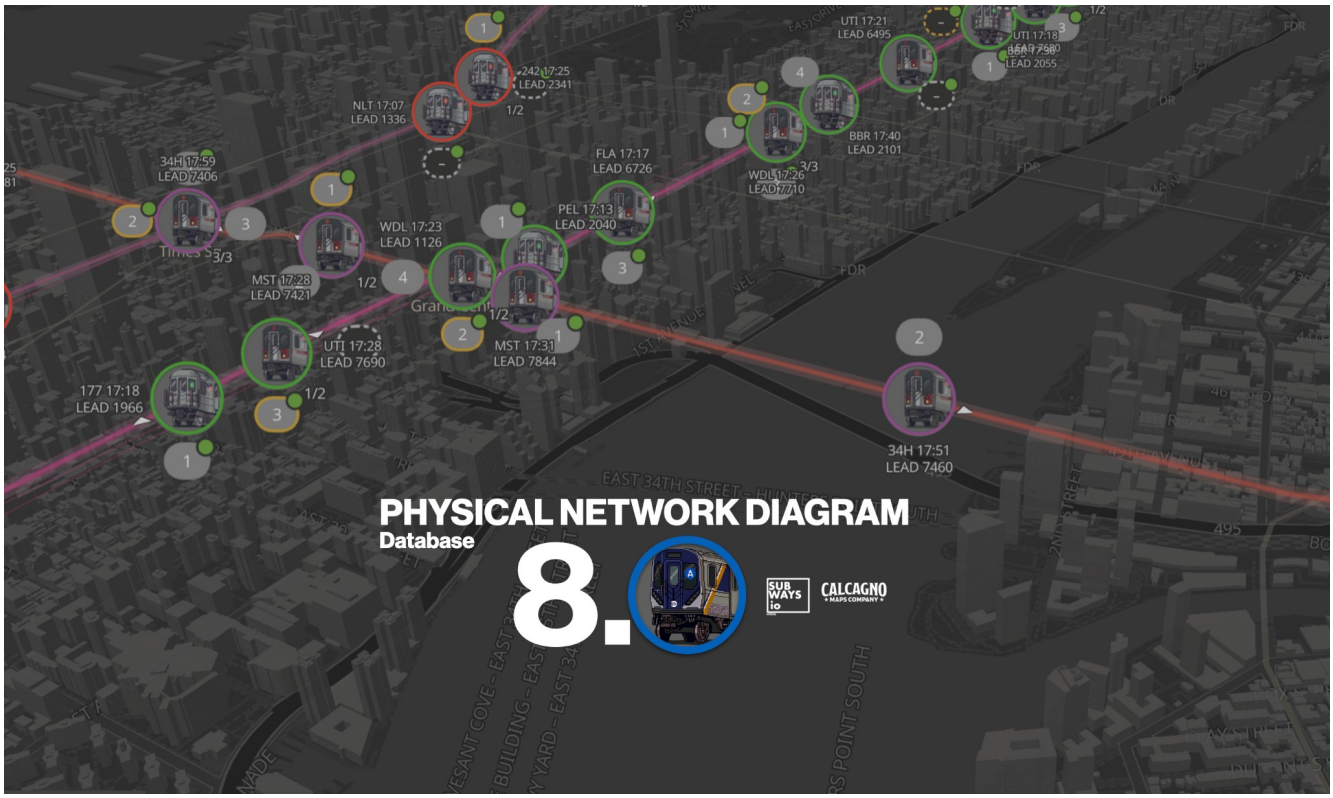

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PHYSICAL NETWORK DATABASE / REFERENCE GUIDE

Understanding the Data

How to read, compare, and interpret the information across nycsubways.io and Subs.nyc

Beta v8.0.0 • October 2026

BETA STATUS / Subs.nyc is currently in active beta development, with its records, sources, interface, and live-data features being reviewed and refined toward a Gold Master release. The present version should not be treated as a final or independently certified engineering record.

This guide explains what the platforms document, how the records connect, what live train data represents, and where interpretation requires caution. It complements the Getting Started guide, which focuses on navigation.

1 Two platforms, different purposes

Platform	Purpose	Typical information
nycsubways.io (Coming soon)	Broader educational and research site	History, photography, rolling stock, articles, technical explanations
Subs.nyc	Structured physical-network database	Line chains, stations, construction routes, towers, interlockings, yards, substations, map layers and live overlays

The sites may cover the same place or asset from different perspectives. A historical article and an engineering database record are complementary, not necessarily interchangeable. A link between them should be understood as a cross-reference.

2 How to read a database record

Think of each entry as a documented asset or relationship. Names identify what you are studying; codes and references tell you where it fits in the physical network; associated records provide additional context.

Field type	What it tells you	Check before interpreting
Name or designation	What the record is called	Names can change historically; similar names need not mean the same object
Division and line chain	Engineering network context	Passenger route letters are not identical to engineering chain designations
Location / map position	Geographic context	Some paths or positions are approximations, edited geometry or surveyed references
Date, type, configuration	Historical or technical property	Confirm whether the date is opening, construction, alteration or another event
Relationship / link	Association to another record	Association does not automatically imply control, power supply or physical adjacency

3 Divisions, routes and chains

Division is not service

Division A, B1 and B2 organize physical infrastructure by historical and engineering systems. A train's displayed route (for example B or 7) describes a service, while the chain and track tell you which part of the infrastructure it currently occupies. Cross-division labels in Live Mode can show this distinction.

Engineering chaining and Chain Zero

Chaining measures distance along a defined railway alignment from a reference point. A marker written 624+50 ordinarily means 62,450 feet from that chain's zero, not an address or a subway route number. Always read it together with its chain designation, since the same numeric value can appear on different chains.

Chain Zero is the origin of a particular reference system. Transitions or breakpoints link two sets of measurements; they do not make the numeric values interchangeable everywhere along either line.

Construction routes versus passenger routes

Construction routes and contracts describe how parts of the physical network were built. Today's passenger service can pass through multiple construction routes and line chains. This is why a historical construction section and a modern service map may divide the network differently.

4 Stations and associated infrastructure

Station records can combine names, chain references, opening dates, construction context, platforms, track arrangement, signaling classifications and other details. Some fields may be absent or pending review: an empty field should not be interpreted as proof that a feature does not exist.

Grades, crossings, yards and substations

- Grades describe changes in elevation along the alignment; a grade percentage is not itself a track elevation or clearance measurement.
- Crossings describe structures such as tunnels and bridges that carry the railroad over or beneath water and other obstacles.
- Yard records cover storage and maintenance facilities; reported capacity or facility types may describe a specific period rather than current day-to-day utilization.
- Substations relate to traction-power infrastructure. A record associated with a line chain does not, on its own, prove the exact track segments supplied. Geographic point placement and electrical supply boundaries are different kinds of information.

5 Towers, interlockings and territories

A tower record describes a signaling/control location or system and its associated infrastructure. An interlocking is an arrangement of controlled signals and switches that protects conflicting movements. Equipment and plant details are drawn from available documentation where indicated.

Term	How to interpret it
Limits of control	Territory in which the tower/system can exercise control

	over designated interlocking functions
Limits of indication	Territory whose conditions or train movements are visible to the tower/system, even where control is elsewhere
Relay room	An equipment location; not automatically a staffed tower
Plant / switches / detectors	Infrastructure attributes that should be interpreted with the applicable signal drawing and its revision

Control and indication are deliberately shown differently on the Towers map. A train inside an indication territory should not automatically be described as under that tower's control. Tower boundaries and historical equipment configurations can change over time.

6 Reading geographic visualizations

The database uses multiple geographic sources and edited geometry to explain infrastructure relationships. Some chain alignments are drawn from station points and subsequently refined. A line rendered between known references can help orientation without being a fully surveyed centerline.

- A map marker may represent a known reference point, an imported surveyed position or a display location inferred from nearby records.
- Chain transition markers (circles) differ from Chain Zero markers (diamonds) in the v8.0 Towers map.
- 3D building context, where available, does not establish tunnel depth, vertical clearance or an engineering-grade 3D alignment.

Do not use the map alone for dimensions, clearance, field work, design, operations or safety-critical decisions. Refer to the authoritative drawing or survey for those uses.

7 What Live Mode shows

Live Mode combines MTA GTFS-realtime observations with static timetable material, the platform's station matching rules, tower definitions, chain geometry and other data. Supplemental car-consist information may come from an unofficial upstream source and is not always available or reliable.

Displayed information	Underlying interpretation
Service and trip	Feed-reported or feed-derived service and trip identity
Station / track	Where supported, matched observations or reported track designations
Map position	Visualization derived from known references and placement rules; not continuous train telemetry
Lead car / consist	Supplemental vehicle data when present, matched and accepted
Terminal name	Code interpreted through line-specific reference rules
Tower control / indication	Mapped relationship between the positioned train and tower territory definitions

Station label and division label

In v8.0, a train positioned at a station may alternate its lead-car line with the station name at approximately 2.5-second intervals. Depending on the state, only the station may be displayed, or the lead-car label may

remain fixed. If one division is selected, a train on a different division's chain may show a DIV label; All Divisions hides that label.

What a location cannot tell you

The live train symbol is approximate. It does not establish the exact lead-car location between updates, signal aspect, switch position, occupancy circuit state or safe authority to move. Missing track references, stale observations or unsupported territories can prevent placement. A train absent from the map is not necessarily absent from the real railroad.

8 Vehicle Locator and train information cards

In the Towers search area, choose Vehicle Locator and enter a four-digit car number. When a matching consist is available in supported live coverage, the map focuses on that train and opens its information card. The requested car may be anywhere in the consist; it need not be the lead car.

