Building Mobility As A Service: Using OpenTripPlanner, Open Source GIS

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Etch (formerly MTECH Solutions)

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About Etch

- MTECH Solutions merged with Etch in June 2020
- We provide **customized geospatial solutions** that streamline mobility and enhance user experience.
- We specialize in **program development**, **GIS planning and design**, **asset management and data conversion & delivery**.
- We have a unique focus on **Open Source** and **GIS technology**.
- Etch also specializes in **managing application development** for public and private entities.
SMART COLUMBUS USDOT PORTFOLIO

ENABLING TECHNOLOGIES
- CONNECTED VEHICLE ENVIRONMENT

ENHANCED HUMAN SERVICES
- MULTIMODAL TRIP PLANNING/COMMON PAYMENT SYSTEM
  - SMART MOBILITY HUBS
  - MOBILITY ASSISTANCE
  - PREGNATAL TRIP ASSISTANCE
  - EVENT PARKING MANAGEMENT

EMERGING TECHNOLOGIES
- CONNECTED ELECTRIC AUTONOMOUS VEHICLES
PIVOT APP VISION

• The future of transportation is on-demand and multimodal
• A shift away from personally-owned vehicles
• A solution that uses both private and public mobility providers
• A way to plan and book your trip in one application with seamless access to payment options
PARTICIPATING MOBILITY PROVIDERS

- Easy Mile
- CoGo Bike Share
- Lime
- Bird
- Lyft
- Yellow Cab Columbus
- Cabs
- Spin
- COTA
- Gohio Commute
- ETCH
- Uber
WHAT MAKES PIVOT DIFFERENT?

• Aggregates data from scooters, bike-share, ride-hailing, ride-sharing, and public transportation to present customized multimodal (or single mode) trips to the user based on the user’s preferences

• Google and Transit App provide different mode options, but not a seamless trip with mixed-mode travel

• Open source platform that can be adapted by other states, cities, and agencies, and is flexible enough to change and accommodate the needs of various organizations

• Neutral, standards driven multimodal platform

• Just implemented application in NY for NYSDOT – 511 Mobility
Pivot GIS DATA

- OpenStreetMap and Pelias geocoder are the base map and address service for Pivot
- Open-source platform
- Allows for local updates and editing
- Pivot uses the live GIS data from Columbus, COTA, MORPC, and ODOT, - all different platforms that are combined in OpenStreetMap and Pelias for the best available data
**Modes**

**Trip Optimization**

**Pivot Trip Plan**

**Machine Learning Trip History**
TRIP OPTIMIZATION DATA

• Data Used in Pivot
  • Historic INRIX (3 years)
  • Live INRIX
  • User Feedback
  • Historic trip information from Pivot
  • Weather

• Future Data to be Used in Pivot
  • SharedStreets telemetry data (Uber and Lyft historic speeds)
  • Connected Vehicle Environment
  • Signal phase and timing
  • Waycare
  • OHGO
# SHAREDSTREETS DATA

## SharedStreets Mobility Metrics

**Date:** 09/16/2019

### Daily Summary

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Trips</td>
<td>13</td>
</tr>
<tr>
<td>Avg Trip Distance</td>
<td>0.65  mi</td>
</tr>
<tr>
<td>Total Trip Distance</td>
<td>8 mi</td>
</tr>
<tr>
<td>Avg Trip Duration</td>
<td>3m 23s</td>
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</tbody>
</table>

### Weekly Summary

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Trips</td>
<td>72</td>
</tr>
<tr>
<td>Avg Trip Distance</td>
<td>1.72  mi</td>
</tr>
<tr>
<td>Total Trip Distance</td>
<td>123 mi</td>
</tr>
<tr>
<td>Avg Trip Duration</td>
<td>8m 24s</td>
</tr>
</tbody>
</table>

## Time Filter

- **Hour:** 12pm-1pm
- **Minute:** 00-15
**SHAREDSTREETS DATA**

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**Trip Volume**

- Streets
- Bins

Trip Volume measures the number of vehicles that moved over a street or zone. Filtered to protect individual privacy.

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**Pick Ups**

- Streets
- Bins

Pickups measures the total number of trips that began within a zone.

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Poll Slide
PIVOT DEMONSTRATION
Plan Your Trip!

**Profile Menu**
- Registration
- Saved Places
- Metrics
- Gohio Commute
- Help >Privacy>Feedback

**Settings**
- Wheelchair Accessibility
- Options
- Modes

**Deep Linking Tools**
- Nearby Rides
- Trip Plan

**Main Map**
- Stops, Routes, & Rentals
- Alerts
- Scheduled Trips
- Bus Stop Data

**Plan!**
- Location on Map
- Geocoder
- Weather
- Review Options & Sort

**Book!**
- Vertical/Horizontal Navigation
- Turn by Turn Directions
- Voice