ChatGPT

SF Bay Area GTFS & GTFS-Realtime Sources (511, SFMTA, BART, Caltrain) – 27 Jan 2026

This report summarizes the current General Transit Feed Specification (GTFS) and GTFS-Realtime (GTFS-RT) data sources available for the San Francisco Bay Area as of **27 Jan 2026**. Agencies covered include **511 SF Bay**, **San Francisco Municipal Transportation Agency (SFMTA/Muni)**, **Bay Area Rapid Transit (BART)** and **Caltrain**. For each agency the table lists the access method, update frequency, rate limits and licensing restrictions and notes any issues relevant to feeding the data into **OpenTripPlanner (OTP)**.

1 511 SF Bay (Metropolitan Transportation Commission)

Overview: 511 SF Bay acts as the regional aggregator of transit data. It publishes static GTFS datasets and GTFS-RT feeds for the region and for individual operators. Access requires an API token and acceptance of the 511 SF Bay data agreement. The *regional* data feed uses the operator code **RG** and includes the operators that supply real-time data.

Data type	Source and access	Update frequency	Rate limits & API requirements	Licensing & use constraints	Notes
Static GTFS (Regional)	`http://api.511.org/transit/datafeeds?api_key=…&operator_id=RG&status=active` – returns a zipped regional GTFS feed. The `status=active` filter should be used to get the "live" schedule; without it you may receive an upcoming schedule. 511 publishes a GTFS feed for **upcoming service changes** three days in advance [1]. A regional feed is also available for historic dates (e.g., using `historic` filter).	511 SF Bay and Interline produce a new regional GTFS file **daily** [2]. When agencies plan service changes the new schedule appears in the feed a few days before the service date [1].	A **token (api_key)** is required; developers must request a token from 511's developer site. The default rate limit for each API key is **60 requests per hour** (60 requests/ 3,600 s). 511 will return HTTP 429 if the limit is exceeded and larger limits may be requested via email [3] [4].	The 511 Terms of Use grant a *limited, non-commercial* license. It prohibits reselling or redistributing the data without prior authorization, prohibits automated scraping or bulk downloads beyond the API, and allows personal use only [5].	The regional static feed consolidates all agencies and is recommended for OTP because it provides consistent route and stop IDs. To build an OTP graph, download the latest regional feed each day and update whenever a service change is announced.
Static GTFS (Individual operators)	Same endpoint as above but with `operator_id` set to the agency code (e.g., `BART`, `SF`, `CT`). Data is only available for agencies that submit static GTFS to 511.	Updated when the individual operator updates its feed; 511 repackages the data daily.	API key required; same rate limits as above.	Same license as regional.	Useful when building agency-specific OTP graphs or comparing to the consolidated feed.

Data type	Source and access	Update frequency	Rate limits & API requirements	Licensing & use constraints	Notes
GTFS-RT Trip Updates	`http://api.511.org/transit/tripupdates?api_key=…&agency=RG` – returns real-time trip updates for agencies whose feeds are marked “Monitored.” For a single agency replace `RG` with its operator code [6].	Data is streamed continuously; 511 recommends clients poll every ~20 seconds. MTC’s regional guidelines advise that trip update and vehicle position feeds should refresh every **20 seconds** and include updated timestamps [7].	Same API-key and rate-limit requirements as static feed.	Same as above; real-time data may be subject to additional restrictions in individual agency licenses.	The regional feed currently covers AC Transit, Muni (converted from NextBus/SIRI), SamTrans, VTA and others (operators whose `Monitored` flag is true [8]). BART supplies its own GTFS-RT feed (see below).
GTFS-RT Vehicle Positions	`http://api.511.org/transit/vehiclepositions?api_key=…&agency=RG` – returns vehicles with location, trip and stop data [9].	Same as trip updates; updates about every 20 s.	Same as above.	Same as above.	Not all agencies provide vehicle positions. For instance, BART doesn’t provide vehicle positions to 511; Caltrain feeds are derived from radio-based predictions and may be less reliable.

