Transit Planning and Route Implementation using GIS

About Valley Metro

- Public transit agency for the Phoenix, Arizona area

- Light rail
- Bus
- Vanpool
- Paratransit services

Overview

- Planning the route

Route Analysis Tool

- Implementing the route

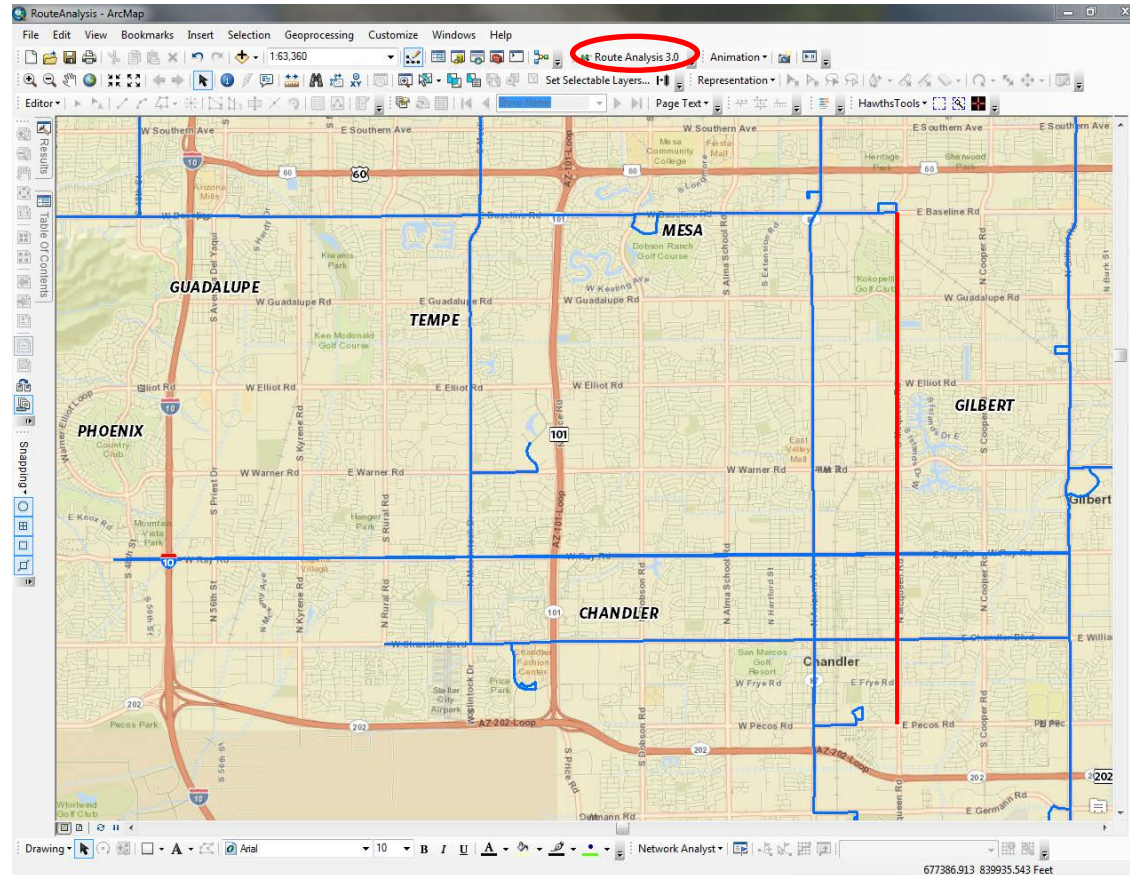*Bus Stop Database*

Web Maps

Planning the Route

GIS is the best tool to answer these questions

Route Analysis Tool

Service Type

Fiscal year of service

Peak and off-peak frequency

Span of service

Route Analysis Tool Data

Route Specific Data

Number of trips - Miles traveled - Net cost- Fleet Required - Existing Ridership - Projected Ridership
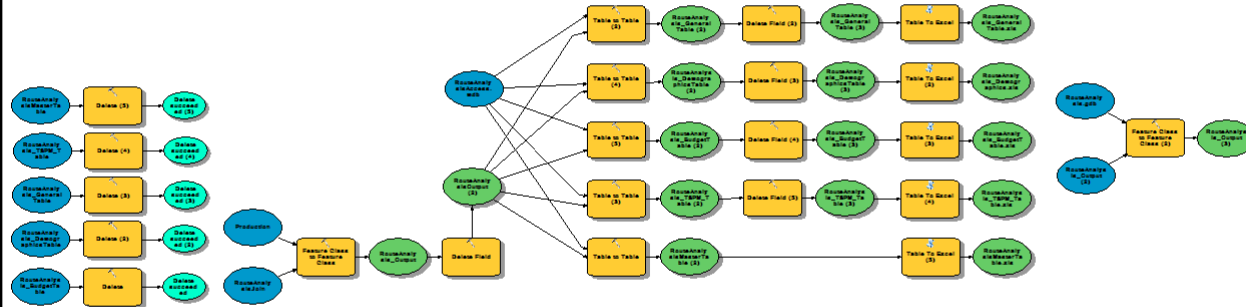
Demographic Data

