ChatGPT

Comparison of Geocoding Policies and Routing/Isochrone Offerings (2026)

Context

A custom rental-listing app for San Francisco needs to geocode addresses, show them on an interactive map and compute commute times (e.g., time-by-bus to downtown). Choosing a provider involves understanding legal constraints around caching and map display and comparing routing/isochrone features and costs. The following table and discussion summarize major vendors: **Mapbox**, **Google**, **Pelias/Nominatim (commercial Geocode Earth and the free OpenStreetMap server)**, **OpenCage** and the **TravelTime** routing platform.

Geocoding: policies on storage/caching and map-display restrictions

Provider	Storage/caching policy	Map-display restrictions	Legal/licensing & cost signals
Mapbox Geocoding	Mapbox offers **temporary** (default) and **permanent** geocoding. Temporary results are session-based and **may not be cached or stored**; permanent geocoding requires adding `permanent=true` and a valid payment method and **permits indefinite storage and reuse** [1] .	Geocoding results (temporary or permanent) may be displayed on *any* map; Mapbox explicitly advertises that results are not locked to Mapbox tiles [2] . However, other APIs may differ: the Mapbox **Isochrone API** requires that isochrones be displayed on a Mapbox map using Mapbox libraries and SDKs [3] .	Pricing differentiates between temporary and permanent geocoding: temporary geocoding is billed around **$0.75–$0.45 per 1 k requests**, while permanent geocoding is **$5–$4 per 1 k requests** [4] . Mapbox's terms require attribution and comply with third-party data licences. Offline map tiles may be downloaded but the number of unique tile packs is capped (750 packs) [5] .

Provider	Storage/caching policy	Map-display restrictions	Legal/licensing & cost signals
Google Geocoding (Google Maps Platform)	The terms prohibit **pre-fetching, caching or storing** Google Maps content (including geocoding results) except for "place IDs" [6] . Content may be stored temporarily (for performance) but must be deleted within 30 days and cannot be reused; using place IDs and re-geocoding later is required [7] (not accessible in this window, but summarised from earlier context).	If geocoding results are displayed on a map it **must be a Google map** with the Google logo and attribution [6] . Google explicitly forbids displaying its content next to or overlaying non-Google maps [8] .	Google's platform enforces vendor lock-in and requires attribution; caching restrictions make it difficult to reuse geocoded results. Google provides a monthly credit ($200 until early 2025) but overages cost **$5 per 1 k geocoding requests** (not directly cited; common pricing guidance). Using Google for routing (Routes API) costs **$0.005 per matrix element** and has element limits (625 non-transit, 100 for traffic or transit) [9] .
Pelias/ Nominatim (Geocode Earth & OpenStreetMap)	**Geocode Earth**, a commercial provider built on the open-source Pelias engine, advertises **no restrictions**: customers may **store geocoded results indefinitely** and mix them with other vendors [10] . The terms note that the service uses open data (e.g., OpenStreetMap) and users must comply with the licences of those data sources [11] . Using the **public Nominatim server** requires light usage and caching; the usage policy limits to ~1 request/s and encourages caching results to avoid repeated queries [12] .	Geocode Earth explicitly says there is **no vendor lock-in**: results can be used on any map and mixed with other services [10] . The open-source Pelias engine can be self-hosted and integrated with any mapping library. Nominatim data (OpenStreetMap) must credit OSM and abide by the **ODbL** licence, which requires sharing derivative databases under the same licence when distributed.	Geocode Earth sells monthly subscriptions (e.g., **$100/month** for 150k requests; **$500/ month** for 2 M requests) [13] . The public Nominatim server is free but limited; heavy users must host their own instance or use Geocode Earth. Legal obligations include attribution to Geocode Earth and other data sources [11] . Software using Nominatim must be able to switch services and abide by ODbL share-alike requirements.

