# Let's Get Going with On-line Trip Planning & General Transit Feed Specification (GTFS)!

## 2021 MN/WI Public Transit Conference

October 6, 2021 9:15 a.m. - 11:45 a.m.

National RTAP
Rural Transit Assistance Program

MPTA
MINNESOTA PUBLIC TRANSIT ASSOCIATION

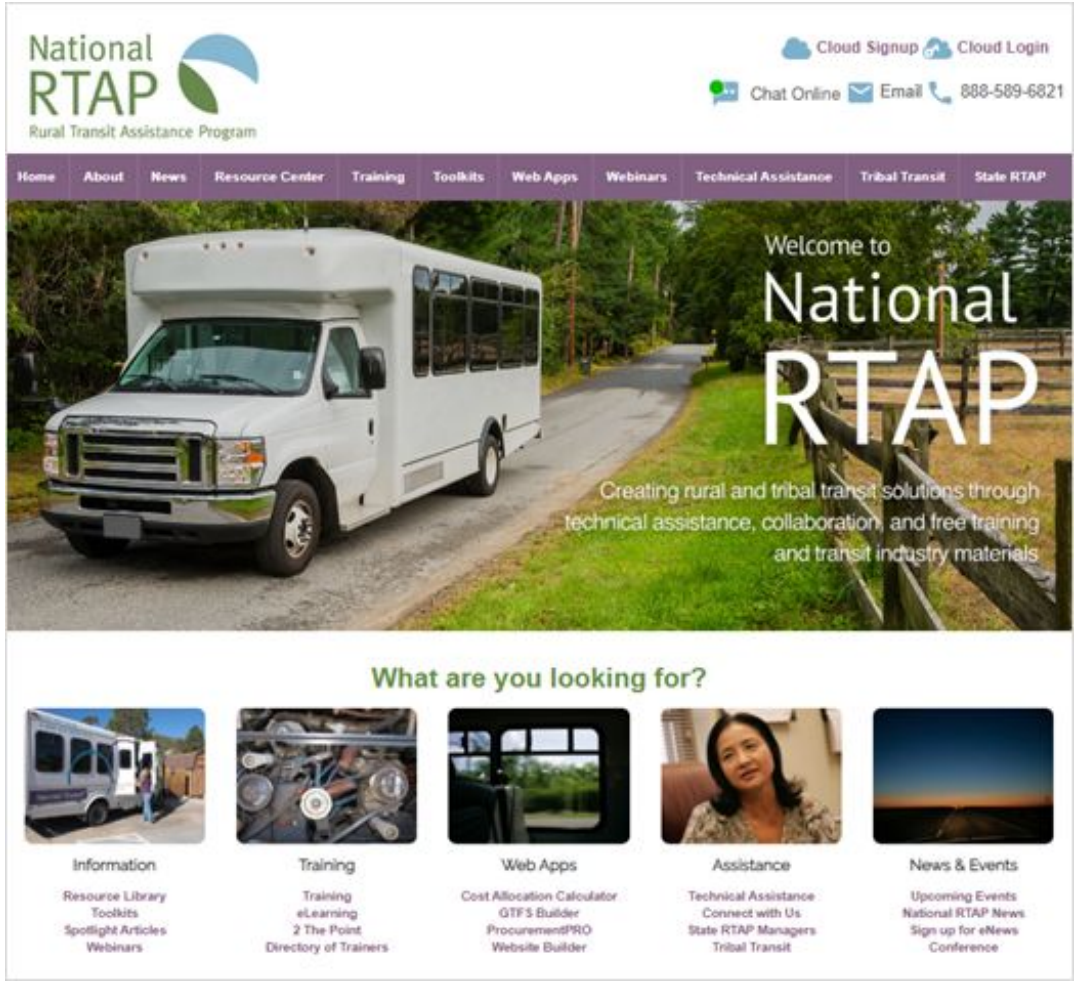
FTA
U.S. Department of Transportation
Federal Transit Administration

# Agenda

- General Transit Feed Specification: What? and Why?
- Ease Marketing / Outreach: Revise With Driver Availability
- Barriers to GTFS
- National RTAP and GTFS Builder: Excel toolkit

# National Rural Transit Assistance Program (RTAP)

- Technical assistance center funded by FTA through the Section 5311 Program
- Provides free training materials and technical assistance to rural and tribal transit providers and state RTAP programs
- Review Board – state DOT and rural and tribal transit agency staff
- National RTAP offices are in MA and DC
- Learn more at [nationalrtap.org](nationalrtap.org)



# General Transit Feed Specification (GTFS)

## Static

Home > Products > Transit > Static Transit > Reference

### Reference

This document defines the format and structure of the files that comprise a GTFS dataset.

#### Table of contents


1. Term definitions
2. Field types
3. Dataset files
4. File requirements
5. Field definitions
    - `agency.txt`
    - `stops.txt`
    - `routes.txt`
    - `trips.txt`
    - `stop_times.txt`
    - `calendar.txt`

# General Transit Feed Specification (GTFS)

## Static

Google Maps

Apple Maps

Bing Maps

Transit

Moovit

## Real-time

## Flex - *is underway*

"Plan, Book, & Pay for Demand-Responsive Transit Agencies in CA, OR, and WA"

# GTFS-Real-time

7:52 AM—8:27 AM 35 min

010 > D1 >

7:52 AM from NW 16th St @ N Villa Ave · 3 min late

$2.75 15 min every 30 min

DETAILS

About 1 min, 148 ft

~~7:49 AM~~ 7:51 AM NW 16th St @ N Villa Ave

010 NW 50th/Portland to Downtown

11 min (13 stops) · 2 min late · Stop ID: 808

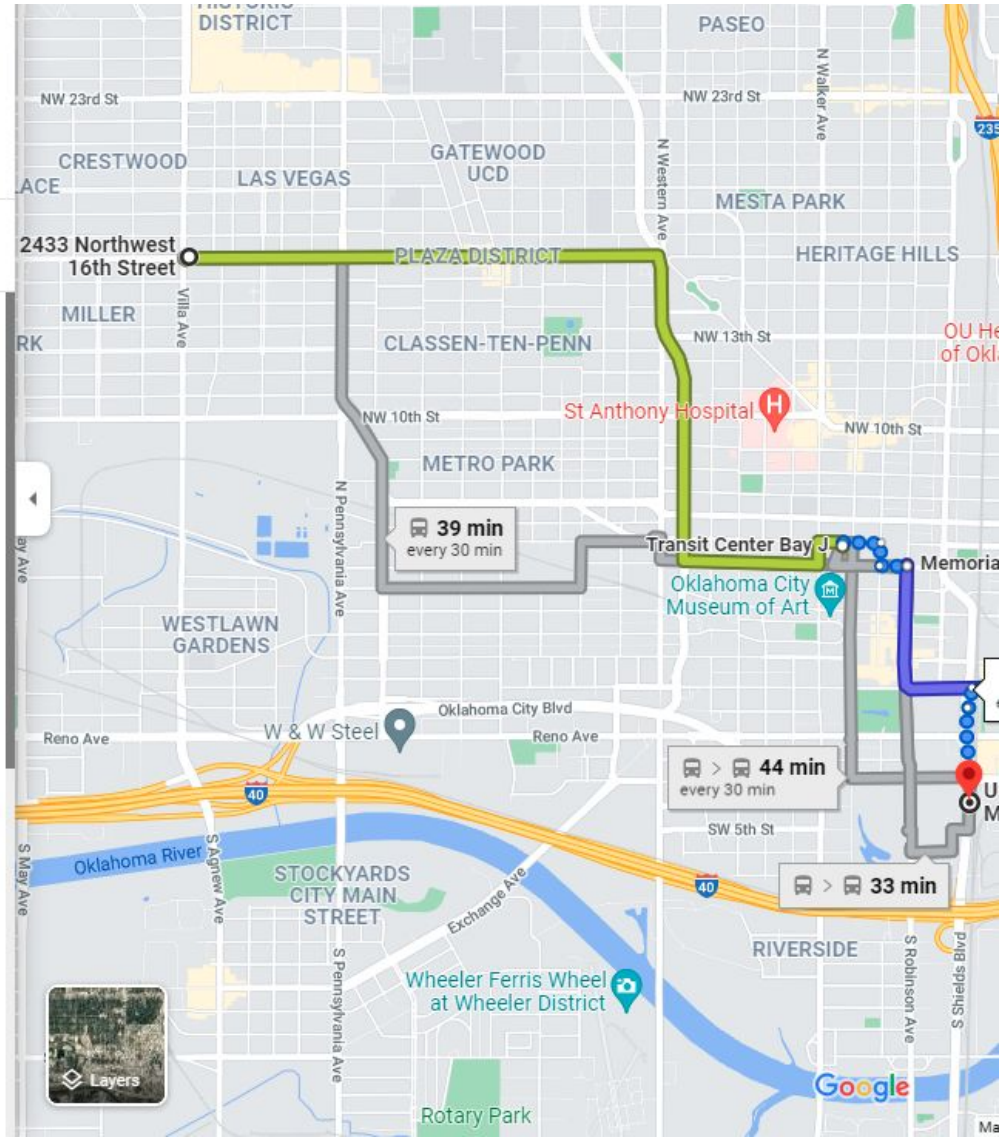
8:02 AM Transit Center Bay J

Walk

About 6 min

8:13 AM Memorial Museum

D1 Downtown Loop



# Mobile Apps with GTFS-Static & GTFS-Real-time

### Moovel

Plans and compares transportation options.