Data type	Source and access	Update frequency	Rate limits & API requirements	Licensing & use constraints	Notes
GTFS-RT Service Alerts	`http://api.511.org/transit/servicealerts?api_key=…&agency=RG` – provides region-wide and agency-specific service alerts (in Protocol Buffer, XML or JSON) [10].	Alerts update as disruptions occur; frequency is irregular.	Same as above.	Same as above.	Service Alerts are essential for OTP to reflect sudden disruptions; they should be polled regularly.

Additional notes for 511

- **Monitored flag:** 511's list of operators has a *"Monitored"* flag; only agencies with this flag supply real-time data to the regional feed [8].
- **Token request:** tokens and higher rate limits can be requested via 511's open data page [3]. Without a valid token, the API will return an error (as seen when we attempted to access `transit/operators` without a valid key).
- **License pitfalls:** the 511 license forbids redistributing the data and prohibits automated bulk downloads [5]. This could limit archiving or commercial use; written authorization is required for commercial redistribution. [11].
- **Update frequency:** while the regional GTFS feed is built daily, real-time feeds should be polled frequently (20–30 s) to capture vehicle movements. 511 may throttle if the polling is too aggressive.

2 SFMTA/Muni

Data type	Source and access	Update frequency	Rate limits & API requirements	Licensing & use constraints	Notes
Static GTFS	SFMTA publishes schedule data on its own site and through the DataSF portal. The dataset description states that SFMTA publishes new transit schedules as soon as schedule changes are planned and finalized, **at least quarterly** and usually more often. The DataSF page (last updated 17 Oct 2025) confirms this and lists the data-change frequency as quarterly [12]. Access is via a zipped file; no API key is required.	New schedules are produced whenever service changes occur, at least **quarterly** [12]. DataSF's last update (Oct 2025) indicates SFMTA had updated the schedule more recently than the minimum requirement.	No rate limiting for the static file download; DataSF uses standard web download restrictions.	The SFMTA **Transit Data License Agreement** grants a non-exclusive, limited, revocable license to use and distribute the data [13]. The data is provided "as is" without warranties [14], and SFMTA retains all rights. The license prohibits the use of SFMTA trademarks without permission [15] and allows SFMTA to alter or cease data at any time [16].	The GTFS file does **not include real-time data** [17]. For real-time arrival information, SFMTA's NextBus/ SIRI feed is used.

Data type	Source and access	Update frequency	Rate limits & API requirements	Licensing & use constraints	Notes
GTFS-RT	SFMTA does not publish its own GTFS-Realtime feed. Instead, vehicle predictions and trip updates are delivered through a SIRI/ NextBus API. 511 SF Bay converts these predictions into GTFS-RT and makes them available through its regional `tripupdates`, `vehiclepositions` and `servicealerts` feeds (see 511 section) for agencies whose `Monitored` flag is true (SFMTA is included) [8].	Real-time updates depend on vehicle telematics; 511's consolidated feed refreshes roughly every 20 seconds [7].	Use of the real-time data through 511 is subject to the 511 API key and rate limits described above.	Same license restrictions as 511 for the real-time feed; SFMTA license applies only to the static schedule data.	Using 511's GTFS-RT feed is the simplest way to integrate SFMTA real-time data into OTP. Direct integration of SIRI requires additional conversion.

Additional notes for SFMTA

- **Update cadence:** SFMTA historically publishes new GTFS schedules several times per year; the DataSF page notes that publishing occurs "as soon as schedule changes are planned and finalized" and at least quarterly [12].
- **Licensing pitfalls:** SFMTA's license disclaims all warranties [14] and requires indemnification [18]. It also prohibits the use of SFMTA logos without permission [15].
- **Real-time conversions:** Because SFMTA uses SIRI rather than GTFS-RT natively, the 511 feed may not provide vehicle positions for all vehicles or may deliver them with delays. Testing is recommended.