If no mapped result appears, check whether Live Mode is on, whether the tower is supported, whether supplemental car data is present, and whether a train reported in the feed could be placed on a mapped track. A failed lookup is not proof that a vehicle is out of service.

9 Sources, confidence and versioning

Subs.nyc is a beta research platform. Its data combines source-derived engineering and historical records, mapped geometry, interpretation rules and dynamic feeds. These are different evidence types and should be described separately.

Evidence class	Good practice when reading or citing
Documented source record	Record the drawing, plan, publication or source identifier, plus its date/revision where available
Surveyed or measured location	Identify what was surveyed and what coordinate/chain reference system was used
Interpreted relationship	State the rule or inference, rather than presenting it as directly shown by a drawing
Approximated visualization	Label the estimate and avoid implied precision
Live external observation	Include observation time, feed provenance and any freshness limitations

Not every public-facing record presently has a complete, visible source trail or formal confidence rating. Where those details are missing, treat them as unverified in the interface rather than inventing a source or certainty grade. Content may be revised as records are checked against original documents.

10 Understanding Data Accuracy and Interpretation

Subs.nyc combines documented engineering records, historical reference materials, geographic data, and live operational information to provide an interconnected view of the subway's physical network.

The level of precision depends on the information being presented. Engineering markers and infrastructure specifications may be supported by original technical drawings, while live train positions may involve interpretation or interpolation from available operational feeds.

As development continues, we are expanding the database's engineering chaining reference points and improving the documentation associated with individual infrastructure records. This includes identifying original signal prints, construction drawings, and other technical references by their respective document numbers, allowing information to be traced back to its source material.

Records are being progressively reviewed and verified against these references. Future updates will introduce verification indicators to help users identify information that has been checked against supporting documentation and distinguish it from records still undergoing review.

Users should distinguish between documented measurements, mapped infrastructure relationships, and estimated operational positions when conducting research.

The database aims to preserve the accuracy, meaning, and historical context of its source materials while making that information accessible through interactive tools. This ongoing verification process is a central part of the platform's development toward its Gold Master release.

11 Quick glossary

Term	Plain-language meaning
ATS	Automatic Train Supervision; an operational information source or system
GTFS / GTFS-RT	Schedule data format / real-time updates used for transit information
Line chain	Engineering measurement reference along railway infrastructure
Chain Zero	Origin of measurements on a designated chain
Interlocking	Controlled track and signal arrangement protecting conflicting movements
Consist	The cars coupled together to form a train
Lead car	The car at the leading end for a particular movement
Terminal code	Abbreviation interpreted in the context of a specific line/reference sheet
Indication	Information visible to a control location, distinct from control authority

12 Using and citing the database

When sharing findings, include the record name, division, chain, the link or relevant view, the database version, and the date accessed. For live events, include the observation timestamp and whether the train was placed or merely present in an upstream feed. For technical or historical claims, cite the original document when it is available.

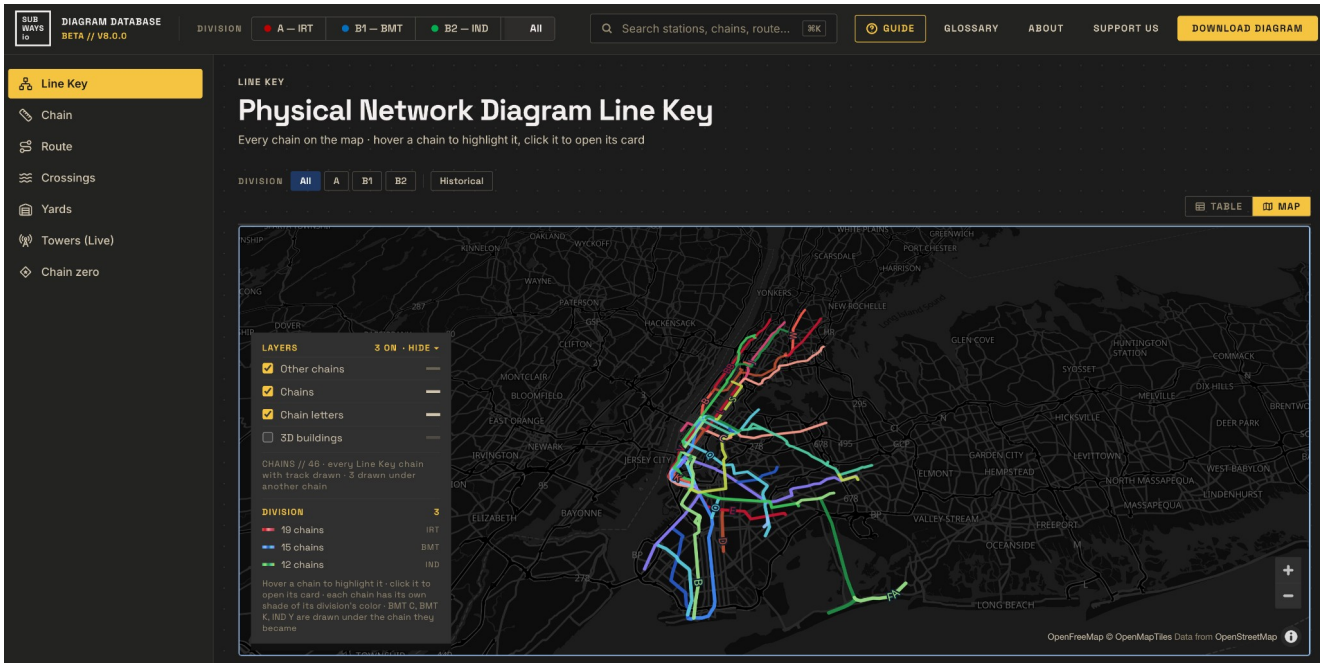
nycsubways.io and Subs.nyc are independent but overlapping research experiences. Use nycsubways.io for broader history, photos, and explanatory content; use Subs.nyc for structured network records and their relationships. Neither should be mistaken for an official operating or engineering authority.

Beta note • This reference reflects the v8.0 feature set and accompanying project documentation. Source coverage, verified locations, live-feed availability and displayed fields can change with future updates.

Visual guide to the database

Annotated explanations of the v8.0 interface, using screenshots provided from the live application. These figures complement the data interpretation guidance in the preceding sections.

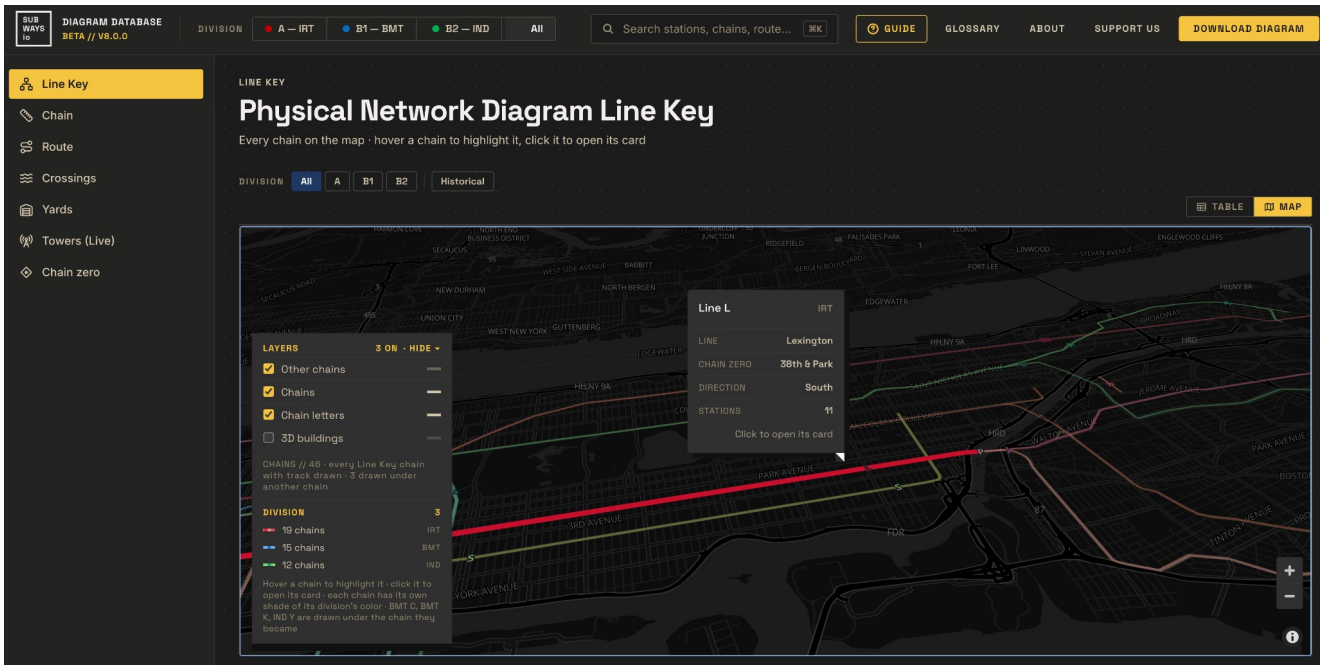
FIGURE 01 / LINE KEY — SYSTEM-WIDE CHAIN MAP



Line chains are engineering references, not passenger routes. Use the division filter, the Table/Map toggle, and Layers controls to compare alignments. Colors help distinguish individual chains.

Interpretation tip • Use the selected record and its sources to confirm the meaning of any map symbol or label; the visualization is not a substitute for original engineering documentation.