For Android, Apple iOS

### Roadify

Provides real-time arrival information, trip planning, service advisories, tweets, and user comments.

For Android, Apple iOS

### Sendero GPS

Transit information for wayfinding use by people who are visually impaired.

For BrailleNote and VoiceNote GPS system

### Sense Navigation

Transit Information for wayfinding use by people who are visually impaired.

For BrailleSense and Voice SenseNotetakers

### Smart Ride

Searches for nearest stops, provides arrival information, displays a map, plans transit trips.

For Apple iOS

### Swiftly

Provides real-time arrival info, multi-modal trip planning, live maps, and user-generated reports.

For Android, Apple iOS

### Transicast

Stops, routes and next bus times. Track your location through stop-by-stop announcements, and search stops by location or address.

For Android

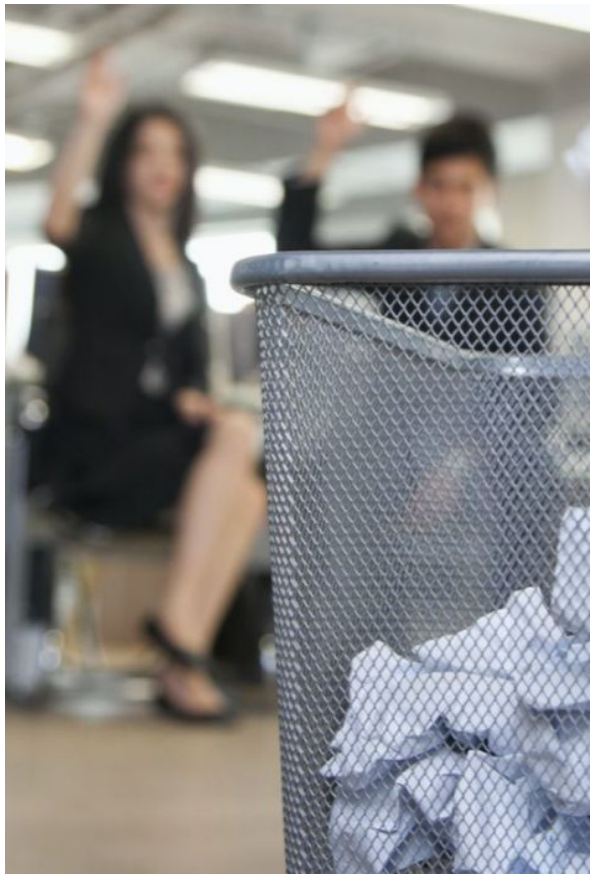
### TransitScreen

Provides real-time transit arrivals for all types of public transit — bus, rail, bikeshare, carshare, ridehailing, etc.

For dedicated monitors

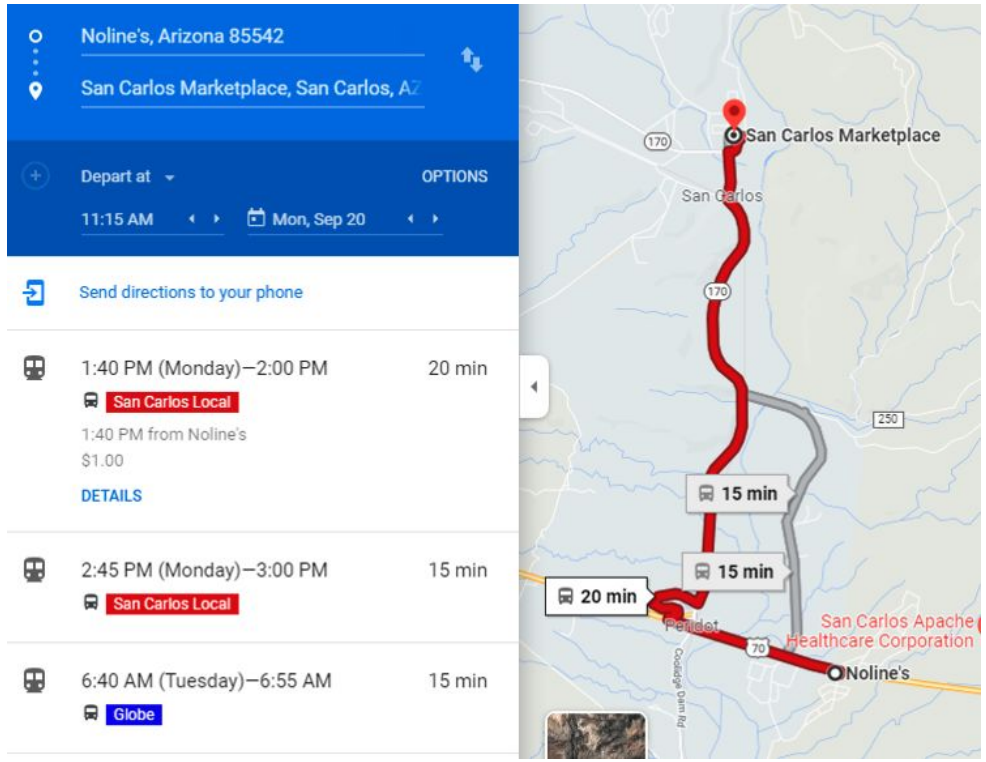
http://trimet.org/apps/index.htm

# What Is the Cost and Time to Publish Timetables?

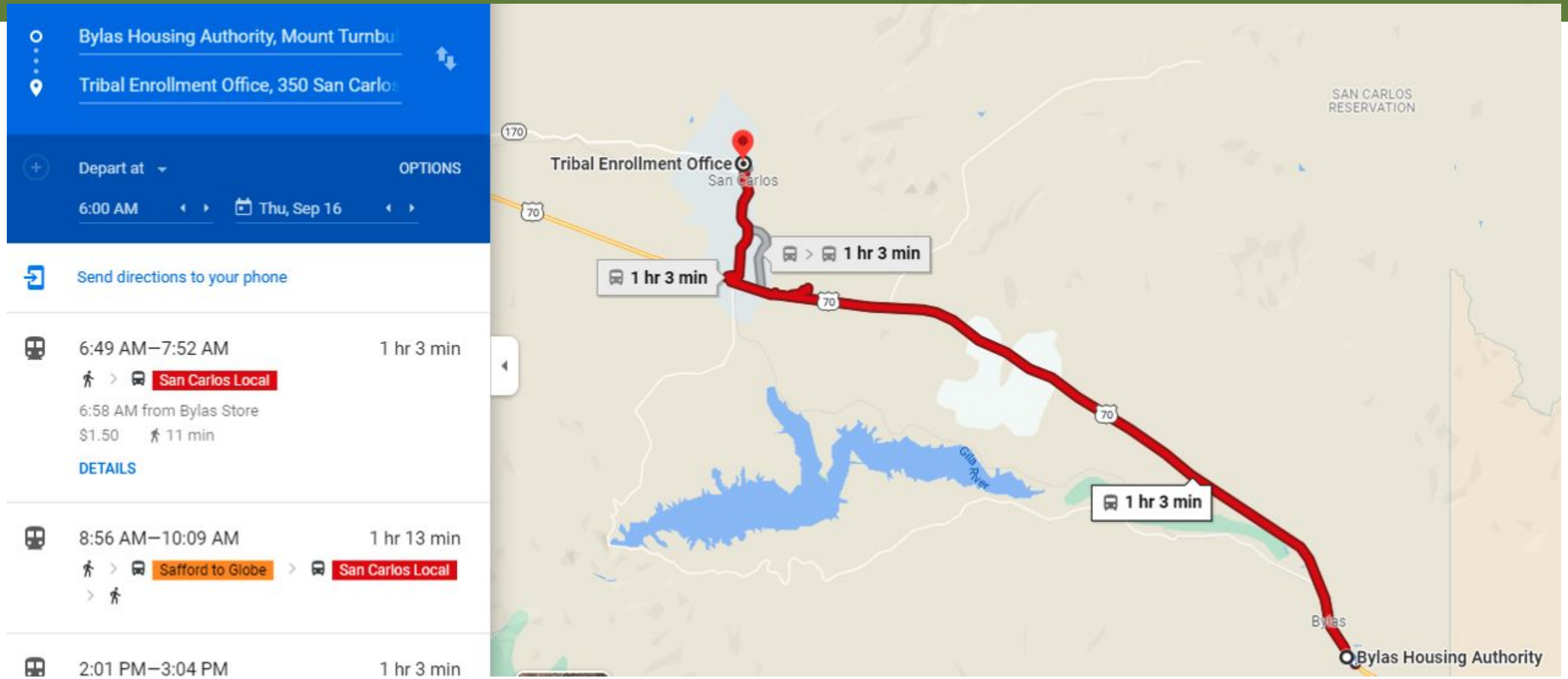


# Converting Paper Schedule to Digital

| SERVING THE COMMUNITY MONDAY-FRIDAY<br>GREYHOUND CONNECTOR<br>TRANSIT INTERCITY 1 | | | | |
|---|---|---|---|---|
| Indian Hills | 5:50 | | Noline's | 10:55 |
| San Carlos Marketplace | 5:55 | | San Carlos Marketplace | 11:10 |
| Boys & Girls | 6:05 | | | |
| Noline's | 6:20 | | **Apache Burger (Greyhound Connector)** | 11:20 |
| Rising Sun | 6:55 | | Bashas | 11:23 |
| Bylas Store | 6:58 | | Noline's | 11:25 |
| Assembly of God | 7:00 | | | |
| Navajo Point (R.T.G.) | 7:05 | | Noline's | 1:40 PM |
| San Carlos Apache Healthcare | 7:25 | | Bashas | 1:50 PM |
| Game & Fish | 7:28 | | San Carlos Marketplace | 2:00 PM |



