

Data unification opportunity for Miami-Dade County Transit systems

10/18/21



Agenda

Introductions

Transit data basics: What is GTFS and GTFS-rt?

Trillium & Swiftly overview

What is Swiftly doing with MDT?

Opportunity for municipal services

Next steps

Q&A



Introductions



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Introductions



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What is GTFS and why does Miami-Dade care about it?

GTFS is the de facto global standard
for exchanging transit data on mobile
devices and online

What is GTFS?

Origin of the Specification

Why isn't it as easy to get transit directions as driving directions?



Bibiana McHugh,
IT Manager for GIS and
Location-Based Services,
TriMet, in 2005



What is GTFS?

Contents and Standardization

2005: Google Transit launches as a “Labs” product.



Google’s mission:

“Organize the world’s information and make it universally accessible and useful.”

This requires **standardized data**.

Today:

6 continents, ~7,000 cities, 1 million transit stops

The screenshot shows the Google Maps Transit landing page. At the top, the browser address bar displays 'maps.google.com/landing/transit/index.html'. The page header features the 'Google Maps Transit' logo and navigation links for 'Home' and 'Cities Covered'. The main content area is divided into a search section on the left and a map section on the right. The search section includes 'From' and 'To' input fields, a 'Get Directions' button, and an 'Options' section with dropdown menus for 'Any transit mode' and 'Best route'. The map section features a world map with country labels and a 'Join Transit Partner Program' button. A text box above the map states: 'If you provide a transportation service that is open to the public, and operates with fixed schedules and routes, we welcome your participation - it is simple and free.' The footer contains the Google logo and links for 'About Google', 'Privacy', and 'Terms'.

Implementation Plan

1. Hire a vendor (Trillium) to collect, organize, and publish transit service data
2. Work with agencies to gather:
 - Fixed route- schedules and stop locations, transfers, etc.
3. Build GTFS
4. Make data publicly available for trip planning and analysis

Riders all want different things, but often have just one way to say it.

- New student rider
- New commuter to downtown
- Experienced commuter
- Frequent, tech-savvy rider
- Frequent, tech-averse rider
- Tourist
- Non-English speaking tourist

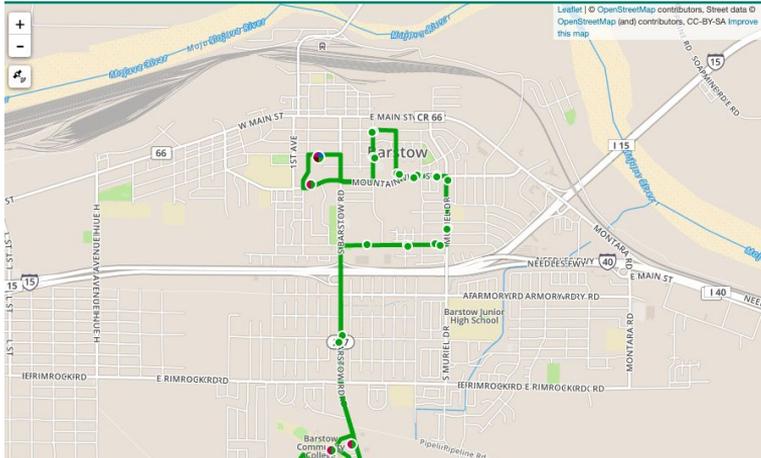
... and many, many others all want “an app”.

For use internally as well!

2 Barstow Library – Barstow College

DOWNLOAD SCHEDULE (PDF) 8 ALERTS

Map Schedules Fares



2 Barstow Library – Barstow College

DOWNLOAD SCHEDULE (PDF) 8 ALERTS

Map Schedules Fares

DAYS: Weekday Weekend DIRECTION: Northbound Southbound

Scroll to see full schedule →

From	6:30am	7:30am	8:30am	9:30am	10:30am	11:30am	12:30pm	1:30pm
Barstow Community College 30077								
Virginia Way & Lookout Dr 30185	6:42am	7:42am	8:42am	9:42am	10:42am	11:42am	12:42pm	1:42pm
Melissa Ave & E Mountain View St 30133	6:48am	7:48am	8:48am	9:48am	10:48am	11:48am	12:48pm	1:48pm
E Buena Vista St & MR Barney Keller Ct 30000	6:55am	7:55am	8:55am	9:55am	10:55am	11:55am	12:55pm	1:55pm