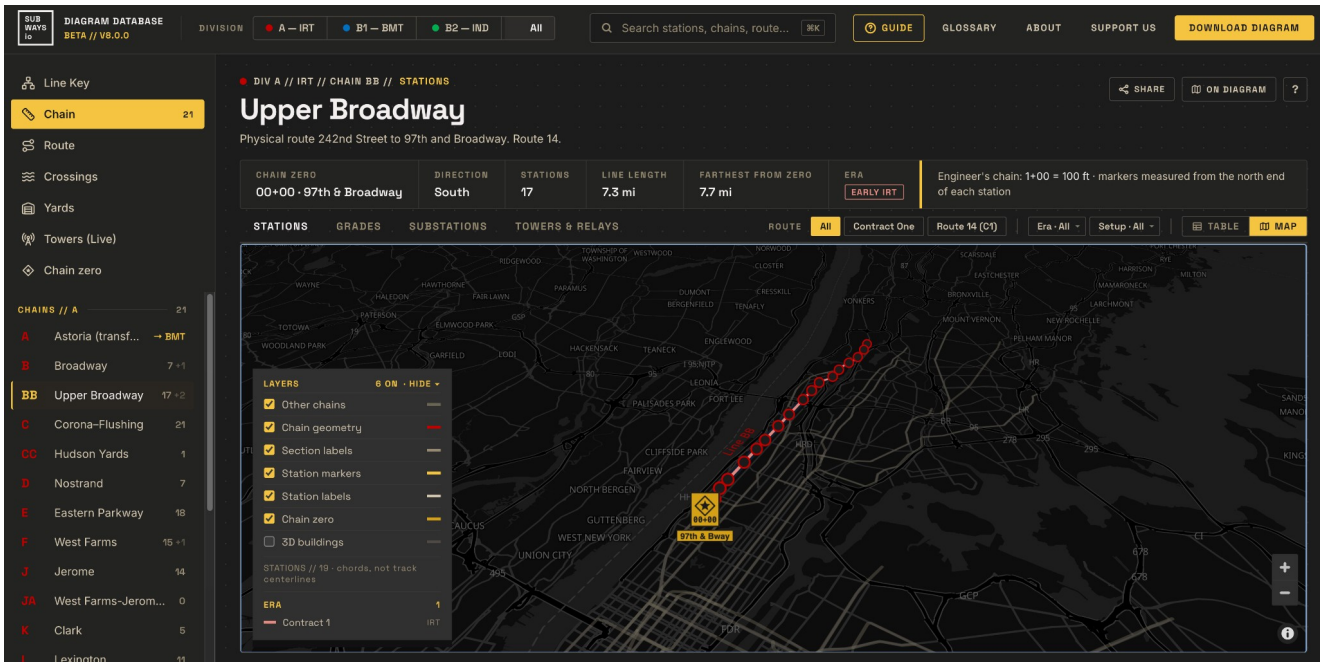
FIGURE 02 / SELECTING A LINE CHAIN



Hover over a chain to highlight its path. The information card identifies the line, engineering Chain Zero, measurement direction, and station count. Click to open its detailed record.

Interpretation tip • Use the selected record and its sources to confirm the meaning of any map symbol or label; the visualization is not a substitute for original engineering documentation.

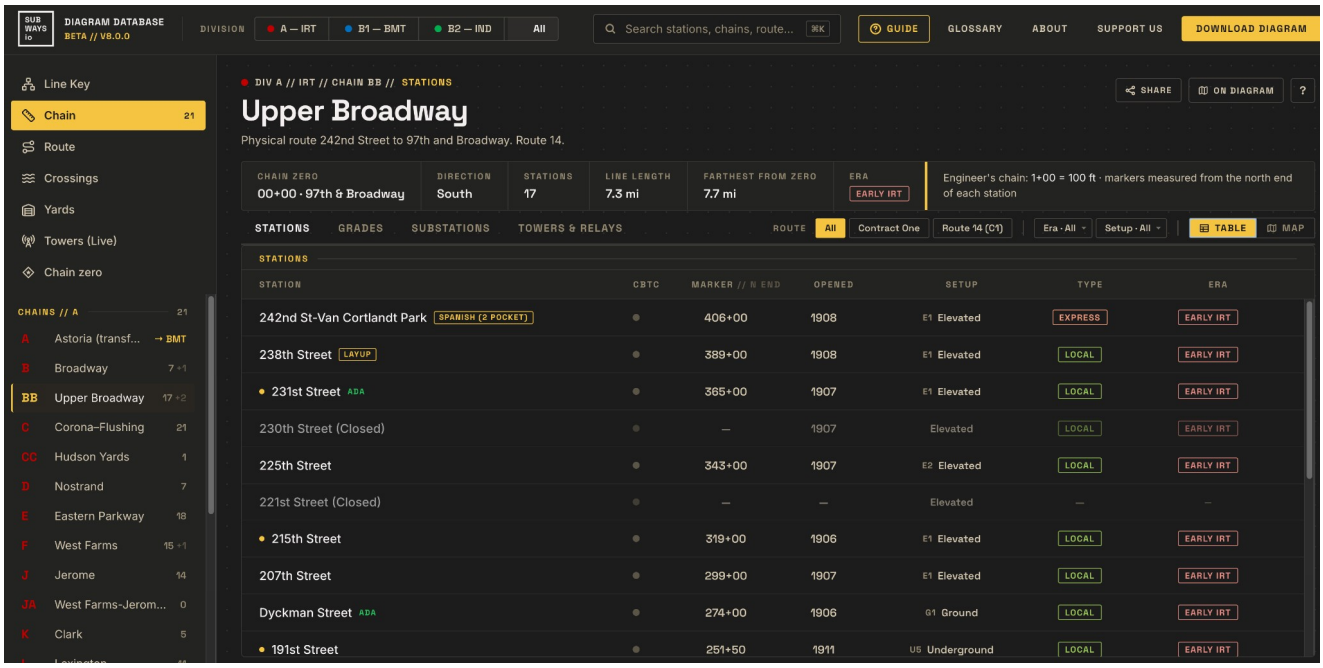
FIGURE 03 / UPPER BROADWAY — CHAIN MAP



A selected chain brings together its zero point, direction, stations, length, and related infrastructure tabs. The diamond marks Chain Zero; circular station symbols show the mapped station references.

Interpretation tip • Use the selected record and its sources to confirm the meaning of any map symbol or label; the visualization is not a substitute for original engineering documentation.

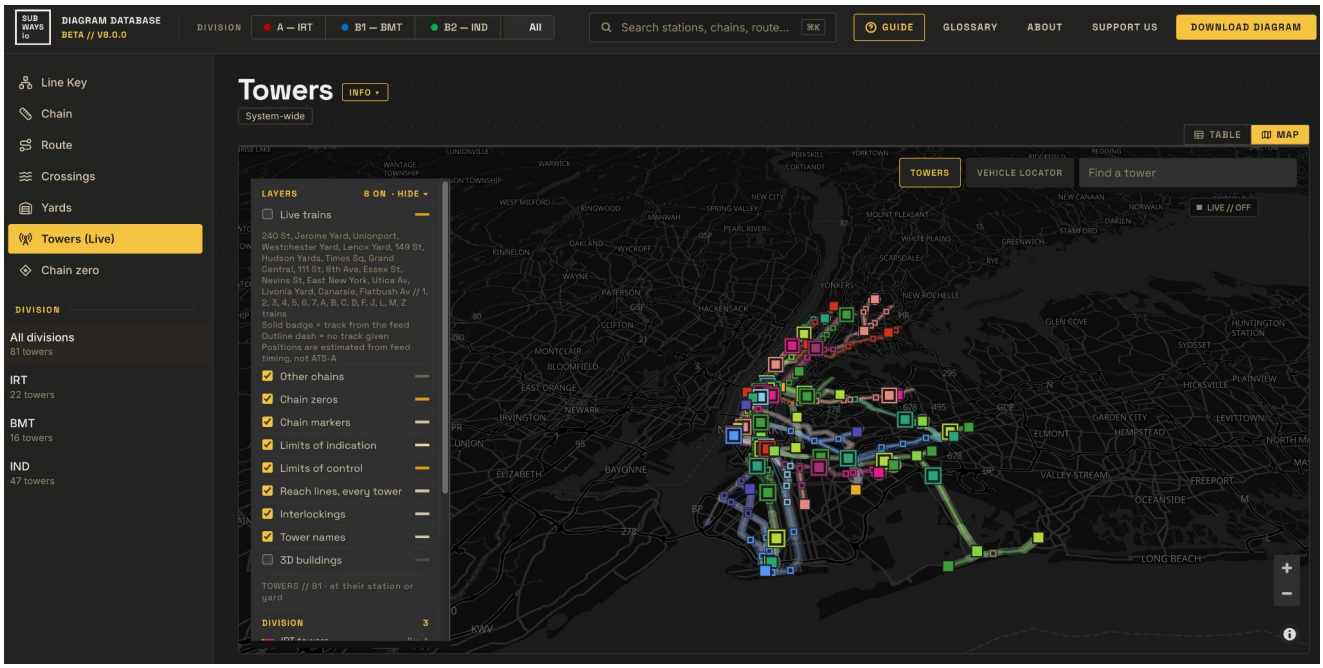
FIGURE 04 / UPPER BROADWAY — STATION RECORDS



The Table view lists individual station records with engineering markers, opening years, structure setup, service classification, and era. A dash means a value is not displayed; it should not automatically be interpreted as zero.

Interpretation tip • Use the selected record and its sources to confirm the meaning of any map symbol or label; the visualization is not a substitute for original engineering documentation.