Total Population - Households - *Zero & One Car Households* - *Low Income* - Elderly Youth - Disability - Minority
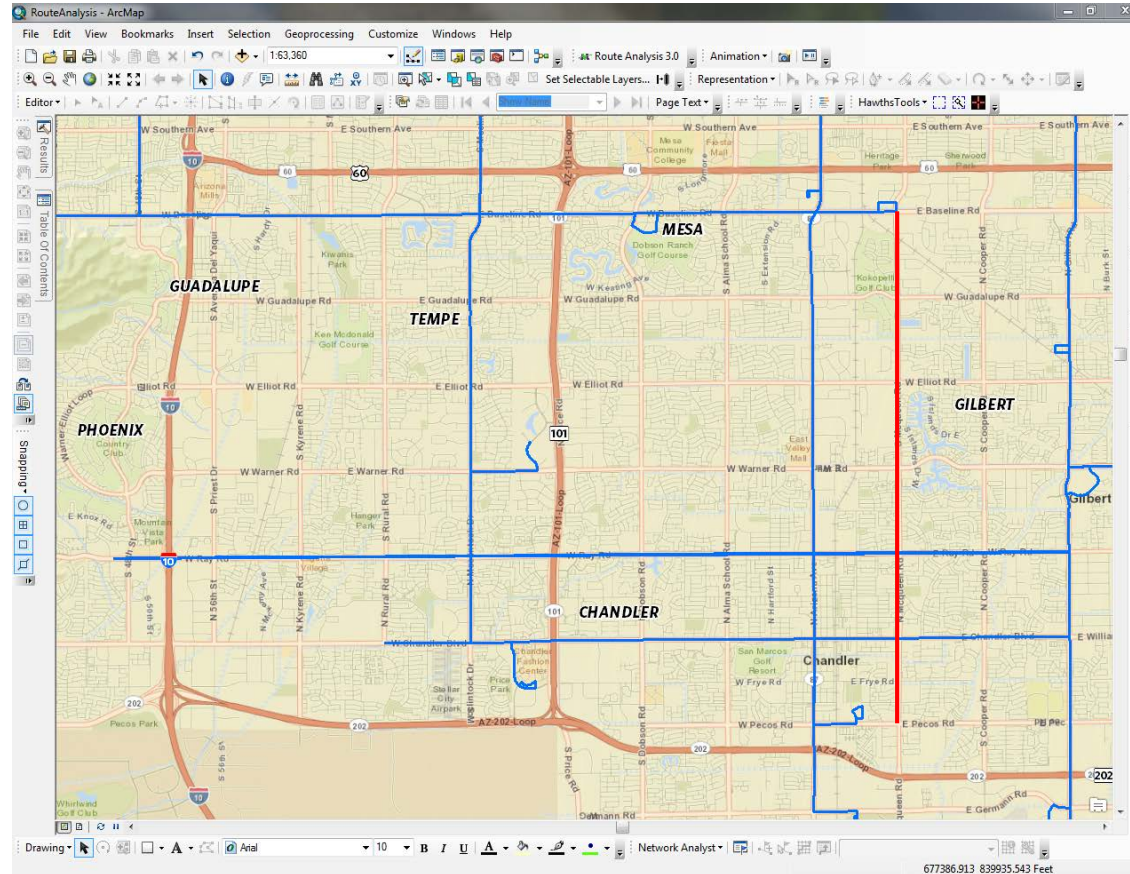
Employment

Number of Employees - Current Transit Riders – People Interested in Transit

Route Analysis Tool Models

Route Analysis Tool Example

- Cost: $1.1 M
- Fleet: 7 Buses

Lower:
- Pop Density
- Minority
- Low Income
- Zero Car HH
- Disability
- Projected Boardings