# Where Tribal Transit Is Available: San Carlos Apache Tribe



# Details to Walk from Housing Authority to Nearest Bus Stop

8:56 AM - 10:09 AM
(1 hr 13 min)

Safford to Globe › San Carlos Local ›

9:05 AM from Bylas Store
$1.50 13 min

ADD TO CALENDAR

SCHEDULE EXPLORER

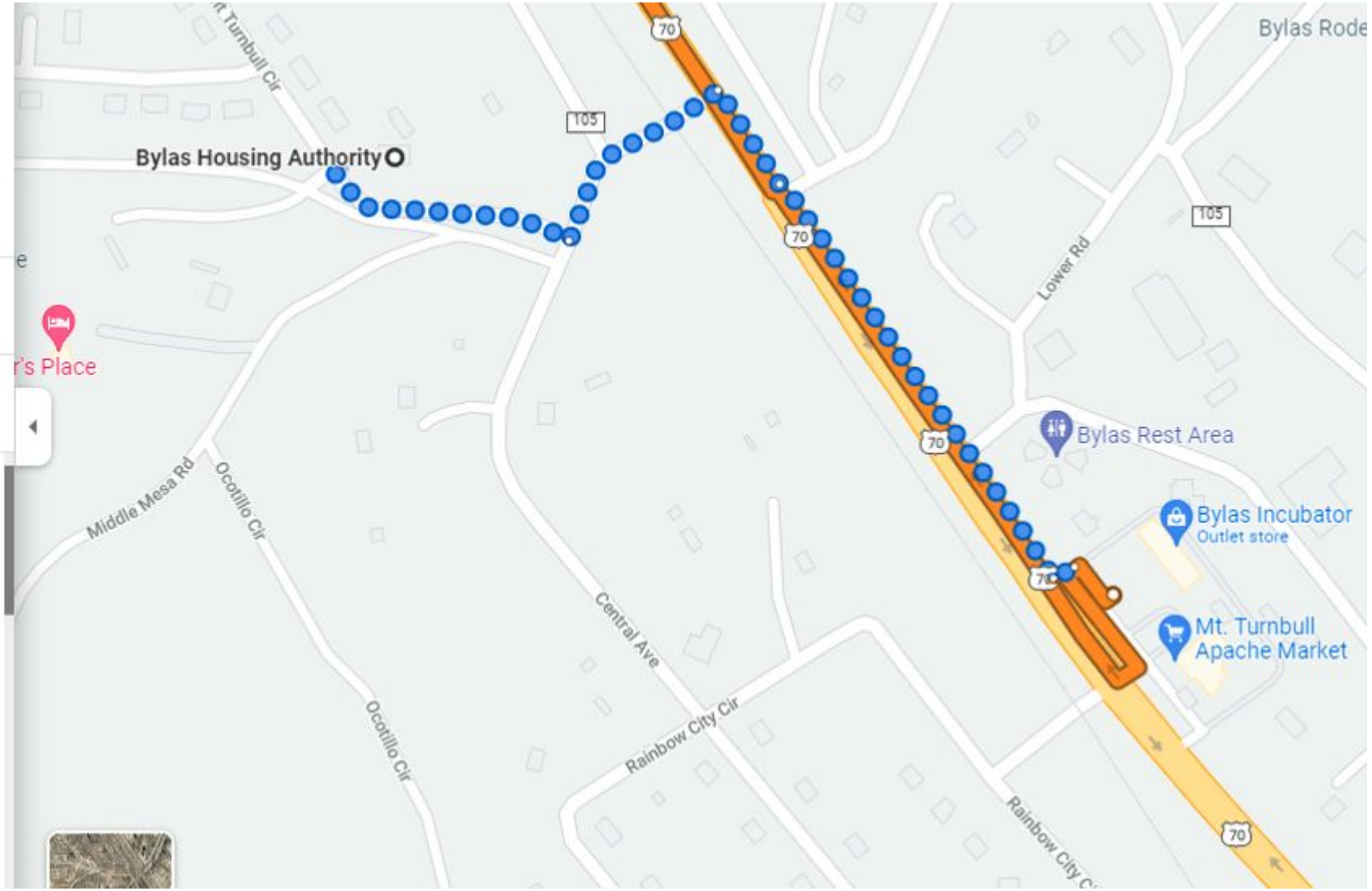
8:56 AM **Bylas Housing Authority**
Mount Turnbull, Bylas, AZ 85530

Walk
About 9 min, 0.4 mi

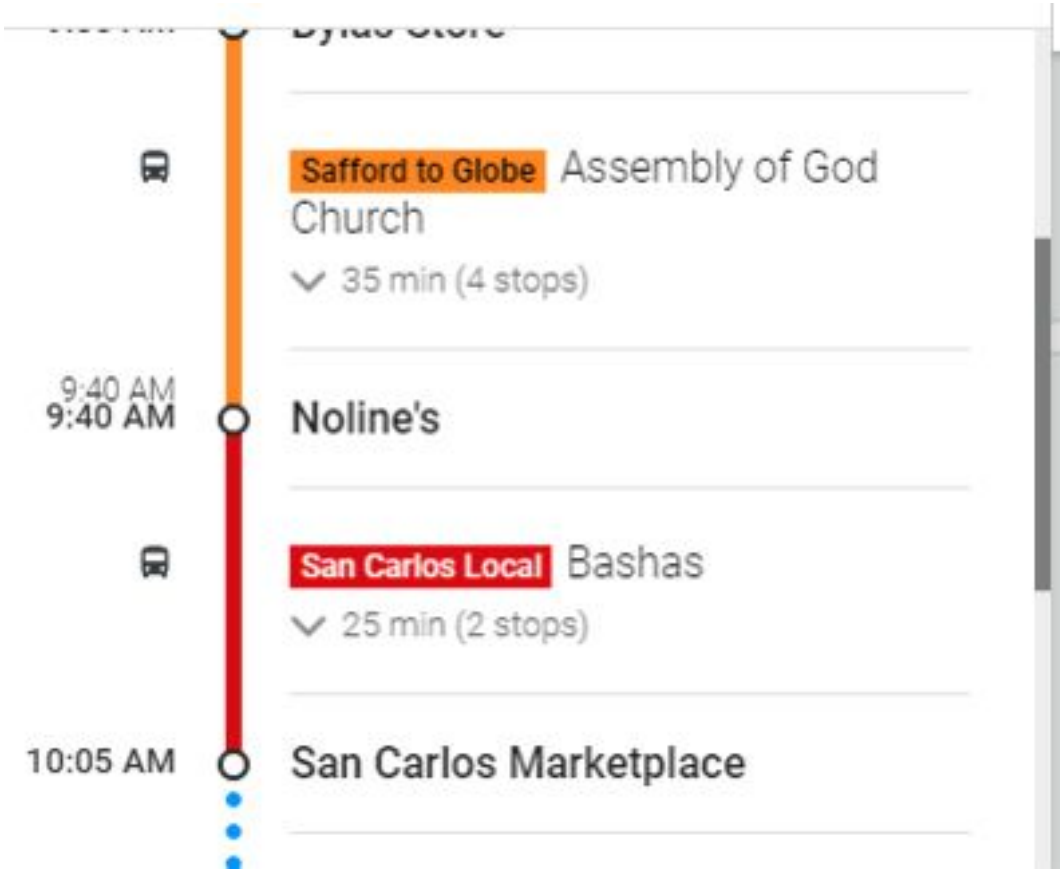
Use caution - may involve errors or sections not suited for walking