Provider	Storage/caching policy	Map-display restrictions	Legal/licensing & cost signals
OpenCage	Built on open data sources like OpenStreetMap, OpenCage allows customers to **store geocoding results permanently**; caching is recommended and there are no separate tiers for temporary vs permanent data [14] .	Results may be displayed on *any* map; the service emphasises that because the data are open, there is **no vendor lock-in** [15] . Users must follow the licences of underlying data sources (e.g., ODbL) and provide appropriate attribution [16] .	OpenCage offers a generous free tier (2.5k requests/day) and monthly plans starting at **$50/month** for 10k requests/day; all plans include the right to store data permanently [17] . Pricing scales down to **~$0.11 per 1 k requests** on large plans [18] . There is no surge pricing [19] .
TravelTime (routing/ isochrone provider)	TravelTime is a routing and time-based isochrone service rather than a geocoder. Their licensing page claims they **allow caching and let users integrate with any stack** [20] . However, the Terms of Service say that only **Enterprise or non-commercial users may cache service data**; they must refresh data every 30 days and delete it upon termination [21] .	TravelTime does not provide map tiles, so results can be combined with any mapping library. They sell travel-time matrices and isochrones rather than maps.	TravelTime offers two-week free trials and then licence packages; they do **not charge per request**. During the trial, limit is **60 hits/min**; after the trial, default limit is **5 hits/min** unless using a paid licence [22] . They can compute travel-time matrices for up to **2 000 locations per query (4 h max travel time)** [23] and support various transport modes (driving, cycling, public transit).

Discussion

Mapbox

Mapbox's geocoding offers flexibility but at different price points. **Temporary geocoding** is cheaper but prohibits caching, meaning the app must re-geocode addresses each time. **Permanent geocoding** permits storing and reusing coordinates (helpful for a rental app with thousands of listings) but costs about **$5 per 1 k requests** [4] . Crucially, Mapbox allows displaying geocoding results on any map [2] , so the app could use open-source map tiles (e.g., MapLibre) or Mapbox tiles. However, certain other APIs have display

restrictions—for example, **Isochrone results must be shown on a Mapbox map** [3] —and offline maps have a cap of 750 tile packs [5] .

For routing, Mapbox provides:

- **Matrix API** – returns travel-time and distance between multiple sources and destinations. For driving, walking and cycling profiles, a single request can include up to **25 coordinates** and is limited to **60 requests/minute**; for the traffic-aware driving profile, the limit drops to **10 coordinates** and 30 requests/minute [24] . Billing is per matrix element (minimum 2, maximum 625 elements). The Matrix API suits computing commute times between many listings and job centres.

- **Isochrone API** – computes polygons showing areas reachable within a time or distance. Each request can specify up to **4 contours** with a maximum of **60 minutes or 100 km**, and is limited to **300 requests/minute** [3] . Results must be displayed on a Mapbox map.

Mapbox's routing offerings emphasise reliability and widely-used map tiles. For a SF rental app, Mapbox's permanent geocoding plus matrix API could provide quick geocode lookups and commute-time matrices. The main trade-offs are higher cost for permanent storage and the requirement to display isochrones on Mapbox maps. Developers must also keep track of rate limits when calculating large matrices (e.g., 25 sources × 25 destinations yields 625 matrix elements). Mapbox may be a good fit if the app already uses Mapbox maps and can budget for permanent geocoding.

Google Maps Platform

Google's geocoding API is well known but **strictly limits caching**. The terms require that geocoding results (except place IDs) **not be stored beyond 30 days**, effectively forcing repeated geocoding or reliance on place IDs [6] [7] . When displaying results on a map, a **Google map must be used** and the Google logo shown [6] ; Google forbids mixing its data with non-Google maps [8] . These restrictions create vendor lock-in and hinder combining Google geocoding with open-source maps.

The **Routes API** (replacement for Distance Matrix) offers **Compute Route Matrix**. Requests are billed **per element** (an origin-destination pair) and may not exceed **625 elements** for non-transit routes or **100 elements** for transit or traffic-aware routes [9] . When using addresses or place IDs, the total number of waypoints (origins + destinations) is limited to 50 [9] . Pricing (not directly cited but widely published) is roughly **$5 per 1 k matrix elements**. Google also provides turn-by-turn directions, real-time traffic and transit schedules. For a rental app that uses Google maps anyway, Google's routing could deliver accurate commute times. However, the inability to cache geocode results and requirement to display on Google maps make it less suitable for an app wanting to mix with open-source maps or offline functionality.

Pelias/Nominatim & Geocode Earth

Pelias is an open-source geocoding engine built on open data. **Geocode Earth**, a hosted commercial service run by the Pelias team, markets that customers can **store geocoded results "as long as you need" without infringing licences** [10] and that there is **no vendor lock-in** (mixing with other vendors is allowed) [10] . This is possible because the results are derived from open data such as OpenStreetMap; therefore the geocoder provider does not restrict caching. The terms require complying with the licences of the underlying data sources and giving attribution to Geocode Earth and those sources [11] . Subscription plans

start at **$100/month** for 150 000 requests (~$0.67 per 1 k) and scale up to **$500/month** for 2 M requests [13] .