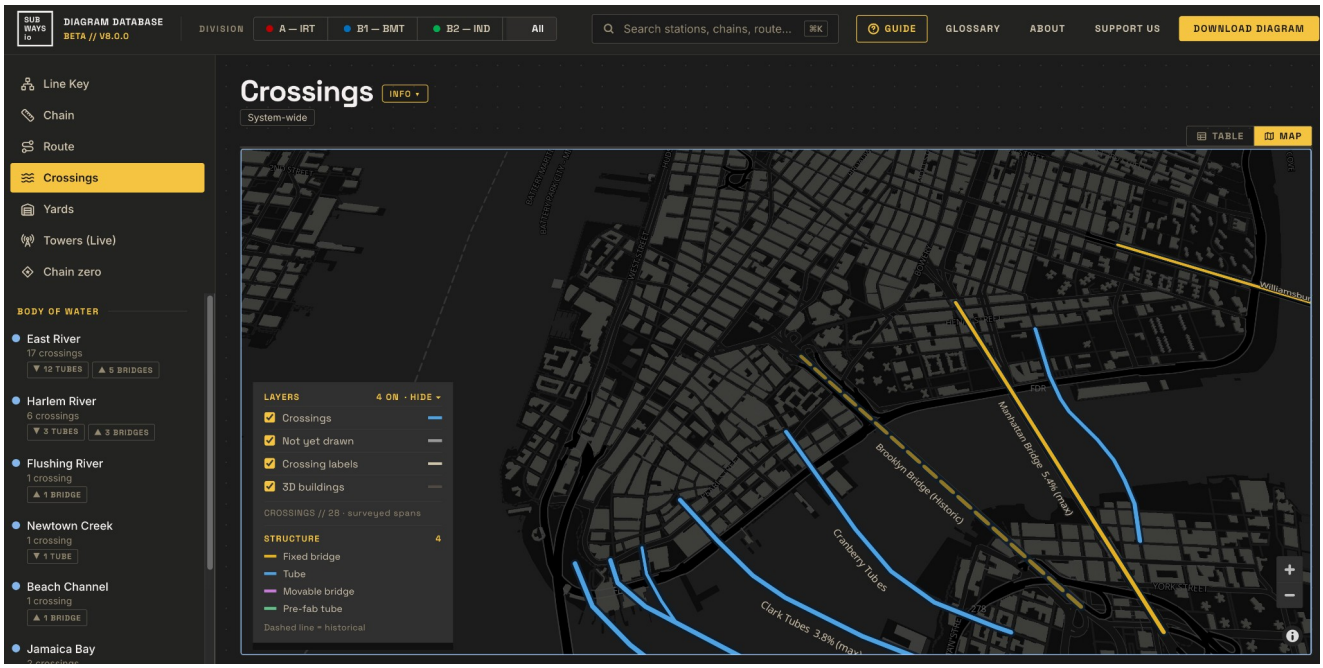
FIGURE 05 / TOWERS — SYSTEM-WIDE INFRASTRUCTURE



The Towers map illustrates tower locations, interlockings, and control or indication territories. Enable only the layers needed for the question you are investigating; a tower symbol is not itself proof of current operational status.

Interpretation tip • Use the selected record and its sources to confirm the meaning of any map symbol or label; the visualization is not a substitute for original engineering documentation.

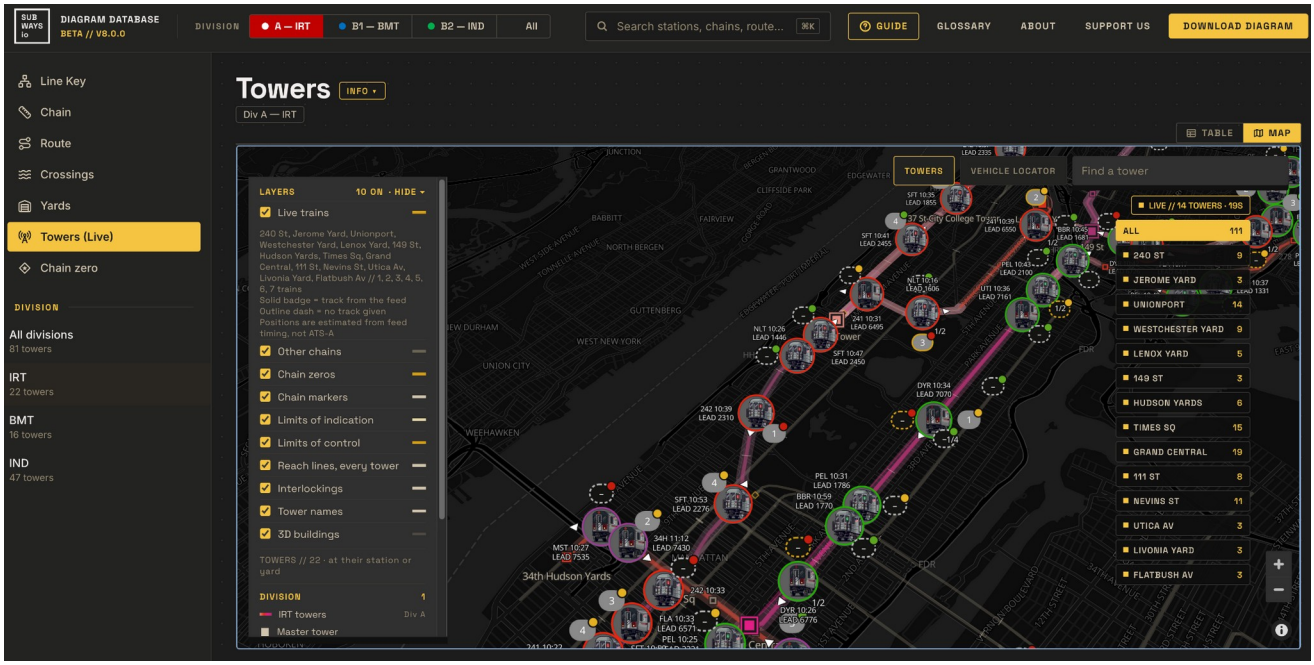
FIGURE 06 / CROSSINGS — STRUCTURE TYPES



Crossings uses different map styles for tubes and bridges, including historical structures. The layer legend distinguishes mapped spans and warns when a structure is not yet drawn.

Interpretation tip • Use the selected record and its sources to confirm the meaning of any map symbol or label; the visualization is not a substitute for original engineering documentation.

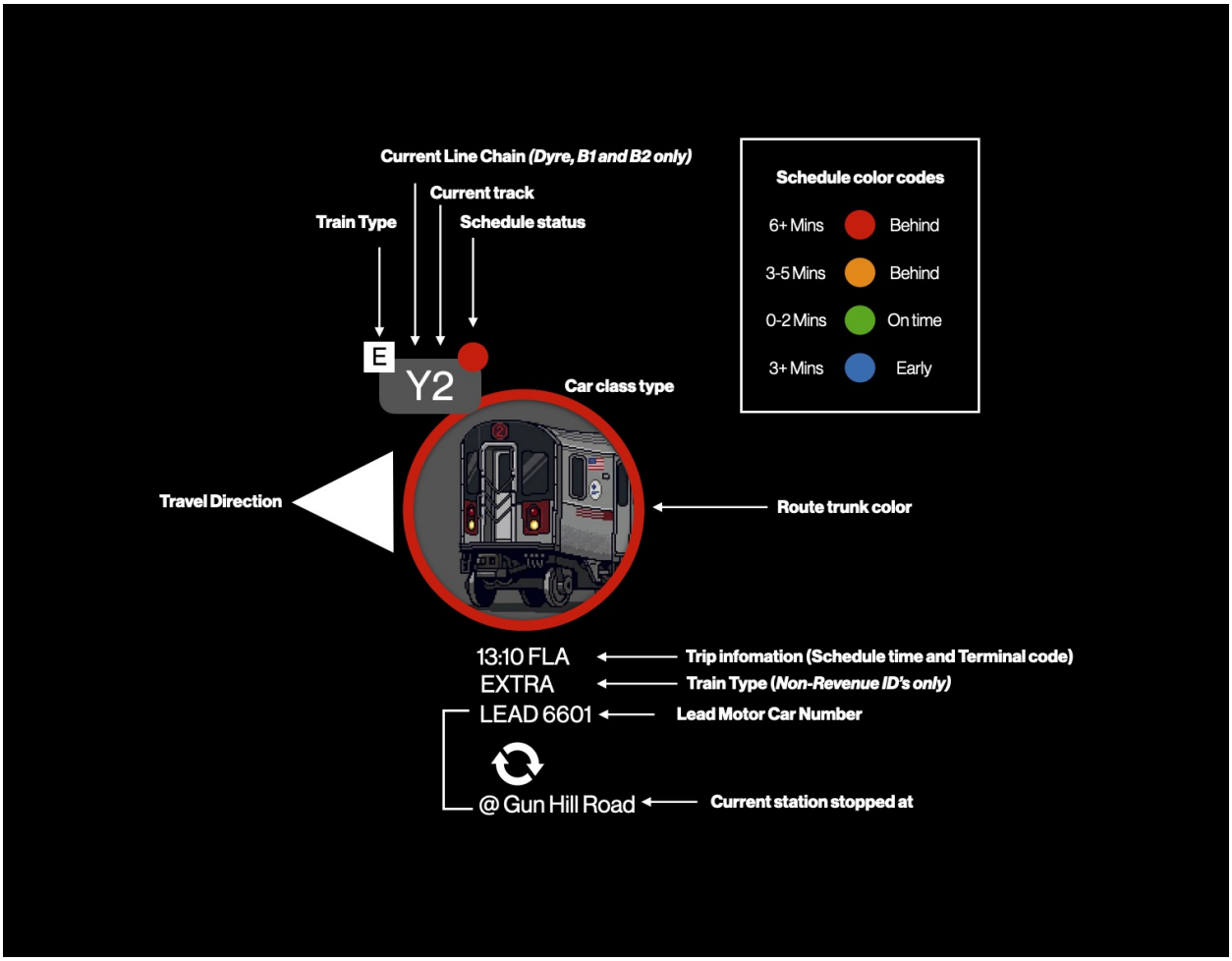
FIGURE 07A / TOWERS LIVE — TRAIN MARKERS ON THE MAP



In Towers Live, train markers appear over mapped infrastructure in supported tower territories. The map places the selected division, tower lists, train symbols, and Layers controls in context. Choose a train to inspect its available trip, track, car and tower details. Markers may overlap or represent trains with incomplete reported track information.