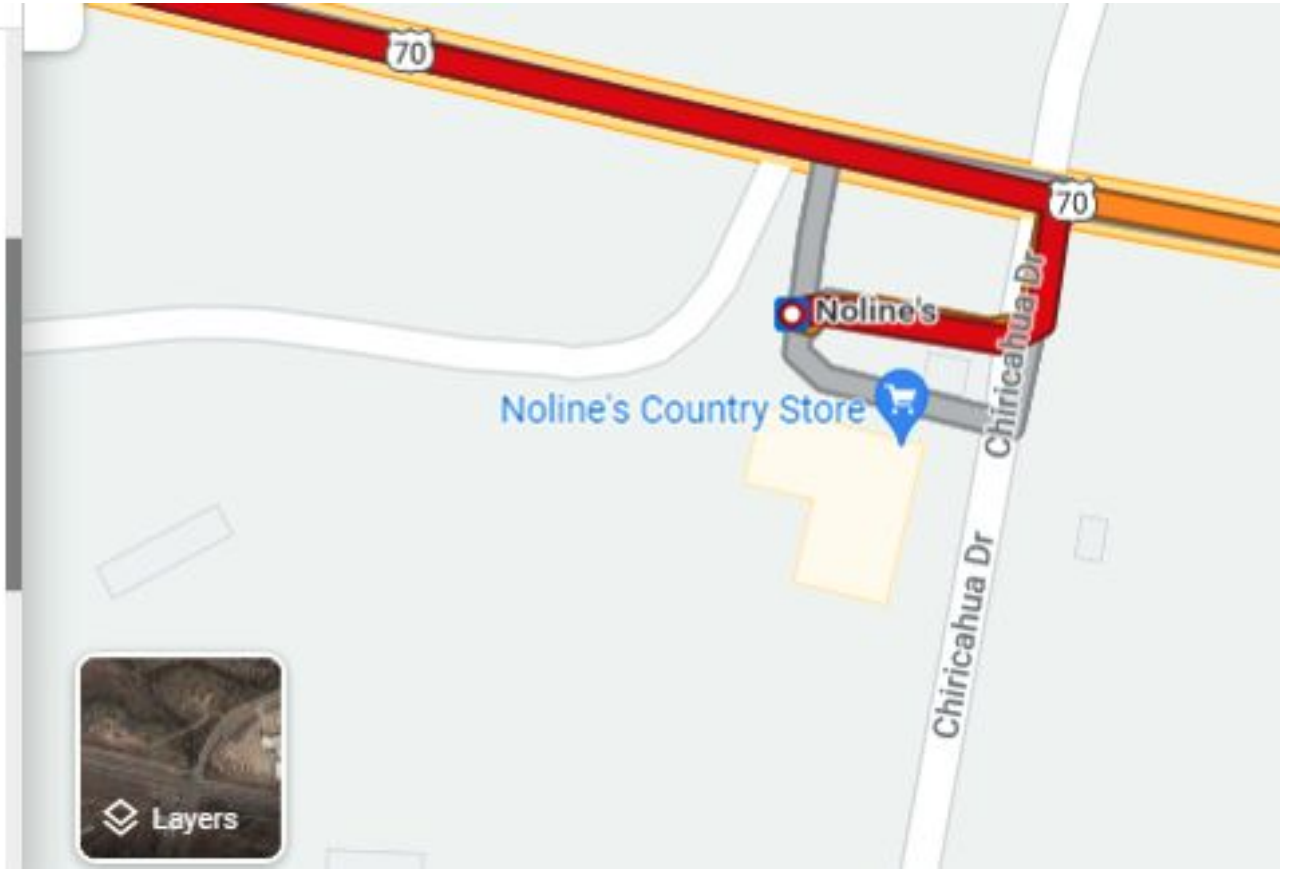
Head southeast on Mount Turnbull Cir toward Central Ave