Higher:
- Youth
- Employment Density

Processing Time:
- 3 Minutes

Route Analysis Tool Benefits

- Ability to quickly analyze potential route.
- Demographics comparison to the entire county and the service area.
- Cost and fleet estimates.
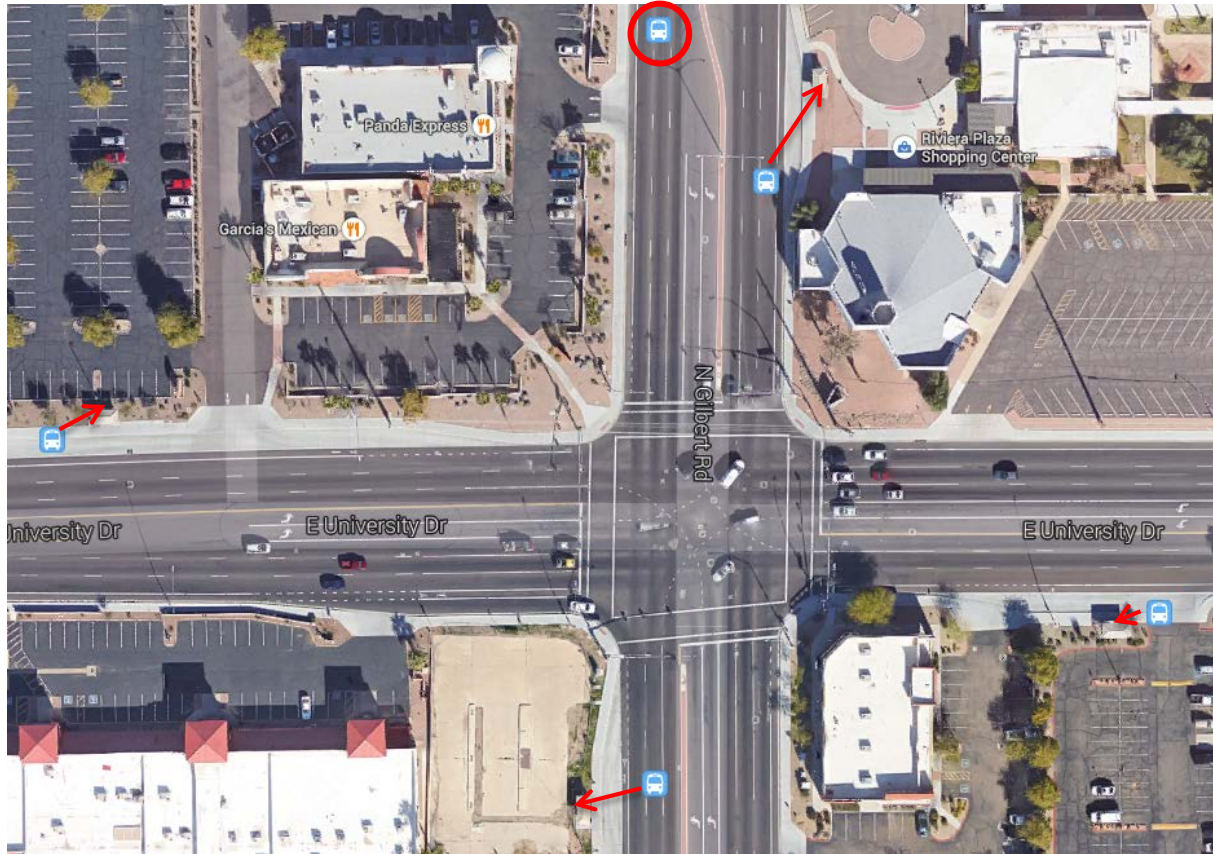- Speed!!!!