Interpretation tip • Live train placement is an approximate visualization based on available feed reports and the database's infrastructure references; it is not an independently surveyed train location.

FIGURE 07B / TOWERS LIVE — TRAIN MARKER ANATOMY



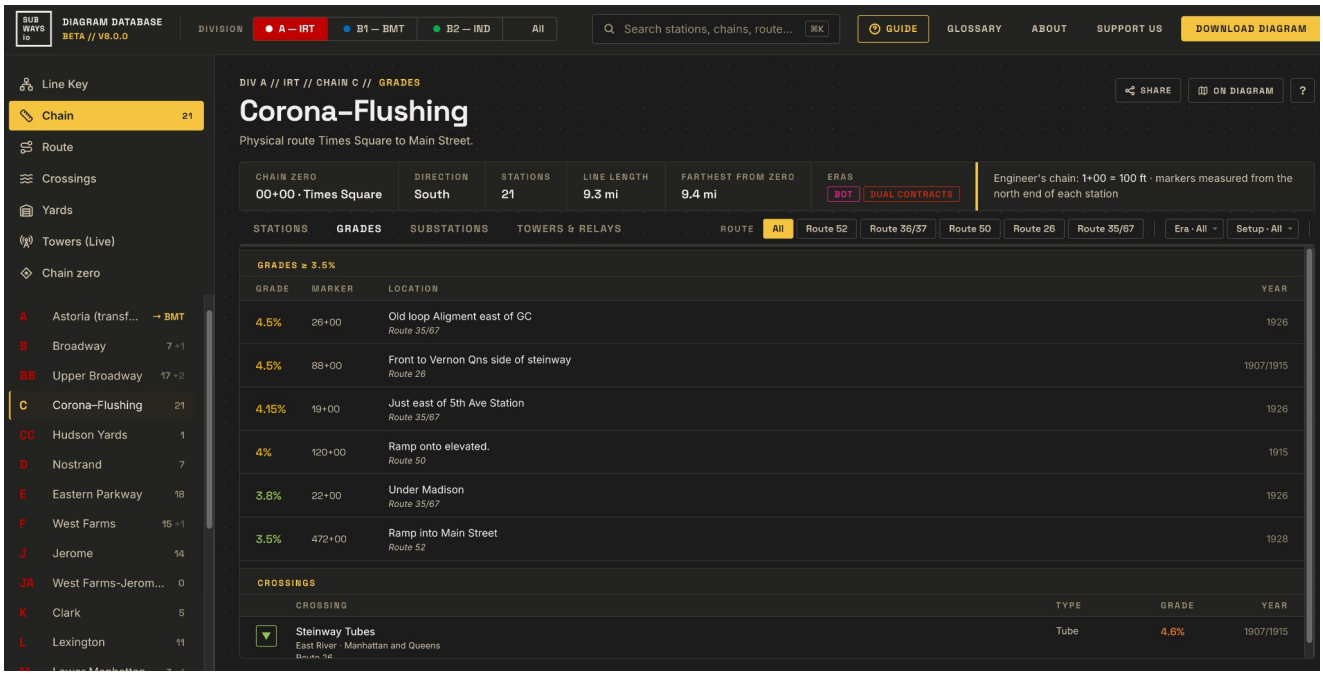
The annotated marker identifies the train type, line chain (where supported), reported track, schedule status, route-trunk color, travel direction, rolling stock class, trip time and terminal code, and lead motor number. At a station, the display may alternate between the lead car and station name. Where the necessary timing information is available, the status dot indicates 6+ minutes behind (red), 3–5 minutes behind (orange), 0–2 minutes behind (green), or 3+ minutes early (blue).

Interpretation tip • These are interface labels and estimated operational indicators. Track, chain, timing and position fields depend on current feed coverage and available source records.

Interface reference — additional examples

The following screenshots illustrate how to interpret five commonly used interface features in beta v8.0.0. Use the underlying record and supporting sources to verify technical conclusions.

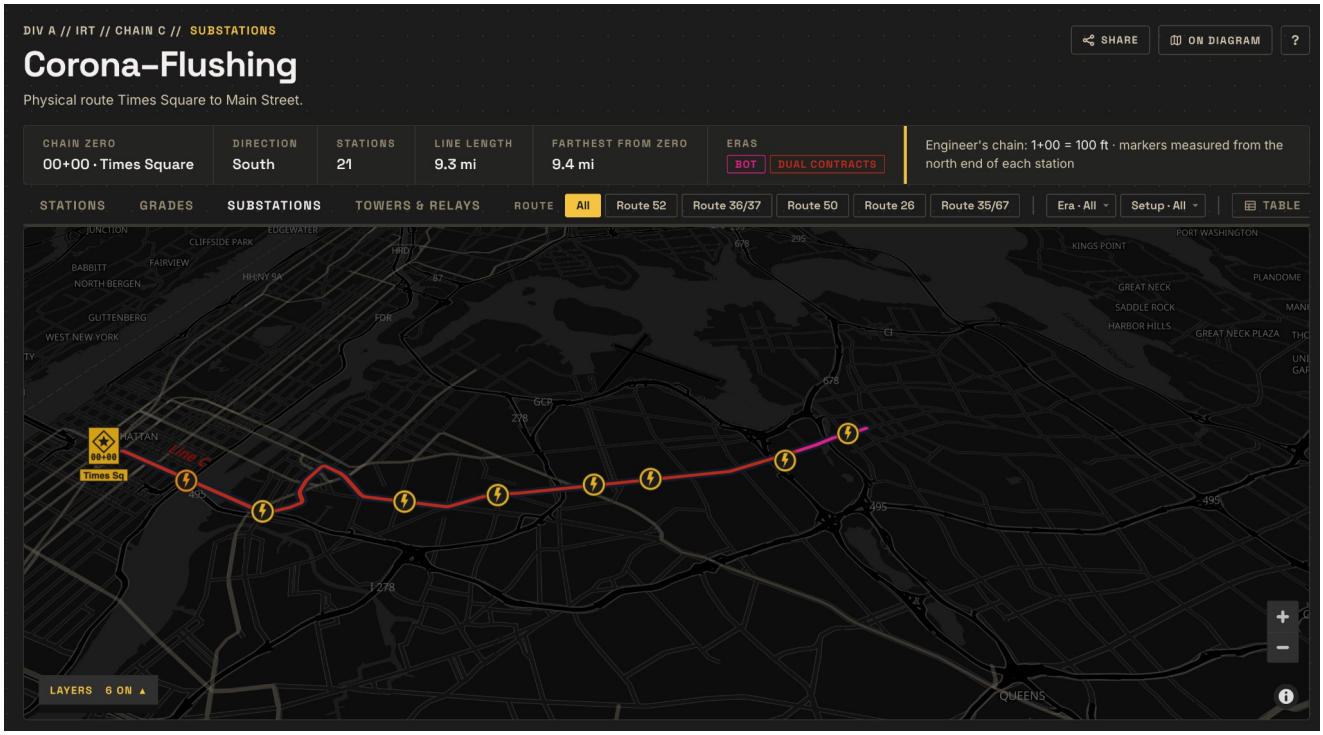
INTERFACE EXAMPLE 01 / Grade records — Corona–Flushing



The Grades tab lists recorded gradients of 3.5% or greater, alongside engineering markers, locations, construction route references, and dates. Its separate Crossings table can also connect significant gradients to river crossings. Percentages and historical configurations should be understood in the context of their source records.

Reading note: The database presents interpreted records and visualizations. Not every field, relationship, or displayed location has identical source coverage or accuracy.

INTERFACE EXAMPLE 02 / Substations — physical distribution



The Substations tab locates power infrastructure along a selected line chain. Lightning-bolt markers provide a geographic way to examine the relationship between a chain and associated traction power facilities. The map is an exploration aid, not an electrical single-line diagram.

Reading note: The database presents interpreted records and visualizations. Not every field, relationship, or displayed location has identical source coverage or accuracy.