Turn left onto Central Ave



# Timing for Transfer



# Four Minutes Walk to Enrollment Office + Bus Fare $1.50

SCHEDULE EXPLORER

Walk

About 4 min, 0.2 mi

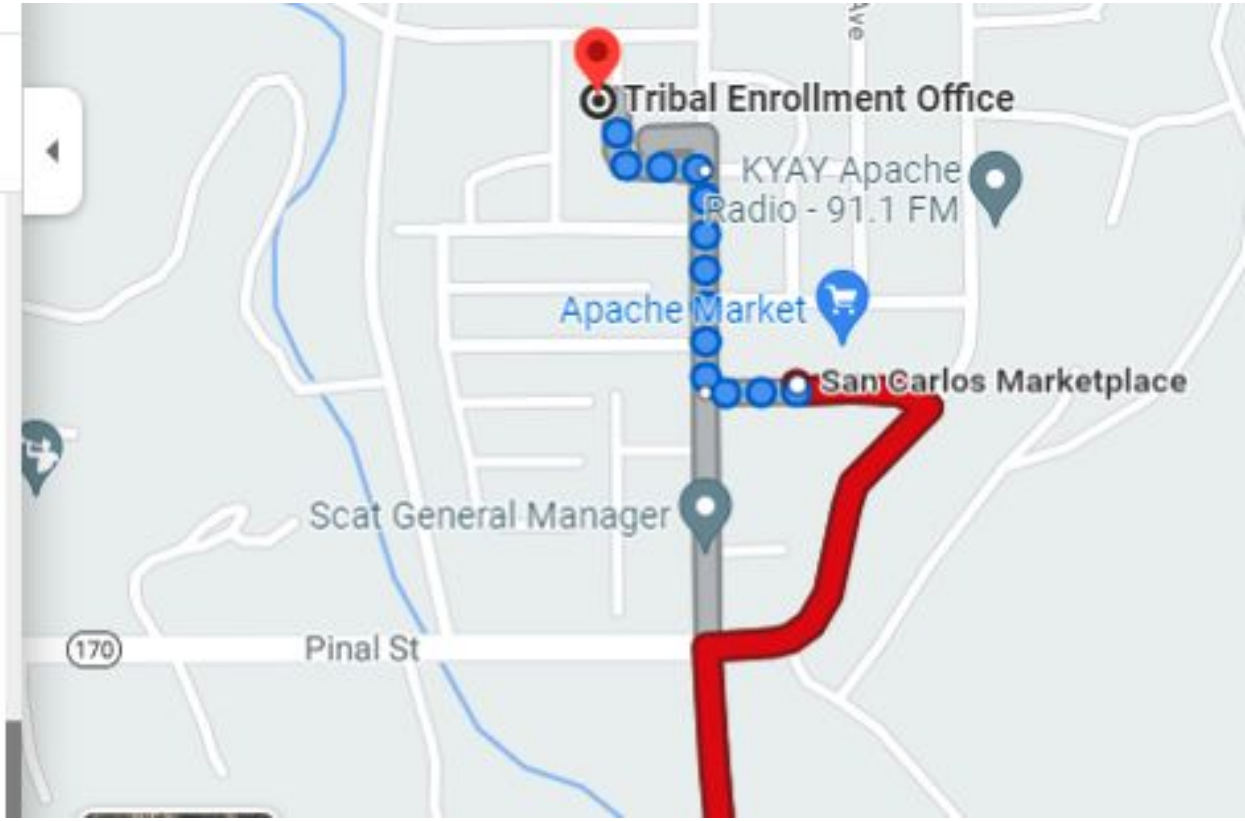
10:09 AM **Tribal Enrollment Office**

350 San Carlos Ave, San Carlos, AZ 85550

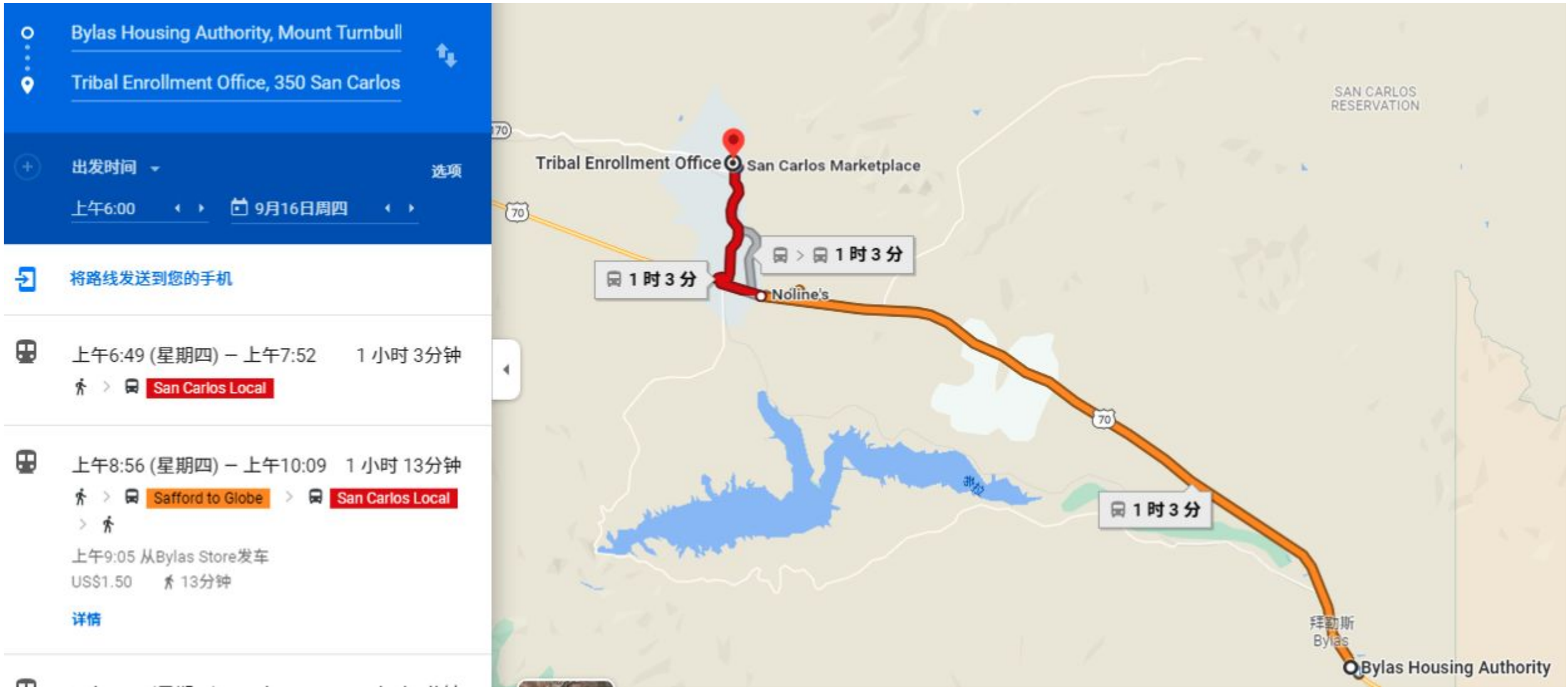
Cost: $1.50

**Tickets and information**

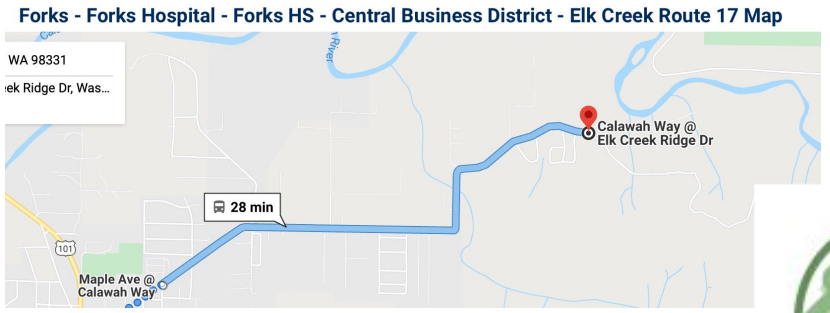
San Carlos Apache Nnee Bich'o Nii Public Transit - 1 (928) 475-5023



# Meet Title VI - Low English Proficiency - Other Languages



# To Publish GTFS-Static at Trip Planners

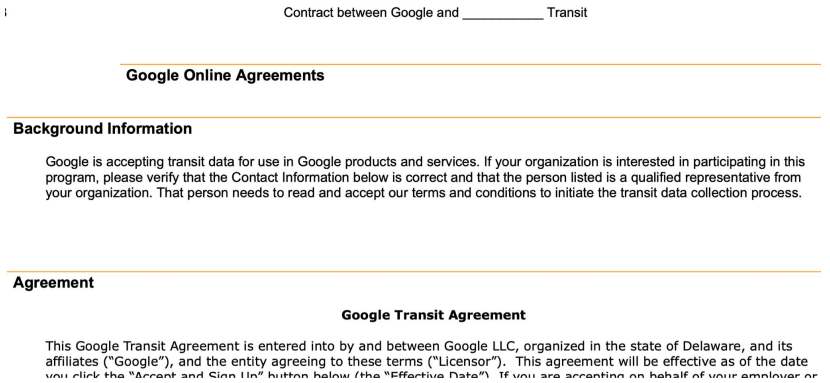



Fixed Route:  anyone can ride

+

Website (with up-to-date schedules)

+


Contract between Google and _____ Transit

**Google Online Agreements**

**Background Information**

Google is accepting transit data for use in Google products and services. If your organization is interested in participating in this program, please verify that the Contact Information below is correct and that the person listed is a qualified representative from your organization. That person needs to read and accept our terms and conditions to initiate the transit data collection process.

**Agreement**

**Google Transit Agreement**

This Google Transit Agreement is entered into by and between Google LLC, organized in the state of Delaware, and its affiliates ("Google"), and the entity agreeing to these terms ("Licensor").  This agreement will be effective as of the date

+

Legal agreement

# Apache Transit Website

# Publish Your Schedule At Your Website

| SERVING THE COMMUNITY MONDAY-FRIDAY<br>GREYHOUND CONNECTOR<br>TRANSIT INTERCITY 1 | | | | |
|---|---|---|---|---|
| Indian Hills | 5:50 | | Noline's | 10:55 |
| San Carlos Marketplace | 5:55 | | San Carlos Marketplace | 11:10 |
| Boys & Girls | 6:05 | | | |
| Noline's | 6:20 | | **Apache Burger (Greyhound Connector)** | 11:20 |
| Rising Sun | 6:55 | | Bashas | 11:23 |
| Bylas Store | 6:58 | | Noline's | 11:25 |
| Assembly of God | 7:00 | | | |
| Navajo Point (R.T.G.) | 7:05 | | Noline's | 1:40 PM |
| San Carlos Apache Healthcare | 7:25 | | Bashas | 1:50 PM |
| Game & Fish | 7:28 | | San Carlos Marketplace | 2:00 PM |

# License Agreement: Decoded

## Attorney Reviewed Sample Legal Agreement : October 2020

Demystifying Trip Planner Licensing Agreements Webinar

October 27, 2020, 2:00-3:00 PM ET

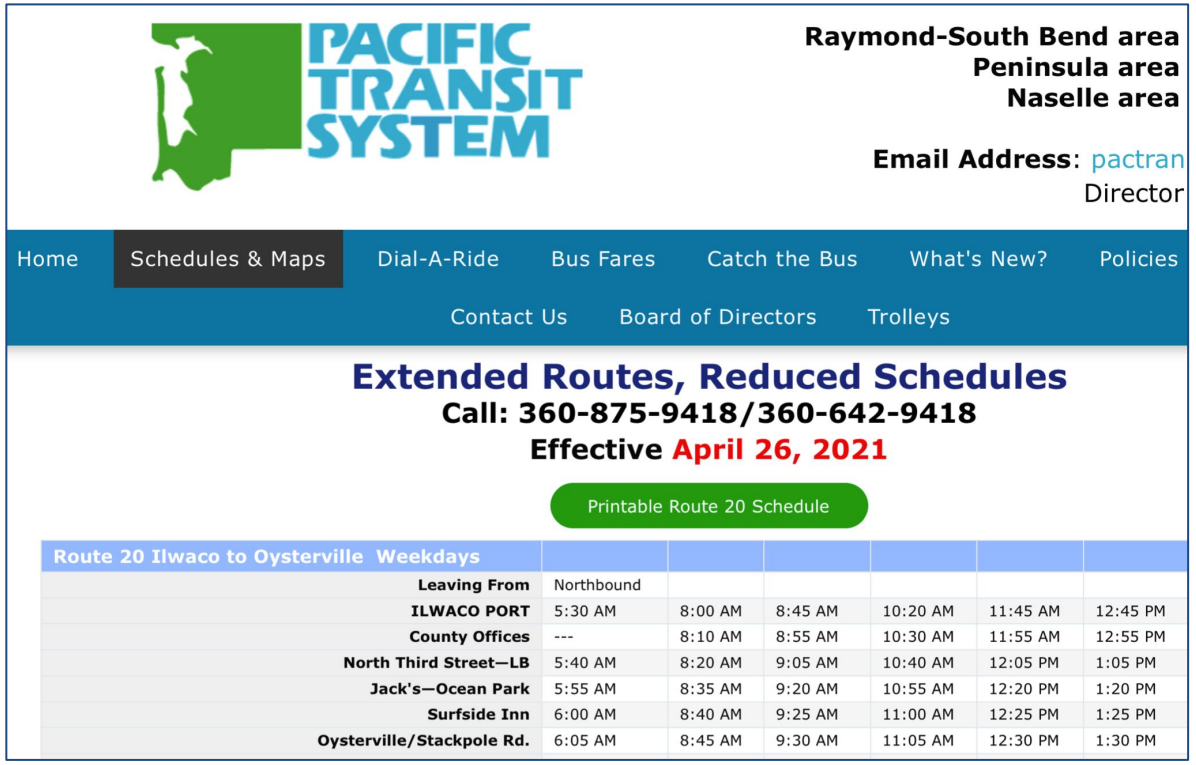
National RTAP
Rural Transit Assistance Program