Implementing the Route
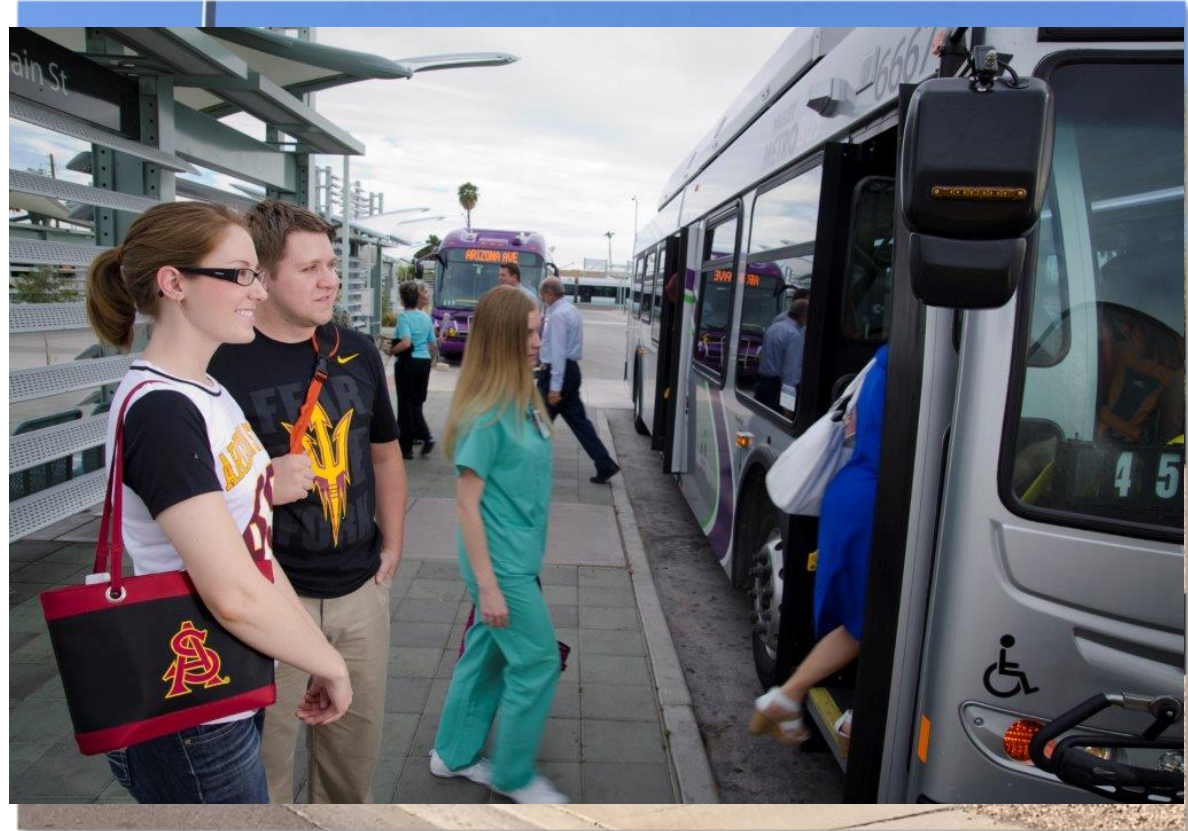
Planning the route