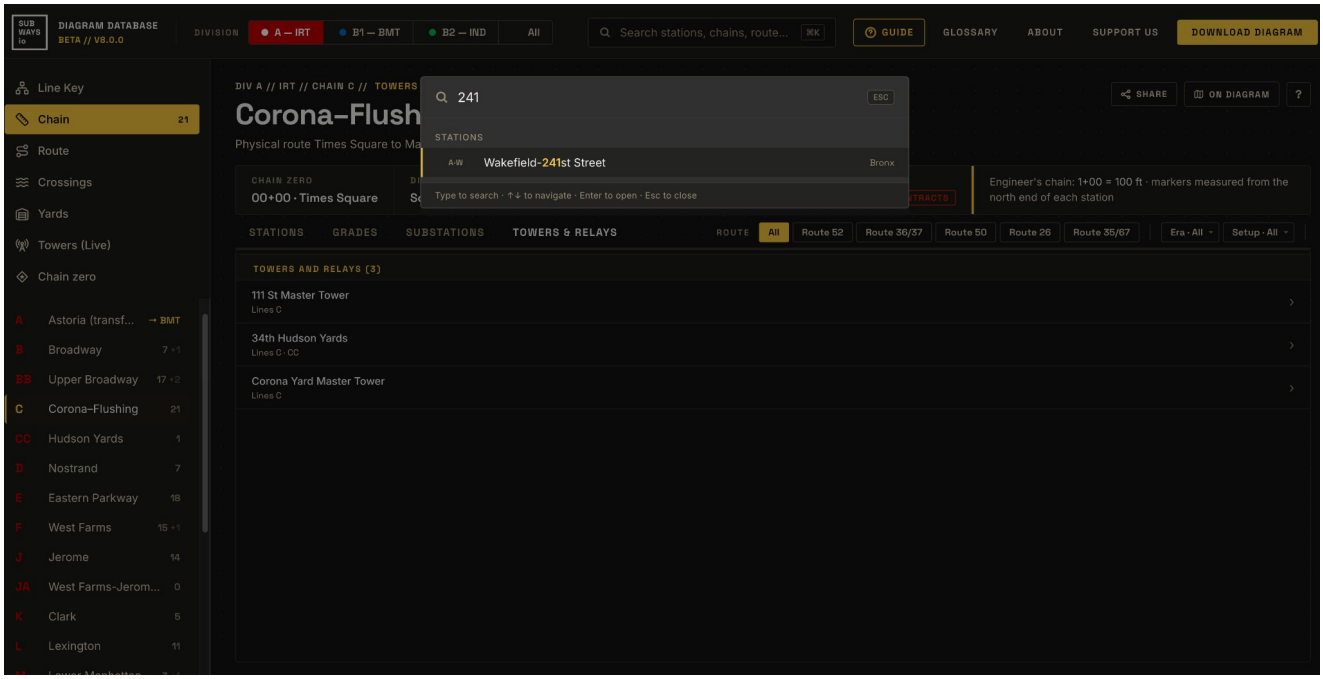
INTERFACE EXAMPLE 03 / Substation record — Queens Blvd–39th Place



Selecting a substation reveals its record, including power classification, construction route, and nearby station reference where available. A listed association or nearest station does not by itself establish exactly which track circuits or electrical sections the substation supplies.

Reading note: The database presents interpreted records and visualizations. Not every field, relationship, or displayed location has identical source coverage or accuracy.

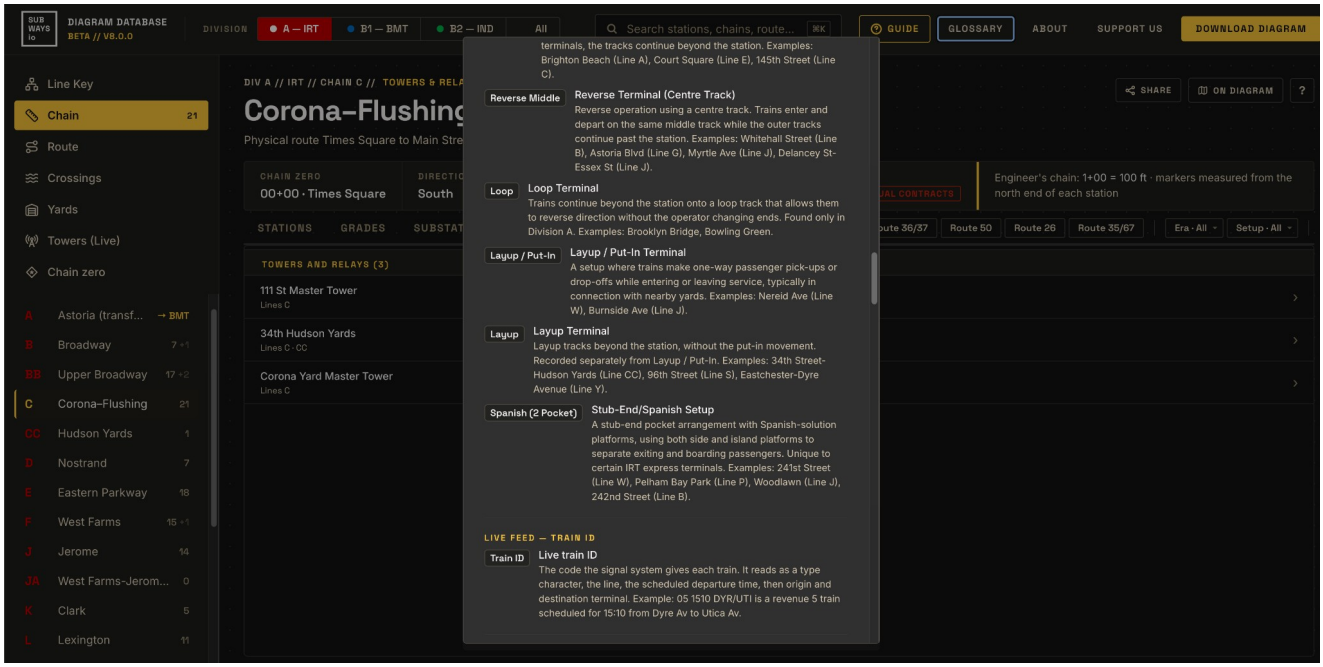
INTERFACE EXAMPLE 04 / Search — finding records



The global search lets visitors look for stations, chains, and routes. In the example, entering “241” returns a station name match. Search results are navigation aids: open the returned record to review its full context and available references.

Reading note: The database presents interpreted records and visualizations. Not every field, relationship, or displayed location has identical source coverage or accuracy.

INTERFACE EXAMPLE 05 / Glossary — interpreting technical codes



The glossary explains terminology used in station configurations, terminal arrangements, and live operational feeds. It helps users interpret labels consistently but does not replace original source documents for asset-specific verification.

Reading note: The database presents interpreted records and visualizations. Not every field, relationship, or displayed location has identical source coverage or accuracy.

Engineering Sources & Data Verification

From original engineering drawings to an interconnected physical-network database

The engineering drawings shown in this section are primary source material. They document the physical arrangements, construction requirements, measurement references and equipment details established for specific locations and periods in the subway's history. Subs.nyc takes information from these records and organizes it into a structured, searchable database that can be explored through maps, asset records and operational visualizations.

The database is therefore not a reproduction of any single drawing. It is a structured interpretation that brings related information together: a track can be connected to its line chain, a station to its engineering markers, and an interlocking to the tower territory associated with it. The original drawing remains essential for understanding the context and basis of a record.

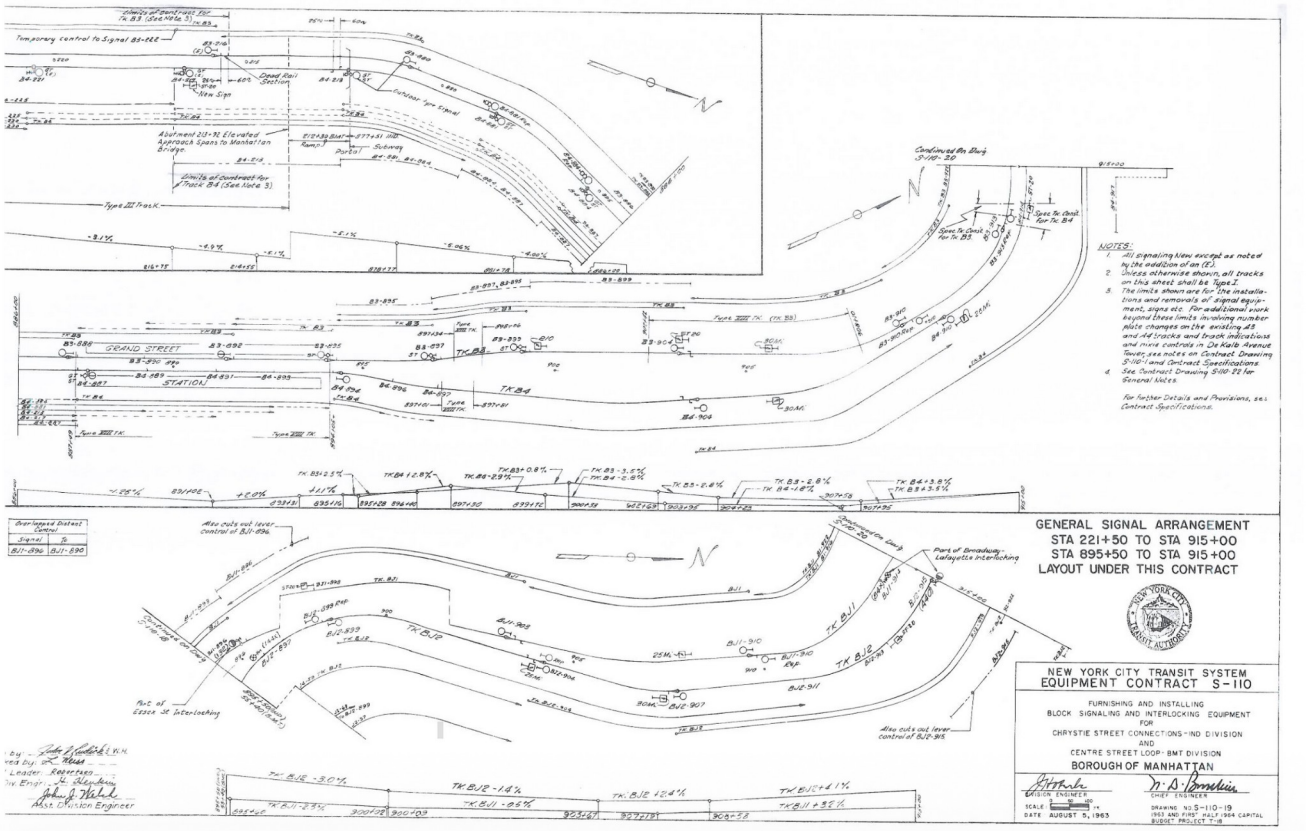
How to read these sources

- **Primary document:** A drawing may establish the layout, naming, equipment or measurements specified at the time it was issued.
- **Database record:** Extracted facts are normalized and linked to related locations or assets so users can search and compare them.
- **Mapped visualization:** Geometry and identifiers are displayed together for exploration; positions may be generalized or inferred where precise coordinates are unavailable.
- **Verification:** Drawing numbers, dates, revisions and asset-level references should be retained as they are reviewed. Older drawings are not proof of present-day configuration.