E Buena Vista St & MR Barney Keller Ct

STOP CODE: 30000

Serves Routes: 1 2 4 18 28 29 399

- ### Amenities
- Shelter
 - Bench
 - Trash Can

See stop page for more Street data © OpenStreetMap (and) contributors, CC-BY-SA Improve this map

Stop Code: 30000

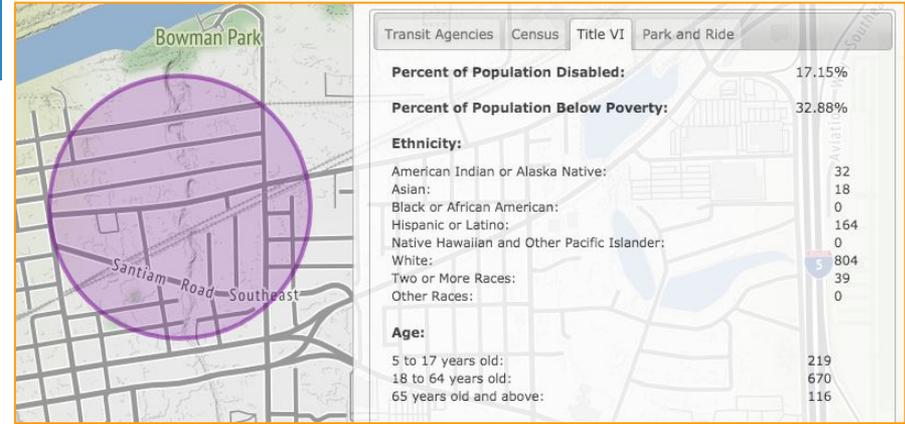
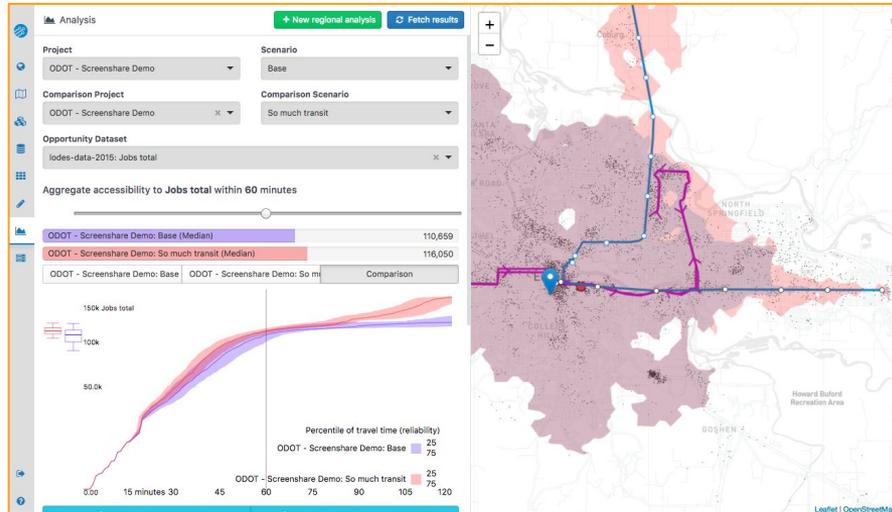
E Buena Vista St & MR Barney Keller Ct

Next Arrivals

- 2 08:14 pm ↻
- 3 08:14 pm ↻
- 4 08:15 pm ↻

Next Arrivals

And for planning...



What is Trillium?





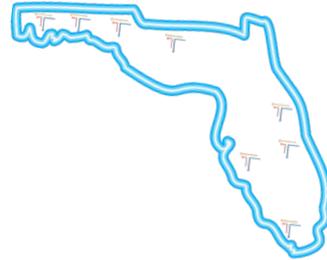
Help transit agencies, departments of transportation, and planning organizations use technology to plan and deliver better public transportation services

- Technology and procurement consulting “Transit Stack”
- Data standards advocacy
- GTFS creation and maintenance
 - GTFS Flex
 - Flexible Trip planning
 - Program finders
 - Realtime integrations
 - GTFS-powered, accessible websites
 - Interactive maps
 - Accessible HTML timetables
 - Real time alerts



Help transit agencies, departments of transportation, and planning organizations use technology to plan and deliver better public transportation services

- 400 transit agencies in the US trust Trillium
- 10+ years experience with GTFS
- ODOT, MassDOT, VTrans, Iowa DOT, CDOT, WSDOT
- FDOT '15 - GTFS and Google Transit for 7 agencies
- 8 current Florida agencies



What is Swiftly?

