SET NULL`.

- Audit FKs to `public.profiles(id)`: `ON DELETE SET NULL`.

- Constituent Segments: Defined in `public.route\_segments`.

- Unique Constraints: `slug` (global), `route\_code` (global, if provided), `(trail\_id, name)`.

- Mermaid ER Diagram Snippet:

Code snippet

```

erDiagram

trails { bigint id PK }

routes {

bigint id PK

bigint trail\_id FK

text name

text slug UK

bigint overall\_gpx\_media\_id FK

-- ... other columns

}

towns { bigint id PK }

media { bigint id PK }

profiles { uuid id PK }

route\_segments { bigint route\_id FK }

trails ||--o{ routes : "has\_route (CASCADE)"

routes }o--o| towns : "starts\_near\_town (SET NULL)"

routes }o--o| towns : "ends\_near\_town (SET NULL)"

routes }o--o| routes : "is\_alternative\_to (SET NULL)"

routes ||--o| media : "has\_gpx\_track (SET NULL)"

routes ||--o| media : "has\_map\_image (SET NULL)"

routes ||--o| media : "has\_banner\_image (SET NULL)"

routes ||--o| profiles : "created\_by (SET NULL)"

routes ||--o| profiles : "updated\_by (SET NULL)"

routes ||--|{ route\_segments : "is\_composed\_of"

```

\* \* \* \* \*

6\. Multilingual Strategy

- Translatable Fields: `name`, `route\_alternate\_name`, `short\_description`, `full\_description`, `route\_theme\_or\_focus`, `route\_curation\_source` (V1), `start\_point\_description`, `end\_point\_description`, `terrain\_summary\_for\_route`, `waymarking\_and\_navigation\_details`, `public\_transit\_at\_start\_end`, `accessibility\_notes`, `general\_notes\_for\_route`, `meta\_description\_seo`, `wordpress\_excerpt`. English base text stored directly. Translations via `public.translations`.

- Array Field: `best\_seasons\_for\_route` (`TEXT[]`): Each element is translatable.

\* \* \* \* \*

7\. Role-Based Workflow & RLS Notes

- Workflow Fields: `content\_visibility\_status` manages editorial lifecycle. Standard audit and soft-delete fields are included.

- Note: The RLS policies outlined above rely on the existence and correct implementation of global RLS helper functions (e.g., public.has\_role(TEXT), public.is\_platform\_admin(), specific regional/trail management checks) that authenticate users and verify their roles stored in the public.profiles table." This reinforces that the table-specific RLS is part of a larger auth system.

- RLS Policy Stubs (Conceptual): Public read for published routes of published trails. Admin full access. Regional manager access based on parent trail. (Refer to DDL section for example policies).

- Audit trigger `set\_route\_modification\_meta` is `SECURITY DEFINER`.

\* \* \* \* \*

8\. ENUM vs. Lookup Discussion

- `public.route\_category\_enum`: New ENUM; appropriate for fixed route categories.

- Reused ENUMs (`trail\_difficulty\_enum`, etc.) are consistent.

- `route\_curation\_source` (`TEXT`): V2+ may promote to lookup.

- `best\_seasons\_for\_route` (`TEXT[]`): Retained as `TEXT[]` for V1.

\* \* \* \* \*

9\. UI/UX Enablement

- Filters: `route\_difficulty`, `operational\_status`, `route\_category`, etc.

- Icons: Driven by `route\_difficulty`, `operational\_status`.

- 🔴 Calculated Fields: `total\_distance\_km`, `estimated\_total\_elevation\_gain\_meters` are crucial and auto-calculated.

- API Support: The `public.routes\_summary\_view` (defined in the Database Views Specification) can support efficient API responses for route listings.

- Media Display: `map\_overview\_media\_id` and `banner\_media\_id` for images.

- Hierarchical Display: `is\_primary\_route\_for\_trail`, `alternative\_to\_route\_id` structure route presentation.

\* \* \* \* \*

10\. Key Considerations & Definitions

- 🔴 Auto-Calculated Statistics: Accuracy is paramount, updated by trigger on `public.route\_segments`.

- GPX Management: Changed from `overall\_gpx\_track\_url` (original spec) to `overall\_gpx\_media\_id` for V2, aligning with centralized media strategy and project overview (section 4.2).

- Route Hierarchy: `is\_primary\_route\_for\_trail`, `alternative\_to\_route\_id` define main routes/variants.

\* \* \* \* \*

11\. Scalability & Future-Proofing

- `BIGINT` PKs/FKs allow for growth.

- Soft deletes and audit columns are standard good practice.

- Automated statistics ensure data integrity.

- Future Enhancement: Full-Text Search (FTS) on descriptive fields is a Post-V2 consideration.

\* \* \* \* \*

12\. Next-Action Checklist

1. 🔴 Implement DDL: Create `public.route\_category\_enum`. Create/Update `public.routes` table, replacing `overall\_gpx\_track\_url` with `overall\_gpx\_media\_id BIGINT REFERENCES public.media(id) ON DELETE SET NULL`. Add index `idx\_routes\_overall\_gpx\_media\_id`. Ensure all constraints, other indexes, and `set\_route\_modification\_meta` trigger are correct.

2. 🔴 Verify and Test `route\_segments` Trigger: Confirm that the `update\_route\_aggregates\_from\_segments` trigger (defined with `public.route\_segments`) correctly and reliably updates `routes.total\_distance\_km` and `routes.estimated\_total\_elevation\_gain\_meters` upon any DML operation on `public.route\_segments`. This is critical for data accuracy.

3. 🔴 Implement Orphaned Translation Cleanup Trigger: Add an `AFTER DELETE` trigger on `public.routes` that calls `public.cleanup\_related\_translations('routes', OLD.id)`.

4. 🟠 Confirm Referenced Table Data Types: Verify `public.towns.id` and `public.media.id` are `BIGINT`.

5. 🟠 Implement RLS Policies & Helper Functions: Define, implement, and thoroughly test RLS policies for `public.routes`, including helper functions like `public.is\_platform\_admin()` and `public.is\_regional\_manager\_for\_trail(BIGINT)`.

6. 🟢 Data Migration (if applicable): Plan migration for `overall\_gpx\_track\_url` to `overall\_gpx\_media\_id` (requires populating `public.media` first). Populate new fields and audit columns for existing data.

7. 🟢 Review API Usage: Ensure API endpoints utilize the new `overall\_gpx\_media\_id` and can efficiently query route data, potentially using `public.routes\_summary\_view`.