The examples below illustrate the types of source documents informing the database. They are not a claim that every displayed field has already been independently verified against an original source.

SOURCE EXAMPLE 01

Chrystie Street Connection — general signal arrangement

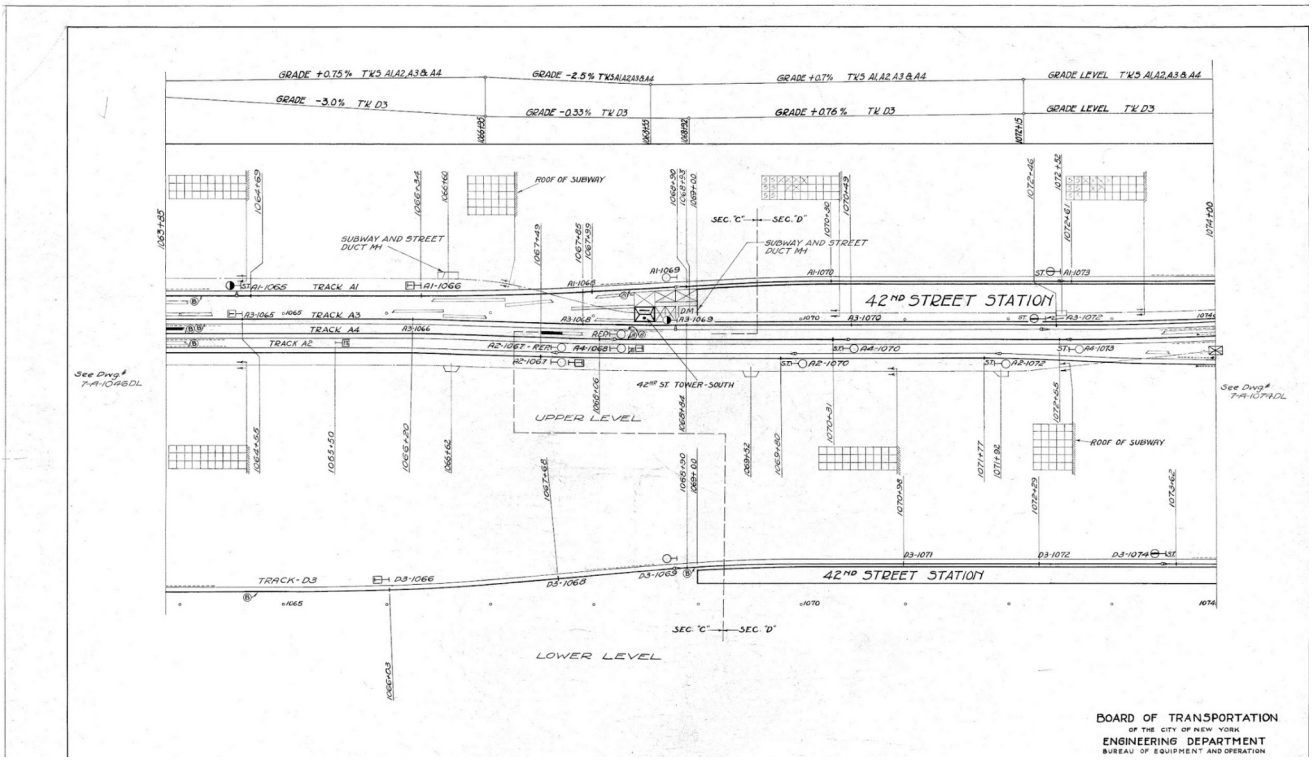


This 1963 contract drawing shows the relationship between tracks, interlocking arrangements, signal equipment, grade annotations and chaining through the Chrystie Street connections. It provides context for interpreting connections between IND and BMT line references.

Source-reading note: Interpret the drawing in its own dated context; verify revisions and current arrangements separately before treating an element as present-day infrastructure.

SOURCE EXAMPLE 02

42nd Street — multi-level signal arrangement

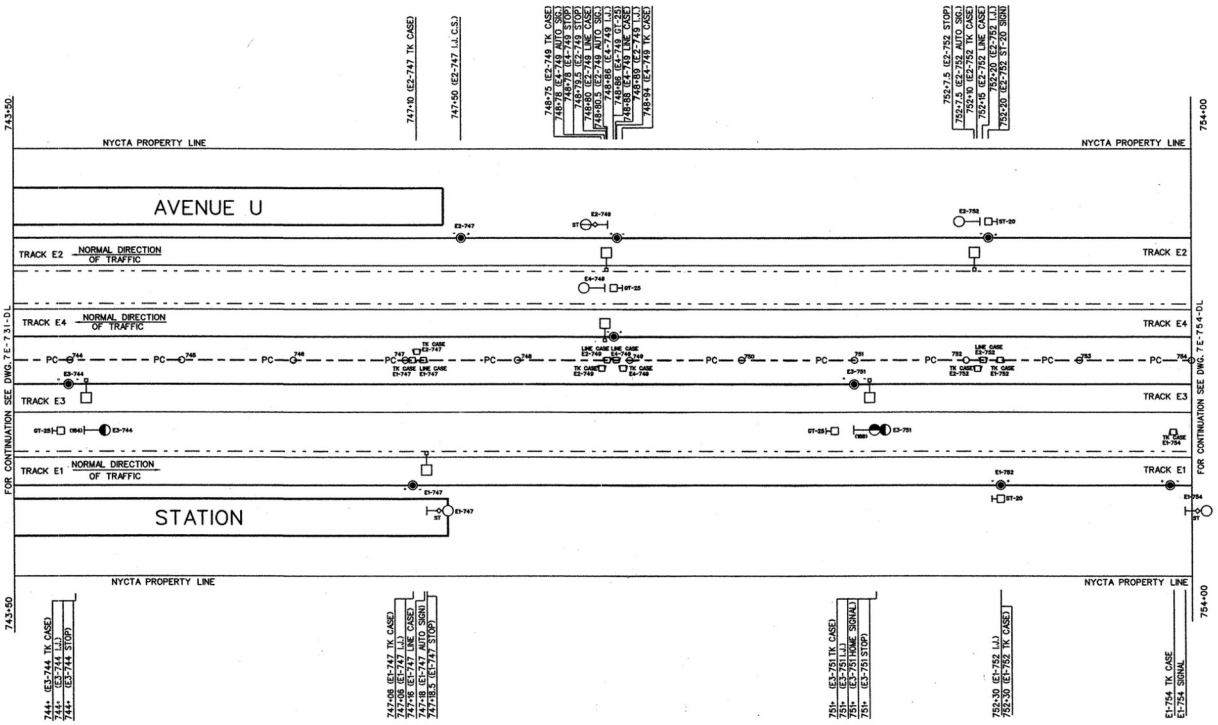


The drawing separates upper and lower track levels, identifying track labels, equipment and engineering locations. It illustrates why a single flat map cannot fully communicate complex station infrastructure.

Source-reading note: Interpret the drawing in its own dated context; verify revisions and current arrangements separately before treating an element as present-day infrastructure.