The **public Nominatim server** (hosted by OpenStreetMap) is free but has strict usage policies: no heavy automated requests (max ~1 RPS), proper user-agent, and applications must cache results and avoid repeated queries [12] . Large users are expected to self-host or use a commercial provider like Geocode Earth. Because data are licensed under the **Open Database License (ODbL)**, derivative datasets (e.g., a compiled address database) may need to be shared under the same licence when redistributed. For a SF rental app, Pelias/Geocode Earth offers cost-predictable geocoding with unlimited caching and the ability to overlay results on any map. However, the open data may have lower address coverage and quality compared with Google; proper attribution and compliance with the ODbL are essential.

OpenCage

OpenCage aggregates multiple open data sources (OpenStreetMap, governmental datasets, etc.) and emphasises an **easy licensing model**. The service allows users to **cache and store results permanently** [14] ; there is no distinction between temporary and permanent geocoding. Users may display results on any map and are encouraged to do so [15] . The only requirement is to comply with the licences of the underlying data (e.g., ODbL) and include attribution [16] . Pricing is transparent: the free tier provides **2 500 requests/day** and paid plans start at **$50/month** for 10k requests/day, scaling to $1 000/month for 300k requests/day [25] . All plans include permanent data storage and no surge pricing [19] . OpenCage is well suited for a cost-sensitive app that needs to store geocoded results, provided the developer is comfortable with open-data quality and attribution obligations.

TravelTime

TravelTime focuses on computing **travel-time matrices, isochrones and routes** rather than geocoding. The licensing page suggests the API allows caching and works with any map [20] ; however, the **Terms of Service** restrict caching to **enterprise or non-commercial customers**—they may cache service data but must refresh it every 30 days and delete it upon termination [21] . TravelTime does not lock users into specific map tiles and sells annual licences rather than per-request billing. During the two-week free trial, the service allows **60 hits per minute**; after the trial the default limit is **5 hits per minute** unless using a paid licence [22] .

The API supports various endpoints:

- **Time Filter / Travel Time Matrix** – returns travel times from multiple origins to multiple destinations. The standard endpoint accepts up to **2 000 locations per request** and a maximum journey time of **4 hours** [23] . The "Time Filter Fast" variants support up to **100 000** or **200 000** locations but shorten the maximum travel time to 3 hours [26] .

- **Routes endpoint** – provides turn-by-turn route information and supports travel times up to 12 hours [22] .

- **Isochrone endpoint** – returns polygons of areas reachable within given times; the maximum travel time is 4 hours. TravelTime offers multimodal options (driving, cycling, public transport, or combinations) and can restrict walking times, etc.

Because TravelTime sells licences rather than charging per request, it may be cost-effective for an app performing many isochrone or matrix calculations. However, caching restrictions for non-enterprise customers and concurrency limits after the free trial should be considered.

Suitability for a San Francisco rental app

- **Geocoding & storage** – The rental app will likely need to geocode property addresses once and store the results. **Google** is unsuitable here because it prohibits caching and ties results to Google maps. **Mapbox** can work if the app opts for permanent geocoding; the cost ($\approx$\$5 per 1 k) is higher but still manageable for a moderate number of listings. **OpenCage** and **Geocode Earth** allow indefinite storage at predictable monthly costs; they rely on open data and require attribution. For high accuracy or coverage, a hybrid approach could combine open-data geocoding with manual corrections. **Nominatim (public)** is not recommended for production due to strict rate limits.

- **Map display** – To give users an interactive map of listings, the app could use an open-source map library (Leaflet/MapLibre) with self-hosted or third-party tiles. Mapbox geocoding can still be used because its results are not locked to Mapbox maps [2] . Google geocoding would force the app to embed Google maps, which could clash with design or cost goals. Pelias/OpenCage results integrate easily with open maps. Mapbox **Isochrone** results would require using Mapbox maps [3] ; if the app does not want to commit to Mapbox maps, TravelTime or open-source routing may be preferable.

- **Routing & commute times** – For a rental app that helps users evaluate commute times, **Matrix/ Isochrone services** are essential. **Mapbox Matrix** offers simple distance or time matrices for up to 25 origins and destinations at a time [24] ; for a small set of job centres and dozens of listings, this is often sufficient. **Mapbox Isochrone** can visualize reachable areas but must be shown on Mapbox maps and is limited to 60 minutes [3] . **Google's Compute Route Matrix** supports up to 50 origins/ destinations (with place IDs) and 625 elements [9] , but using it would require showing the data on Google maps and prohibits caching results. **TravelTime** excels at travel-time matrices and isochrones (up to 2 000 locations and 4-hour journeys [23]) across multiple transport modes; it could provide more realistic commute times, especially for transit. The service's licensing (annual licence, caching restrictions for non-enterprise customers) must be considered.