3 Bay Area Rapid Transit (BART)

Data type	Source and access	Update frequency	Rate limits & API requirements	Licensing & use constraints	Notes
Static GTFS	`https://www.bart.gov/dev/schedules/google_transit.zip` (permalink). BART makes its GTFS schedule file freely available; **no registration is required** [19]. Developers are instructed to *check the permalink regularly* for the latest version [20].	BART does not publish a specific schedule for feed updates; it releases a new GTFS file whenever service schedules change. BART encourages developers to check the link regularly for updates [20].	None. Downloads are unthrottled; there is no API key requirement.	BART's **Developer License Agreement** provides a non-exclusive, limited, revocable right to use the data and prohibits use of BART trademarks. The data is provided "as is," and BART may stop providing it at any time [21].	The static feed includes schedules, fares and station information. Because the feed is not versioned by date, applications must monitor the link for updates.

Data type	Source and access	Update frequency	Rate limits & API requirements	Licensing & use constraints	Notes
GTFS-RT Trip Updates & Alerts	BART publishes its own GTFS-RT feed separate from 511. There is no registration or API key required [22]. Endpoints: `http://api.bart.gov/gtfsrt/tripupdate.aspx` and `http://api.bart.gov/gtfsrt/alerts.aspx` [22].	Real-time feeds update continuously. BART does not state a specific refresh rate; polling every 20–30 seconds is common practice.	None specified.	Same developer license agreement as static feed (see above).	BART does **not** provide a GTFS-RT vehicle-positions feed. The **Antioch branch** uses a different control system; its `trip_id` values may not match the static schedule, and the Oakland Airport Connector lacks real-time arrival data [22]. These mismatches can cause OTP to fail to match trip updates to the static feed.
Service Alerts	Included in the `alerts.aspx` feed [22].	Same as above.	None.	Same as above.	Alerts provide information about line disruptions and elevator outages.

Additional notes for BART

- **No vehicle-positions feed:** Because BART's GTFS-RT feed only provides trip updates and alerts, OTP's real-time visualization of trains on a map will not be possible. Predictions are limited to updated arrival times.
- **Trip-ID mismatch:** BART notes that `trip_id` values for the Antioch branch do not match the static schedule and that the Oakland Airport Connector lacks arrival data [22]. OTP users should be aware that real-time updates for these services will not display correctly.
- **License limitations:** BART's license prohibits the use of BART logos and system maps without permission and disclaims all warranties [23] [21].

4 Caltrain (Peninsula Corridor Joint Powers Board)

Data type	Source and access	Update frequency	Rate limits & API requirements	Licensing & use constraints	Notes
Static GTFS	Caltrain provides a zipped GTFS schedule file for download through its developer resources page (link to `data.trilliumtransit.com`). No API key is required [24].	Caltrain posts new schedules whenever service changes occur. The developer page notes a new schedule announcement (e.g., *Jan 31: new Caltrain schedule*) [25], implying updates occur as needed rather than on a fixed schedule.	None specified; downloads are unthrottled.	Caltrain's **Developer License Agreement** grants a non-exclusive, limited, revocable right to use, reproduce and redistribute the data. It prohibits use of PCJPB trademarks, disclaims all warranties and allows Caltrain to stop providing data at any time [26].	The feed is distributed by Trillium Transit on Caltrain's behalf. Users must accept the license before using the feed.
GTFS-RT	Caltrain does **not** produce a GTFS-Realtime feed directly. Real-time predictions (train locations and delays) are available on Caltrain's website but not in GTFS-RT format. 511 SF Bay's regional `tripupdates` and `vehiclepositions` feeds include Caltrain predictions where available (derived from automated train control).	Real-time data frequency depends on Caltrain's prediction systems. 511's feed refreshes roughly every 20 seconds [7].	Same API requirements and rate limits as 511 (if using the consolidated feed).	Use of real-time data via 511 is subject to 511's license.	Because Caltrain lacks an official GTFS-RT feed, OTP users should rely on 511's regional feed for real-time updates. Predictions may be coarse because Caltrain trains travel long distances.

Additional notes for Caltrain

- **Schedule updates:** Caltrain introduced a new schedule on **31 Jan 2026** [25]. Future schedule changes are typically announced on Caltrain's website and data portal.
- **License implications:** The license prohibits using Caltrain logos or system map and disclaims all warranties [26]. Caltrain reserves the right to stop providing data without notice.