FTA U.S. Department of Transportation
Federal Transit Administration

https://youtu.be/-tYVwGICCqg

# No Website? Website Builder

Web Builder



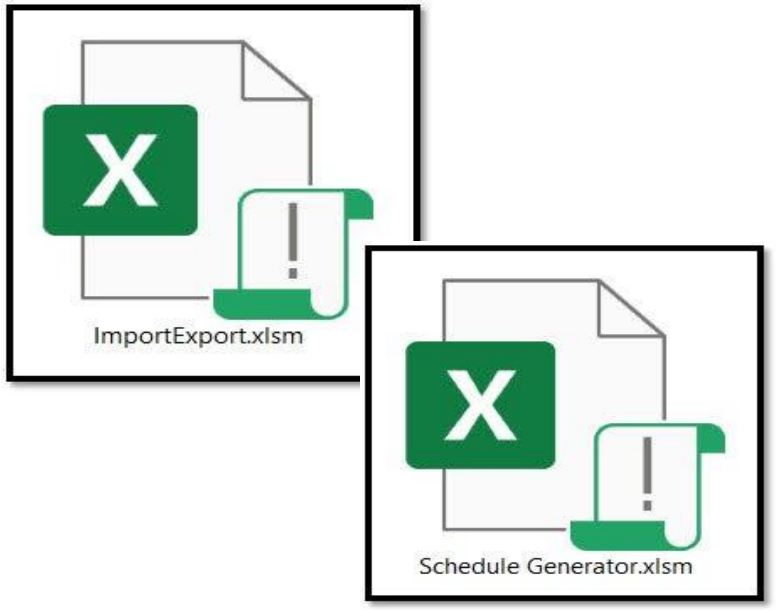

| Route 20 Ilwaco to Oysterville Weekdays | | | | | | |
|---|---|---|---|---|---|---|
| Leaving From | Northbound | | | | | |
| ILWACO PORT | 5:30 AM | 8:00 AM | 8:45 AM | 10:20 AM | 11:45 AM | 12:45 PM |
| County Offices | --- | 8:10 AM | 8:55 AM | 10:30 AM | 11:55 AM | 12:55 PM |
| North Third Street—LB | 5:40 AM | 8:20 AM | 9:05 AM | 10:40 AM | 12:05 PM | 1:05 PM |
| Jack's—Ocean Park | 5:55 AM | 8:35 AM | 9:20 AM | 10:55 AM | 12:20 PM | 1:20 PM |
| Surfside Inn | 6:00 AM | 8:40 AM | 9:25 AM | 11:00 AM | 12:25 PM | 1:25 PM |
| Oysterville/Stackpole Rd. | 6:05 AM | 8:45 AM | 9:30 AM | 11:05 AM | 12:30 PM | 1:30 PM |

Digital Timetable from GTFS Builder embedded in Pacific Transit website using Website Builder

# Barriers? No Budget

Google Earth Pro
Desktop Version

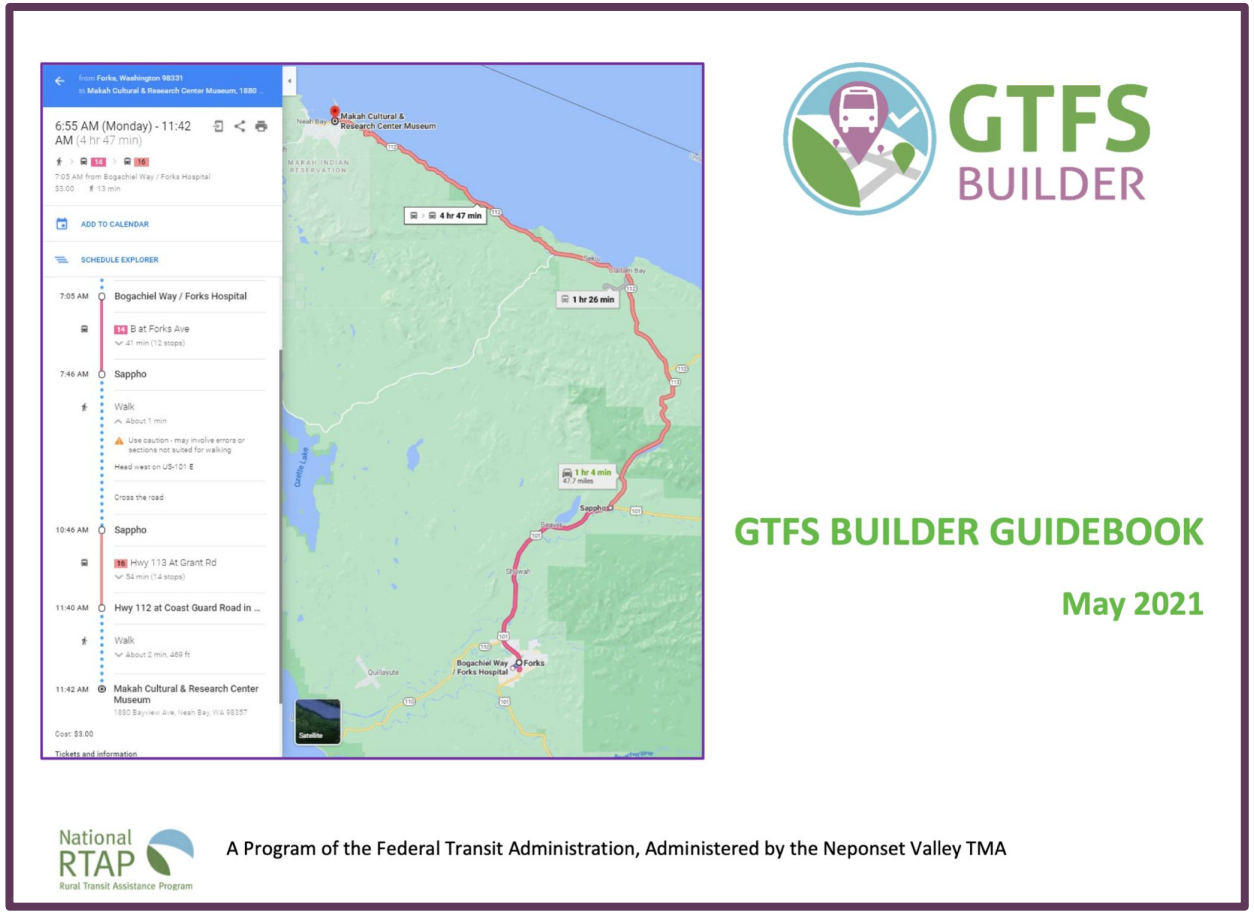
Google My Maps




Simple toolkit in Excel and no annual license fees

# GTFS Builder Learning / Support Tools

Guidebook
How-To Videos
with
New data features for continuous pick-up and drop-off




https://www.nationalrtap.org/Technology-Tools/GTFS-Builder/Support

# What Does GTFS Builder Trip Plan Data Look Like?

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| 1 | agency_id | agency_name | agency_url | agency_timezone | agency_lang | agency_phone |
| 2 | sancarlos | San Carlos Apache Nnee Bich'o Nii Public Transit | http://scat-tanf.org/transit/ | America/Phoenix | en | (928) 475-5023 |

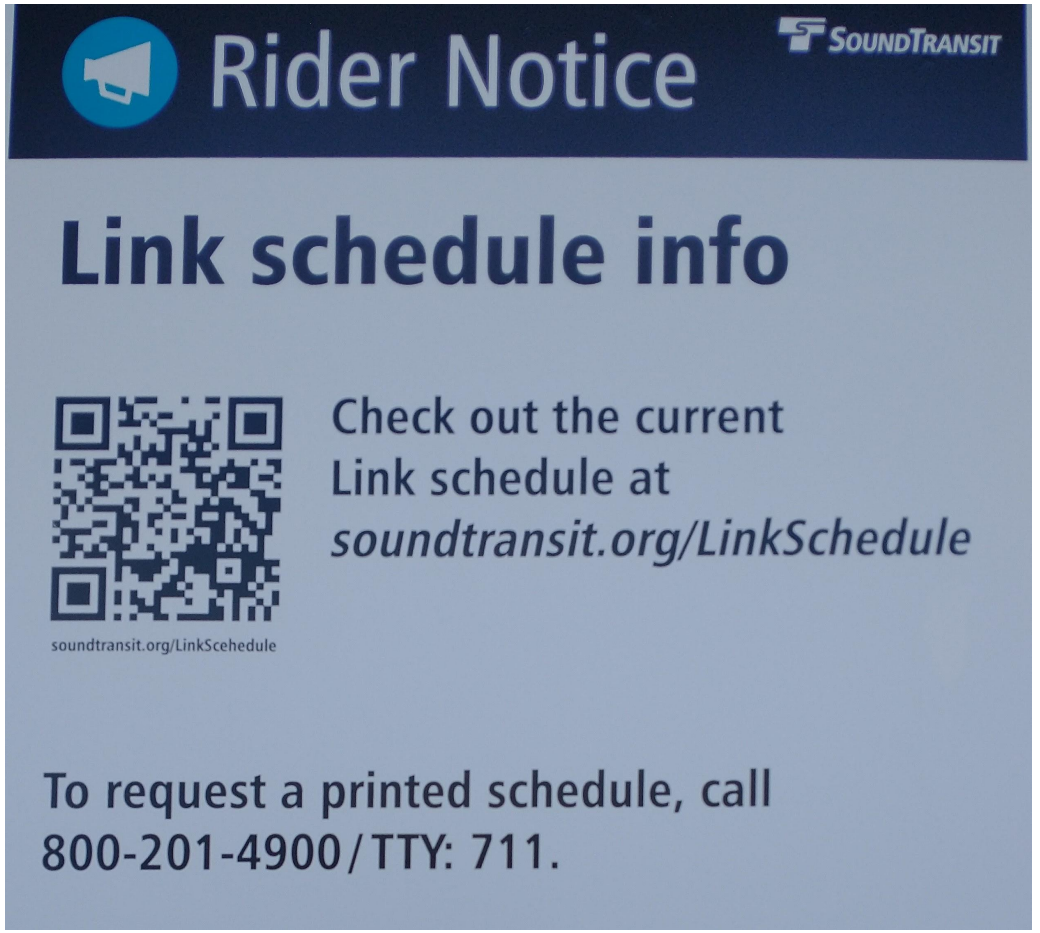
| | A | B | C | E | F | G |
|---|---|---|---|---|---|---|
| 1 | stop_id | stop_code | stop_name | stop_lat | stop_lon | zone_id |
| 2 | 1001 | | Navajo Point (R.T.G.) | 33.141004 | -110.125220 | bylas |
| 3 | 1002 | | Assembly of God Church | 33.132458 | -110.120159 | bylas |
| 4 | 1003 | | Bylas Store | 33.119942 | -110.109979 | bylas |
| 5 | 1004 | | Indian Hills | 33.364724 | -110.463248 | sc |
| 6 | 1005 | | Boys & Girls | 33.345693 | -110.452141 | sc |
| 7 | 1006 | | San Carlos Marketplace | 33.352118 | -110.451719 | sc |
| 8 | 1007 | | Rising Sun | 33.103434 | -110.108642 | bylas |
| 9 | 1008 | | Bashas | 33.299340 | -110.459205 | sc |
| 10 | 1009 | | S.C. Post Office | 33.353734 | -110.452911 | sc |
| 11 | 1010 | | Gilson Wash Headstart | 33.352013 | -110.461467 | sc |
| 12 | 1011 | | 7M.W. Headstart | 33.372540 | -110.448972 | sc |
| 13 | 1012 | | Noline's | 33.292886 | -110.438325 | sc |
| 14 | 1013 | | Apache Burger (Greyhound) | 33.302103 | -110.470417 | globe |
| 15 | 1014 | | Good 2 Go | 33.394998 | -110.769594 | globe |
| 16 | 1015 | | Blue Stone Road | 33.321663 | -110.442519 | sc |
| 17 | 1016 | | Apache Gold Casino Resort | 33.358435 | -110.668280 | gold |