The first big data platform for public transit

Leverages nearly any kind of existing hardware to support great realtime passenger information, operational management tools, and historical analytics

Swiftly technical summary



Static GTFS

Schedule, route shapes, etc

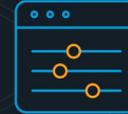


AVL

Locations and assignments



Real-time
passenger
information

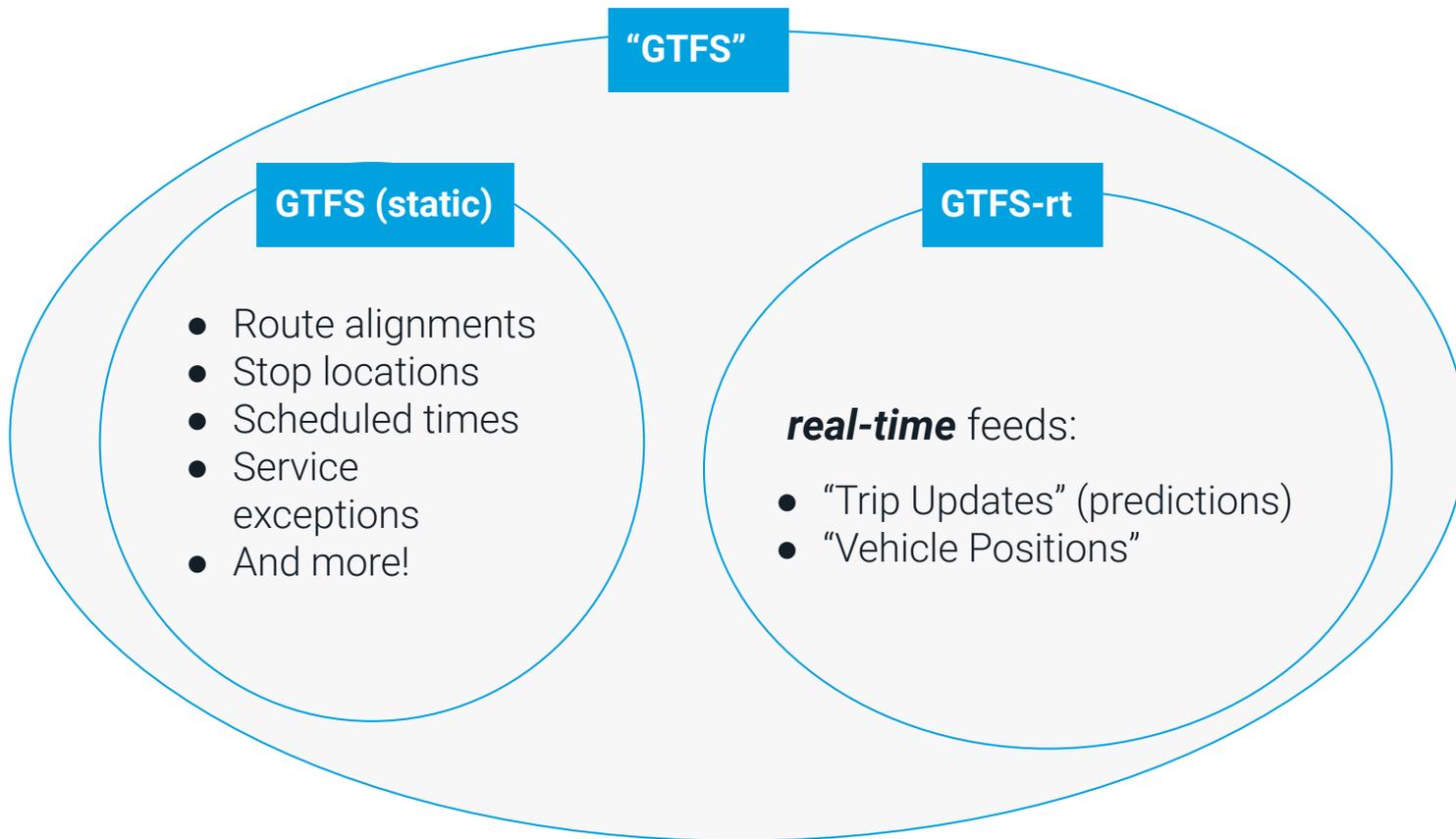


Historical data
analytics



Real-time
operations tools

GTFS basics



What does GTFS & GTFS-rt enable?