- **Costs & lock-in** – Budget and flexibility will influence the choice. Open-data providers (OpenCage, Geocode Earth) offer cost-predictable plans and no lock-in, but may require more development effort and produce less accurate results for some addresses. Mapbox's cost for permanent geocoding is moderate; pairing it with open-source map tiles could be a balanced solution. Google offers rich features but imposes vendor lock-in and higher per-element costs for matrices. TravelTime provides advanced multimodal routing through annual licences; it could complement Mapbox or OpenCage geocoding for commute analysis, provided caching restrictions are addressed.

Summary

- **Open data vs proprietary** – Open-data geocoders like **Pelias/Geocode Earth** and **OpenCage** allow indefinite storage and display on any map; they require attribution and adherence to the ODbL. Proprietary geocoders differ: **Mapbox** offers a permanent option but charges a premium, while **Google** prohibits caching and requires display on Google maps.

- **Routing/matrix/isochrone services** – **Mapbox Matrix** suits small matrices and integrates with Mapbox maps; **Google's Compute Route Matrix** scales similarly but locks you into Google. **TravelTime** excels at large matrices and multimodal isochrones; however, caching is restricted to enterprise plans. Using open-source routing (e.g., OSRM) could also be considered if self-hosting is feasible.

- **Recommendation for the SF rental app** – For a flexible stack with open-source maps, consider pairing **OpenCage** or **Geocode Earth** for geocoding (permanent storage, cost-predictable) with **TravelTime** or **Mapbox Matrix** for commute analyses. If vendor lock-in and high costs are acceptable and the map must use Google's styling, Google's geocoding and routing provide highly accurate data. Ultimately, the choice depends on budget, desired accuracy, and whether open-data licensing obligations (attribution, share-alike) are acceptable.

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[1] Geocoding API | API Docs | Mapbox
https://docs.mapbox.com/api/search/geocoding/

[2] [4] Geocoding - Free Address and Places Search | Mapbox
https://www.mapbox.com/geocoding

[3] Isochrone API | API Docs | Mapbox
https://docs.mapbox.com/api/navigation/isochrone/

[5] Offline maps | Help | Mapbox
https://docs.mapbox.com/help/dive-deeper/mobile-offline/

[6] Policies and attributions for Geocoding API | Google for Developers
https://developers.google.com/maps/documentation/geocoding/policies

[7] Google Maps APIs Terms of Service | Google Maps Platform | Google for Developers
https://developers.google.com/maps/terms-20180207

[8] 494591824933587-terms-and-conditions-2024-05-02-0829.pdf
https://assets.applytosupply.digitalmarketplace.service.gov.uk/g-cloud-14/documents/703097/494591824933587-terms-and-conditions-2024-05-02-0829.pdf

[9] Get a route matrix | Routes API | Google for Developers
https://developers.google.com/maps/documentation/routes/compute_route_matrix

[10] [13] Geocode Earth
https://geocode.earth/

[11] Terms of Use - Geocode Earth
https://geocode.earth/terms/

[12] Nominatim Usage Policy (aka Geocoding Policy)
https://operations.osmfoundation.org/policies/nominatim/

[14] OpenCage Geocoding API Documentation
https://opencagedata.com/api

[15] Switching from Google geocoding to OpenCage
https://opencagedata.com/guides/how-to-switch-from-google-maps-geocoding

[16] OpenCage GmbH Terms and Conditions
https://opencagedata.com/terms

[17] [18] [19] [25] OpenCage Pricing - Geocoding API and Geosearch
https://opencagedata.com/pricing

[20] TravelTime Licensing | Simplicity, Privacy & Caching
https://traveltime.com/licensing

[21] Terms of Service | TravelTime Technologies
https://traveltime.com/terms-of-service

[22] TravelTime API Limits | Requests per Minute
https://docs.traveltime.com/api/overview/usage-limits

[23] Travel Time Matrix (Time Filter) API | TravelTime API Documentation
https://docs.traveltime.com/api/reference/travel-time-distance-matrix

[24] Matrix API | API Docs | Mapbox
https://docs.mapbox.com/api/navigation/matrix/

[26] Travel Time Matrix Endpoint Comparison | TravelTime API Documentation
https://docs.traveltime.com/api/reference/travel-time-distance-matrix-comparison