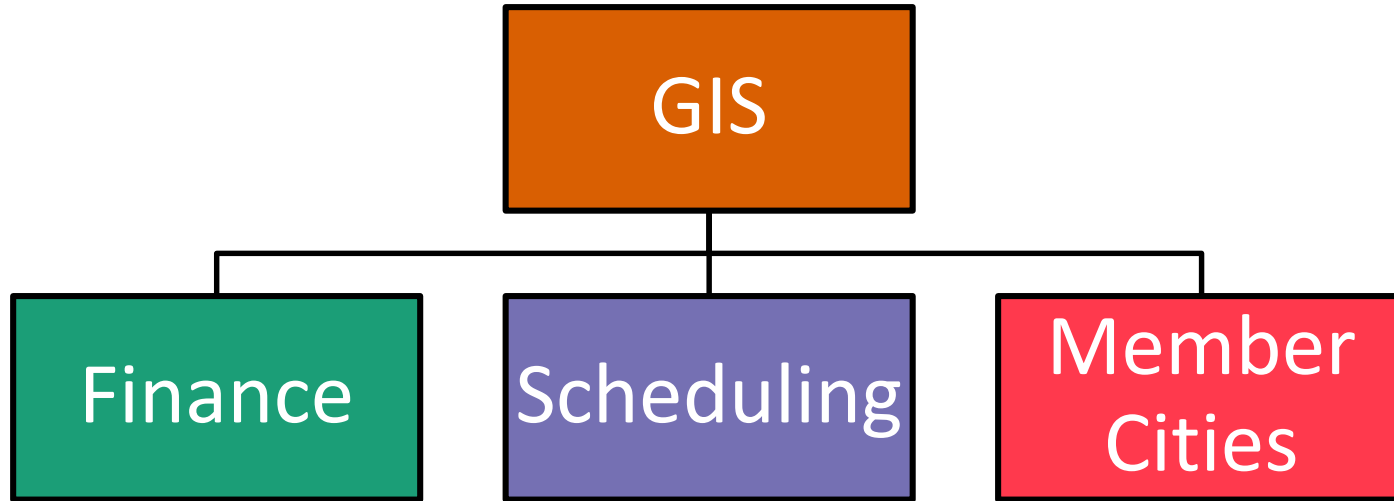Route in Operation

Previous Bus Stop Setup

Customer Requirements

- Finance

- Scheduling

- Member Cities

- Actual bus riders

Optimal Bus Stop Data Setup

Bus Stop Data Collection

- **V**isit
- **V**alidate
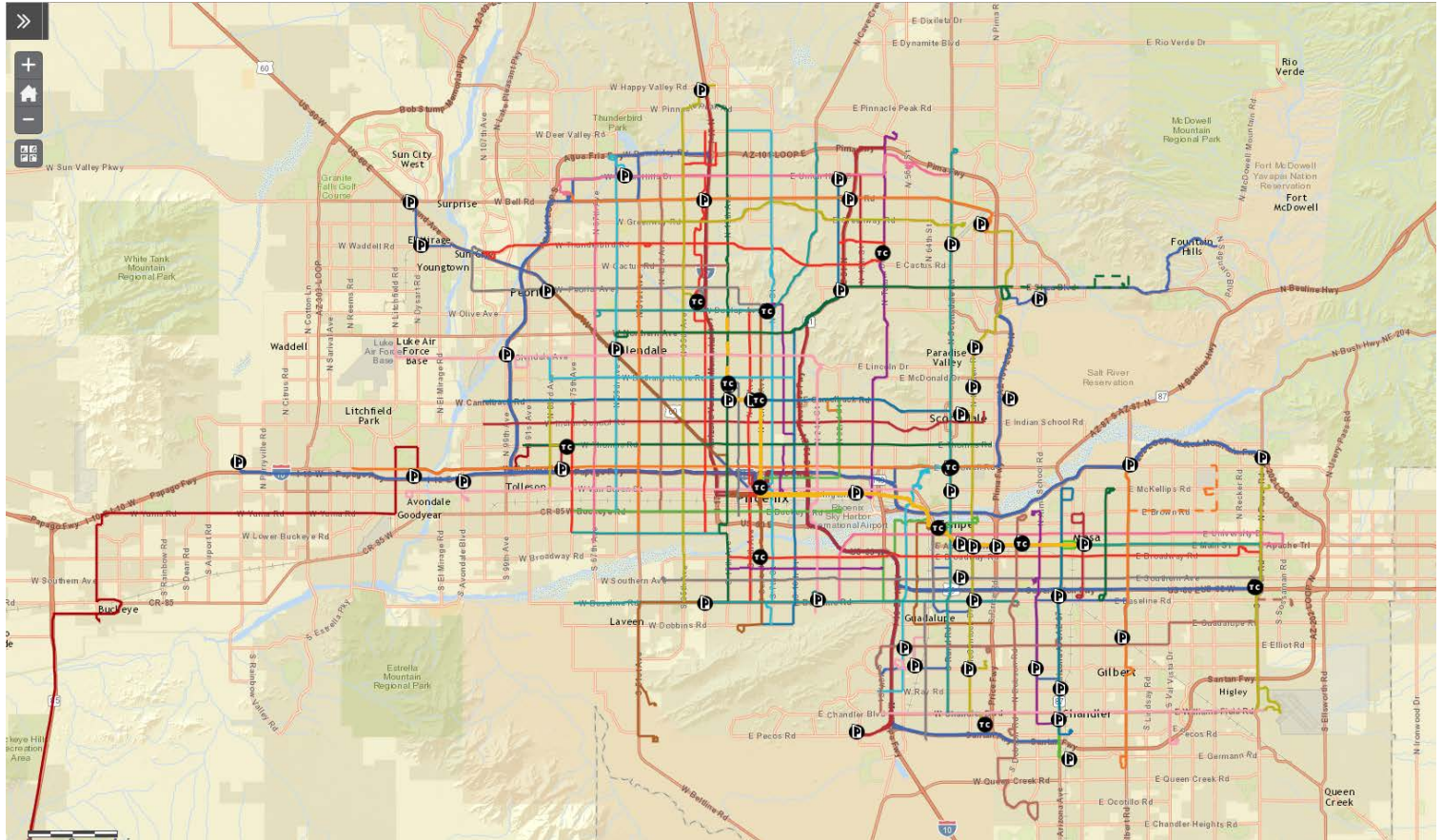- **V**iew

Using Collector for ArcGIS

1. Add point to collect location
2. Choose the attributes using coded values
3. Picture

Bus Stop Data Collected

- Bus Stop ID
- NextRide ID
- Generalized Location
- Jurisdiction
- # Shelters
- # Benches
- Bus Bay
- # Bike Racks
- Water Fountain
- Lighting
- Public Art
- ADA Compliant
- Emergency Call Box

- Information Display
- Stop Type
- Date Updated
- Sidewalk
- Photo
- Scheduling ID
- Detailed Location
- Travel Direction
- Latitude
- Longitude
- Routes

ArcGIS Online

Benefits of using a GIS database for bus stops

- Accurate GIS locations and information used to feed information to all the subsequent processes and analysis.
- ONE LOCATION for the data!!!
- Gives the public more accurate and useful information