A single data standard that is usable by all applications

Major Third-party apps

- Google Maps
- Transit app
- Apple Maps
- Lyft
- Bing Maps

Agency-specific hardware & software

- Bus stop digital signs
- Onboard signage
- Custom smartphone apps
- SMS text-for-ETA phone number
- webtools

What makes our predictions different?

Swiftly was built by real-time passenger information pioneers. Our predictions are industry-leading and always improving.

RIDER-FOCUSED

- // Resolves “ghost bus” issues with auto-assigner technology
- // Updates with every GPS ping, so passengers see real-time info
- // Optimized to make sure buses don’t arrive before predictions

DATA-INFORMED

- // Analyzes millions of historical records and real-time data
- // Integrates multiple vehicle location feeds for redundancy & fidelity
- // Auto-corrects for missing and faulty assignment information
- // Refreshes historical data at optimal intervals

TESTED AND MEASURED

- // Samples predictions frequently and regularly
- // Evaluates prediction accuracy by several standards
- // Allows for continued improvement within robust test environment

Miami-Dade County setup



Static GTFS

A single static GTFS with information on all services



AVL

- Clever Devices
- TSO Mobile
- Swiftly Onboard App
- ETA Transit (Coral Gables)



Realtime Passenger info

- GOMDT app
- Google Maps
- Transit app
- SMS text-for-ETA app
- 10 other applications (Via, Lyft, digital signs, etc)



Historical data analytics

- GPS Playback
- OTP
- Run Times
- Speed Map



Real-time operations tools

- Live Operations

Miami-Dade County setup



Static GTFS

A single static GTFS with information on all services - including your static info



AVL

- Clever Devices
- TSO Mobile
- Swiftly Onboard App
- ETA Transit (Coral Gables)
- Your AVL solution



Realtime Passenger info

- GOMDT app
- Google Maps
- Transit app
- SMS text-for-ETA app
- 10 other applications (Via, Lyft, digital signs, etc)



Historical data analytics

- GPS Playback
- OTP
- Run Times
- Speed Map



Real-time operations tools

Benefits of joining the GTFS-rt ecosystem

1. Contribute to the creation of a more seamless transit experience in the Miami-Dade region
2. Immediate integration of highly accurate realtime predictions in all major apps
3. Access to 5 modules in the Swiftly dashboard
 - a. Live Operations
 - b. GPS Playback
 - c. On-Time Performance
 - d. Run Times
 - e. Speed Map
4. Easier integration process for both transit systems and third-party organizations

A quick dashboard overview...

What needs to happen for my service to reap these benefits?

How can we get our data out to the public and get dashboard access?

flexible integration

Swiftly's platform generates powerful insights for transit agencies using two main sources of information: the agency's static schedule data in GTFS format and an automatic vehicle location (AVL) feed.

Here's a brief description of how to share both static and real-time data with the Swiftly team to get your agency up and running in the Swiftly dashboard.

CORE DATA

Two data feeds must be created



AVL / GPS



Static GTFS

AVL options

Swiftly has an AVL solution called Onboard App that works on nearly any commodity tablet (Android preferred over iPad). However, we can also integrate many kinds of third party hardware. Some example known vendors are on the right:

Swiftly

- Onboard App

Trackers

- Samsara

CAD/AVL

- AngelTrax
- Avail
- Clever Devices/BusTime
- Conduent/OrbCAD
- DoubleMap
- ETA
- GeoTab
- Intuicom
- INIT
- NextBus/Umo
- RouteMatch
- Syncromatics
- Ticketer
- TransLoc
- Trapeze/TransitMaster
- Zonar

Routers

- Cradlepoint
- Cisco
- Digi WR 44
- Sierra Wireless
- Teltonika
- Utility (Rocket)

requirements for AVL data

For a feed containing location data, we have certain specific requirements that enable us to put the data to work.

REQUIRED FIELDS

- vehicle ID
- latitude
- longitude
- timestamp for each data point

REQUESTED FIELDS IF AVAILABLE

- **Assignment** - either a trip or block ID
- speed
- heading

DATA REFRESH RATE

To provide high-quality passenger predictions, we require locations to be updated at least every 30 seconds, and ideally every 5 seconds. If your refresh rate is lower, talk with us about possible solutions to improve it.

Next **steps**



→ **Fill out [this Google Form](#)**

→ Expect to hear from us soon!

→ Please reach out to us with other questions
in the meantime

◆ Siena@goswift.ly

Q&A



Thank you

Tim Storer

Senior Customer Success Manager

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