SOURCE EXAMPLE 03

Avenue U — track and signaling record

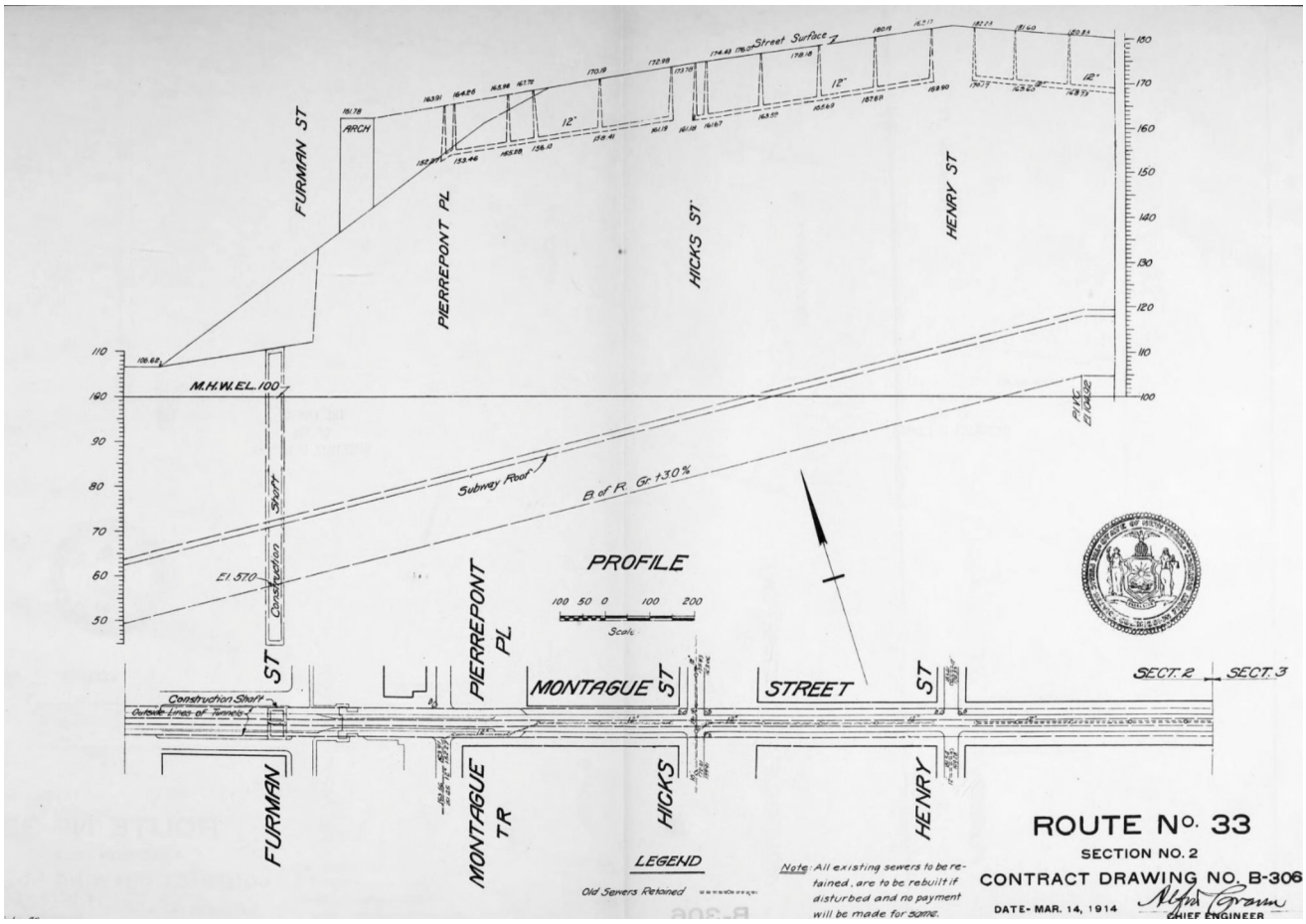


Track designations, direction-of-traffic indicators, station limits and equipment markers show how a localized signal print can support individual infrastructure and track records.

Source-reading note: Interpret the drawing in its own dated context; verify revisions and current arrangements separately before treating an element as present-day infrastructure.

SOURCE EXAMPLE 04

Route No. 33 — construction profile (1914)

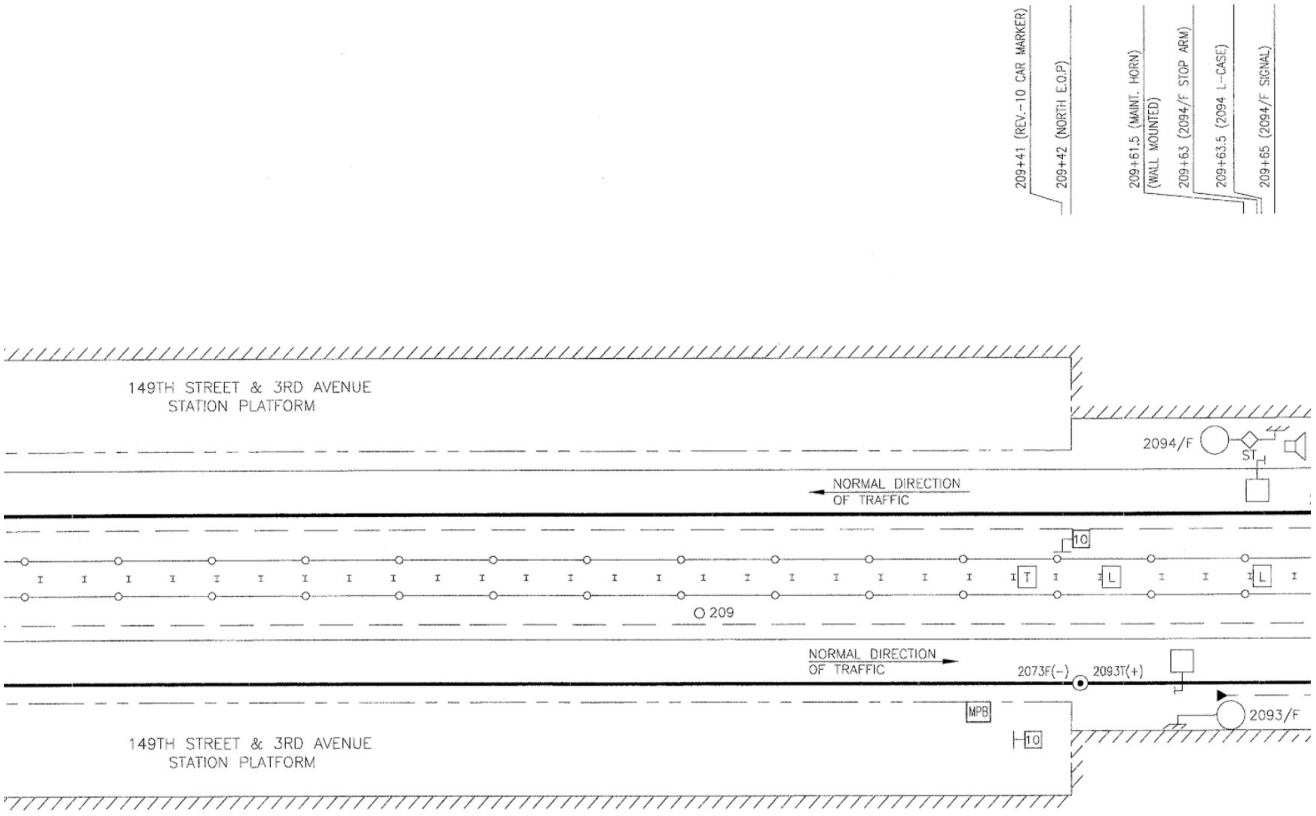


A profile drawing relates street elevations, subway structure and grade along the planned alignment. Such drawings are especially useful for explaining grades and vertical relationships that plan views cannot show.

Source-reading note: Interpret the drawing in its own dated context; verify revisions and current arrangements separately before treating an element as present-day infrastructure.

SOURCE EXAMPLE 05

149th Street & Third Avenue — signal and platform plan

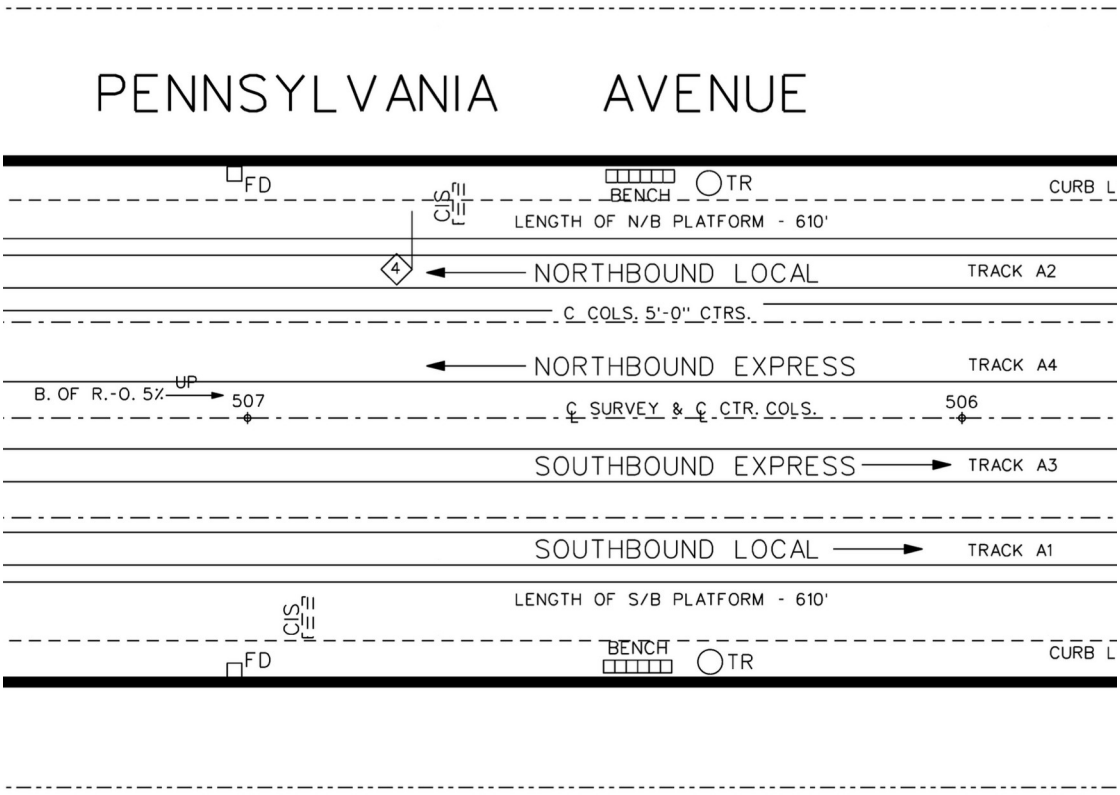


The plan identifies station platforms, track direction, signals and car-marker references. These details help explain the relationship between platform position references and track-based records.

Source-reading note: Interpret the drawing in its own dated context; verify revisions and current arrangements separately before treating an element as present-day infrastructure.

SOURCE EXAMPLE 06

Liberty Ave — platform layout and dimensions



This station plan documents the four-track arrangement, with northbound local (A2), northbound express (A4), southbound express (A3), and southbound local (A1). Both the northbound and southbound platforms are labeled as 610 feet long.

How it supports the database: The drawing provides a source reference for platform length, platform configuration, track designations, and normal directions of traffic. Values derived from the print can be compared against the station record, rather than accepted solely from the map presentation.

Source-reading note: This historical print reflects the configuration represented in the drawing; later revisions, field changes, or operational practices may differ. The station name and line designation should be verified against the drawing's title block and the corresponding record.

SPECIAL THANKS

R.G.G

Krzysicus

Additional acknowledgment to Jeffrey B. Erlitz for his work, *Schematic Track and Interlocking Diagrams of the New York City Transit Authority, Staten Island Railway and South Brooklyn Railway*, used alongside contract drawings in the Towers section.