# Schedule: Sample San Carlos Apache Safford - Globe Route

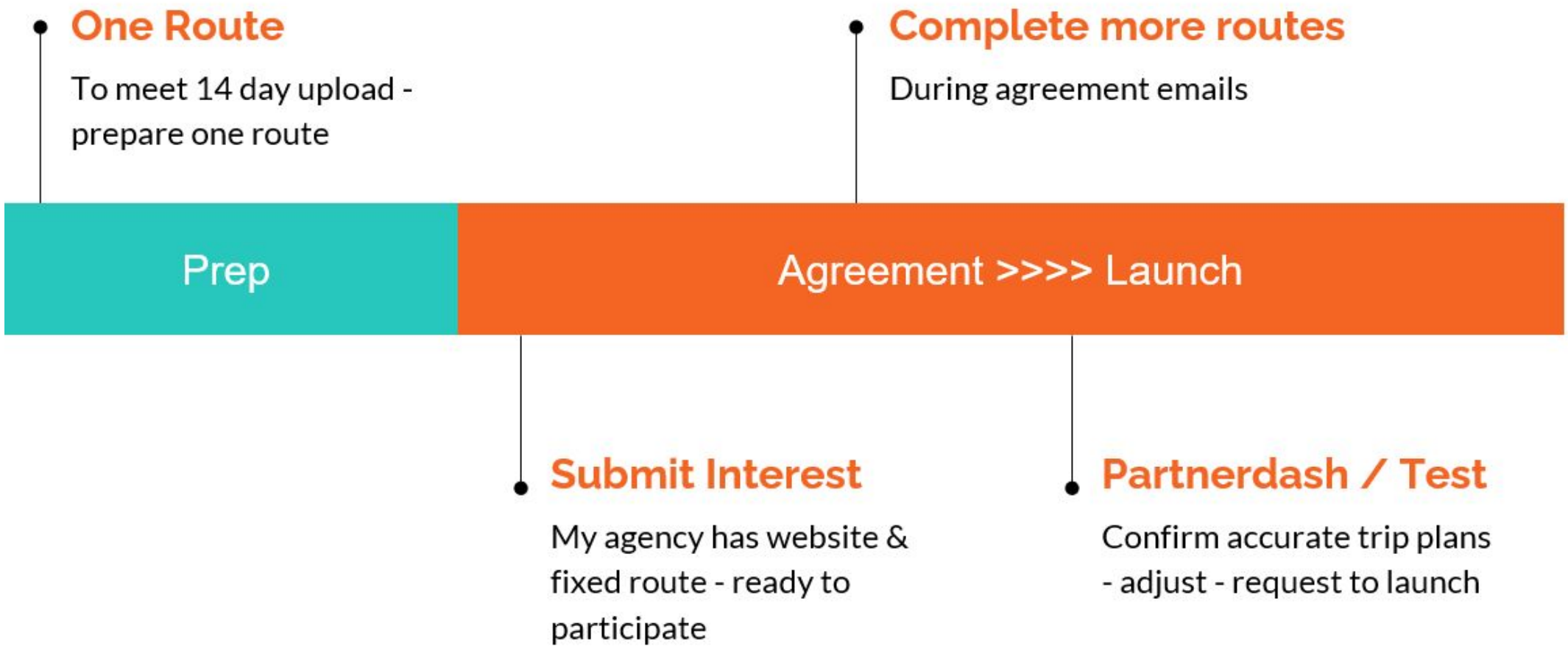
| 1 | Trip_group | route_id | service_id | direction_id | trip_headsign | stop_id | stop_name | time point | wheelchair_accessible | T01 | T02 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | Safford_Globe_AM_out | | | | | | | | 1 | safford_globe_ob:C | |
| 3 | | safford_ | mtwtf | 0 | Wal-Mart Safford | 1012 | Noline's | 1 | | 6:40:00 | |
| 4 | | safford_ | mtwtf | 0 | | 1024 | San Carlos Apache Healthcare | 1 | | 6:50:00 | |
| 5 | | safford_ | mtwtf | 0 | | 1001 | Navajo Point (R.T.G.) | 1 | | 7:10:00 | |
| 6 | | safford_ | mtwtf | 0 | | 1002 | Assembly of God Church | 1 | | 7:15:00 | |
| 7 | | safford_ | mtwtf | 0 | | 1003 | Bylas Store | 1 | | 7:20:00 | |
| 8 | | safford_ | mtwtf | 0 | | 1029 | Ft. Thomas High School | 1 | | 7:35:00 | |
| 9 | | safford_ | mtwtf | 0 | | 1030 | East Arizona College (E.A.C.) | 1 | | 7:55:00 | |
| 10 | | safford_ | mtwtf | 0 | | 1028 | Wal-Mart Safford | 1 | | 8:10:00 | |
| 11 | | | | | | | | | | | |
| 12 | Safford_Globe_AM_in | | | | | | | | 1 | safford_globe_ib:C | |
| 13 | | safford_ | mtwtf | 1 | Apache Gold Casino | 1028 | Wal-Mart Safford | 1 | | 8:15:00 | |
| 14 | | safford_ | mtwtf | 1 | | 1022 | Safford M.V.D. | 1 | | 8:20:00 | |
| 15 | | safford_ | mtwtf | 1 | | 1030 | East Arizona College (E.A.C.) | 1 | | 8:30:00 | |

# How GTFS Helps Tribal Transit Agencies?

- ***Marketing***: No-cost global billboard with bus stops and next departures on the map that plans a trip
- ***Sustainable:*** Fewer printed schedules
- ***Equity: Title VI***: multiple languages
- ***Equity: Offline Schedules*** (through Apps) with Accessibility (reads each stop along a trip)
- ***Equity: ADA Trip checks***
- ***Asset Management***/Bus stop inventory
- ***Interagency transfers***

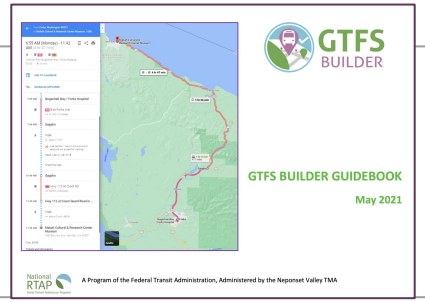
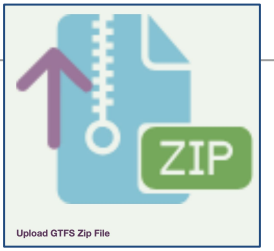