5 Recommendations for Feeding OTP & Potential Pitfalls

Building the OTP graph

1. **Use the regional static feed from 511** – For multi-agency trip planning, the **Regional GTFS feed** provides consistent identifiers across agencies and is updated daily [2]. Download the latest feed using `status=active` to ensure you get the current schedule [1].
2. **Include agency-specific feeds cautiously** – If you need agency-specific fields such as fares or shapes not present in the regional feed, download each agency's static feed (BART, SFMTA, Caltrain) and merge with the regional feed. Be aware that schedule versions may differ; always align on service dates.
3. **Configure GTFS-RT in OTP** – Set up OTP's real-time updater to poll 511's regional GTFS-RT endpoints (`tripupdates`, `vehiclepositions` and `servicealerts`) with your API key. Poll the feeds every **20–30 seconds** as recommended by MTC guidelines [7]. For BART, configure an additional updater to poll BART's trip-update and alerts feed; there is no vehicle-positions feed.
4. **API token management** – Acquire an API key from 511 and monitor usage. The default rate limit (60 requests/hour) may require adjustment if multiple real-time updaters are polling frequently [3]. Consider pooling requests (e.g., use one shared process to poll the feed and push updates into OTP) to minimize API calls.
5. **Test for data alignment** – Real-time trip IDs must match the static feed. BART warns that its Antioch line uses different trip IDs and the Oakland Airport Connector lacks real-time arrivals [22]. OTP may fail to match these trips; consider excluding them from real-time updates or providing fallback static times.
6. **Monitor schedule changes** – Subscribe to agency alerts and update the static feed in OTP whenever there is a scheduled service change. SFMTA publishes schedules at least quarterly [12], while Caltrain and BART update as needed [20] [25].

Pitfalls and cautions

- **Licensing limitations** – 511's terms restrict commercial redistribution and automated scraping [5]. SFMTA, BART and Caltrain licenses all grant revocable rights and prohibit use of trademarks [15] [21] [26]. Ensure compliance with each license when distributing data or building a commercial product.
- **Incomplete real-time coverage** – BART does not provide vehicle positions and has mismatched trip IDs for certain lines [22]. SFMTA's real-time data originates from a NextBus/SIRI system; conversions by 511 may omit some vehicles or include delays. Caltrain lacks official GTFS-RT. These gaps can reduce the quality of OTP's real-time predictions.
- **Rate limits** – 511's rate limit (60 requests/hour) can be restrictive when polling multiple feeds simultaneously [3]. Exceeding the limit will return HTTP 429 responses. To avoid this, batch requests and request higher limits if necessary.

- **Version mismatches** – Mixing static GTFS files from different dates (e.g., BART vs. 511) can cause OTP to mismatch trip IDs. Always ensure static and real-time feeds are from the same schedule period.
- **Non-GTFS real-time data** – Some agencies only provide SIRI (XML/JSON) or other proprietary formats. Using 511's GTFS-RT conversion is recommended, but be aware that not all SIRI attributes map directly to GTFS-RT.

6 Summary and Conclusion

The San Francisco Bay Area benefits from a robust regional open-data infrastructure. **511 SF Bay** provides the central access point for both static and real-time data, with daily updates and standardized identifiers. **SFMTA/Muni** and **Caltrain** publish static GTFS files and rely on 511 to distribute real-time predictions. **BART** maintains its own real-time feed but does not publish vehicle positions and warns of mismatches for certain lines. When feeding data into **OpenTripPlanner**, developers should:

- Use the regional GTFS feed from 511 and monitor daily updates;
- Poll 511's regional GTFS-RT feeds and BART's own GTFS-RT feeds at ~20–30 second intervals;
- Comply with API rate limits and licensing terms;
- Watch for inconsistencies (Antioch branch, Oakland Airport Connector) and incomplete coverage;
- Update OTP's graph whenever schedule changes are announced.

Adhering to these practices will provide riders with the most accurate and up-to-date trip planning experience while respecting agencies' data usage policies.

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1 8 511 Open Data | 511.org
https://511.org/open-data

2 SF Bay Area's Regional GTFS Feed Expanded - Interline Technologies
https://www.interline.io/blog/mtc-regional-gtfs-feed-additions/

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