# Launch Timeline

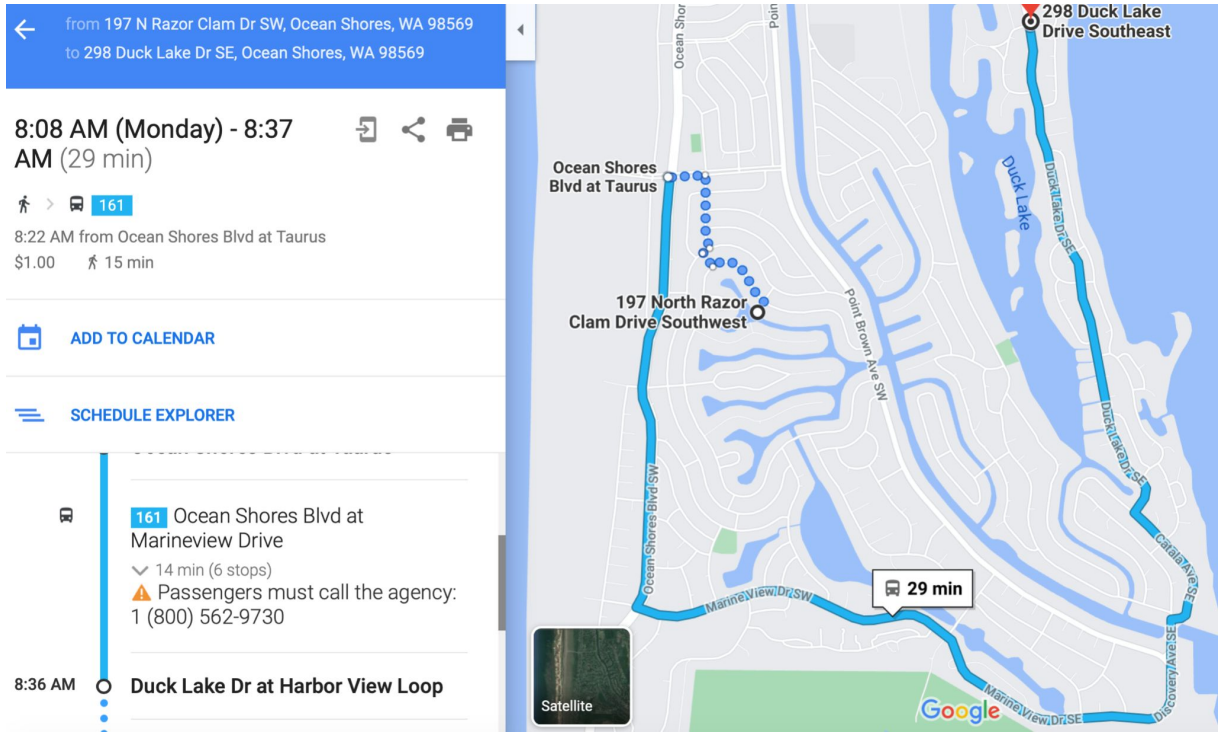


# GTFS For ADA Route Check: Saves Time

# Re-Cap Overcoming Barriers To Publishing GTFS-static

| **Barrier to Publishing GTFS** | **NRTAP Action Plan** |
|---|---|
| Website (out of date or none) | Free Website Builder 3.0 |
| Budget | No-cost toolkit   |
| No-cost agreement | Detailed video reviews & you are not the first Tribal Nation to sign this agreement |
| URL or Link to GTFS files (to publish at FACES and National Transit Map) | No-cost Hosting with stable URL   |

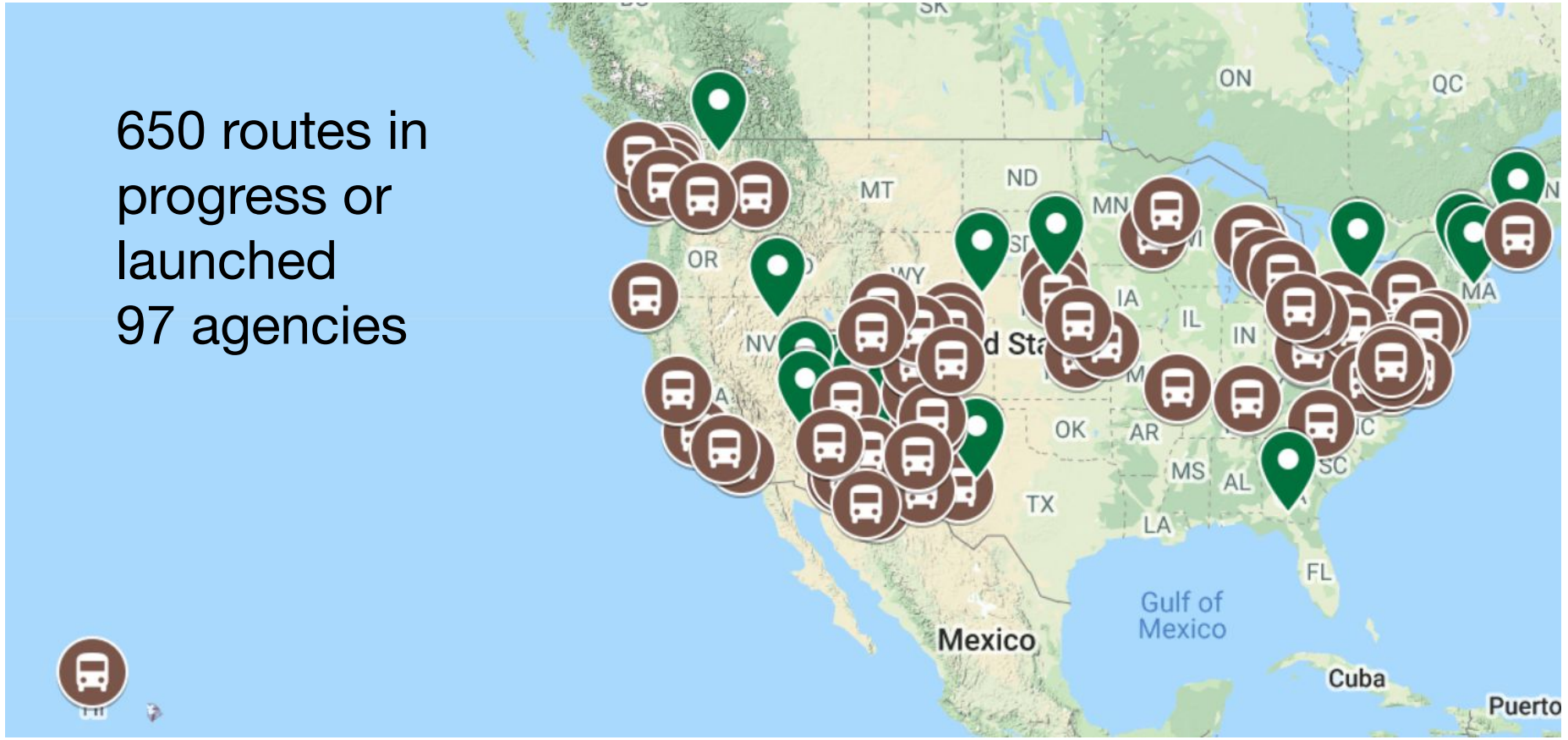
# Publishing On-Demand Services



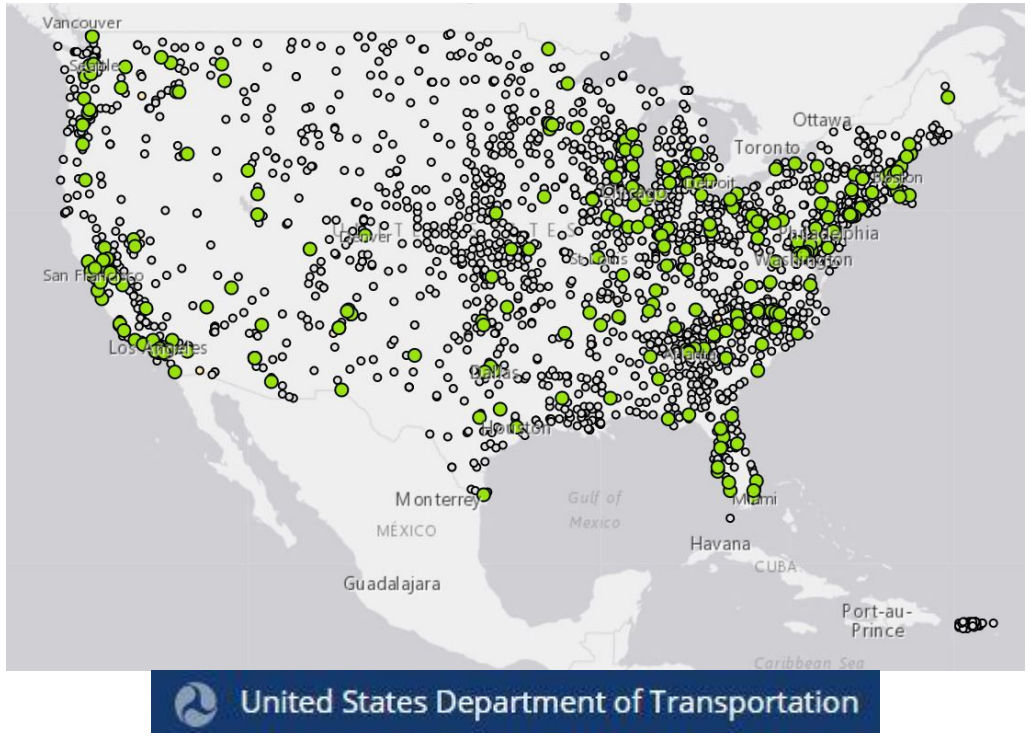

For On-Demand Transit: Allow Riders to find the service with “Passenger Must Call for a Pick-up” which leads to a call with Dispatch to schedule a ride

# Success with GTFS Builder

650 routes in progress or launched
97 agencies



# National Transit Map? Is Your Tribal Trannsit A Green Dot?




Bureau of Transportation Statistics:
National Transit Map
https://www.bts.gov/national-transit-map/about

# Questions?

# Follow-up/Reach-Out/Refer Others

**National Rural Transit Assistance Program - GTFS Builder**

nationalrtap.org

info@nationalrtap.org

Find us on Facebook, Twitter, YouTube, LinkedIn & Instagram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National RTAP
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