School of Sustainability
Arizona State University

Gold Team: Tempe Transportation

Group Members: Melissa Dobroski, Skylie Dosier, Jake Damle, Joseph Dean

Outline

Order of presentation:

- **Introduction: Whats the Problem?**
- **Riding the 81 Line & Surveys**
- **Commuter Interviews**
- **Riders to Commision**
- **Other Examples: Curitiba & NYC**
- **General Challenges & Major Concerns**
- **Transition Strategies and Recommendations**
- **References**

What's the problem?

Goal: 20 Minute Transit City but...

- **In general, Tempe streets see between 35,000-45,000 cars daily & there are 60 cars per lane per mile.**
- **Buses have 15 minute intervals during rush hour & 30 minute intervals the rest of the day.**
- **More efficient & extended bus routes could fix this, but bus ridership is lacking and system is inefficient.**
- **Surrounding city residents hesitant to extend bus routes/ transportation.**

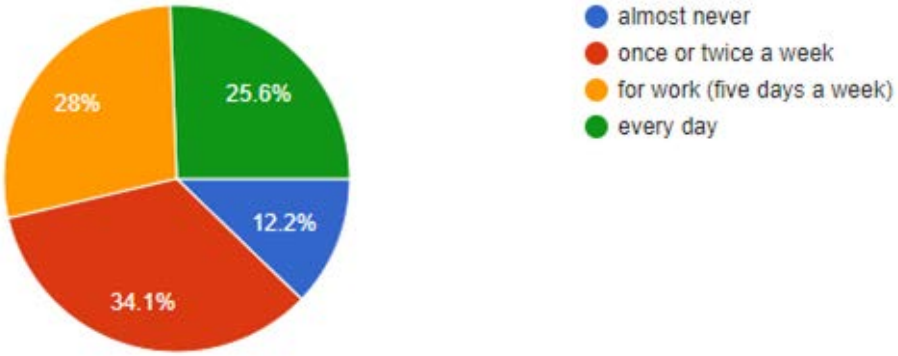
Riding the 81 Line

- **Extends from Chandler Ave. to Raintree & is the major line to the 101.**
- **Headways are generally slow mid-day & slower during rush hour (over 40 min. mid-day).**
- **Fare is $2-$6 (extra $2 fee for on bus purchase).**
- **Stops include large shopping areas & neighborhoods.**
- **From interviews, riders prefer and like riding the bus!**
- **We received 82 surveys of riders at multiple times of the day.**
- **Routes are trackable through apps and texting but this is unreliable & not accessible to all.**
- **Frequent stops & no pull- aways.**

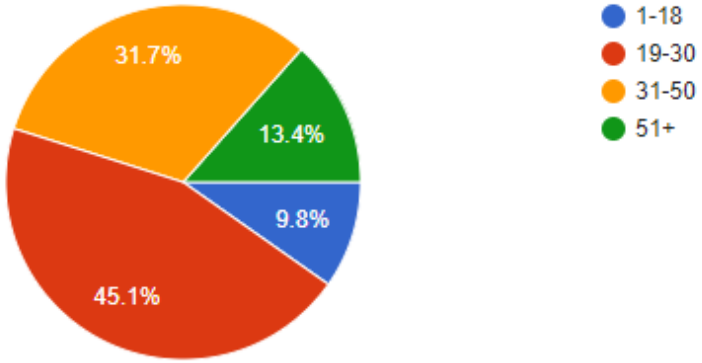
Retrieved from https://www.valleymetro.org/maps-schedules.

Frequency & Age

How often do you ride the bus?

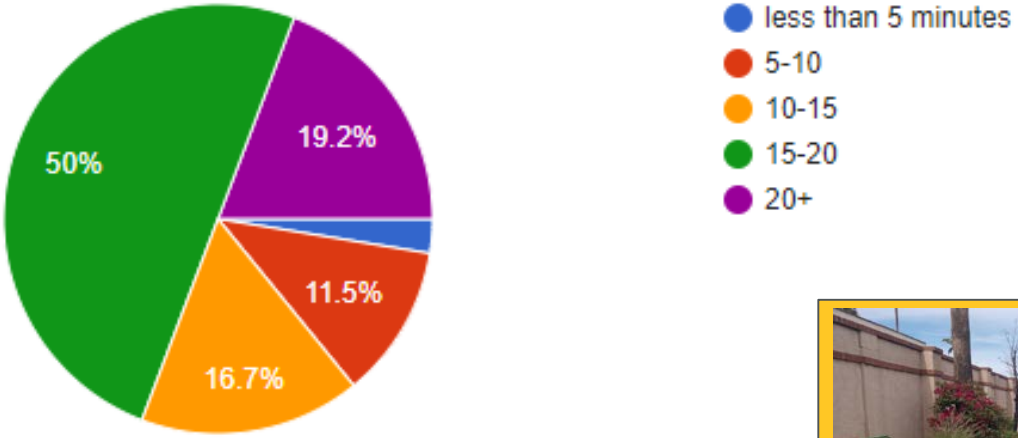


Age



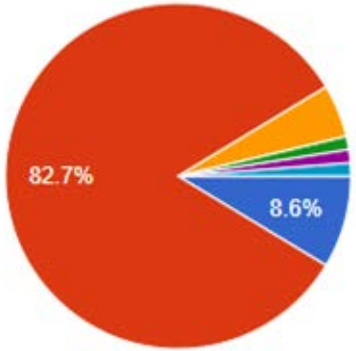
“How long do you wait?”

How long do you wait at the bus stop?



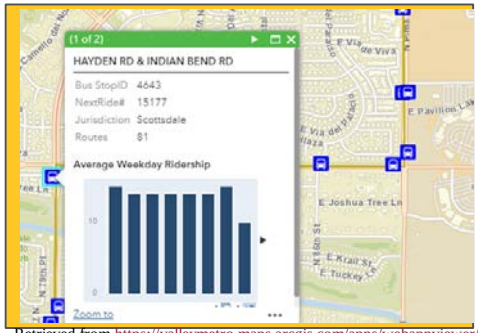
What general Chandler neighborhood stops look like, we waited up to 50 minutes for this bus!

Mode & Ridership GIS

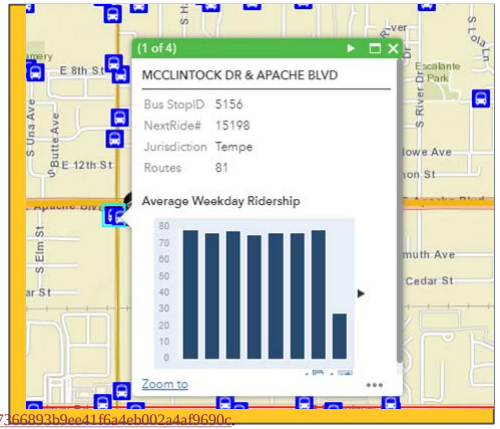


-When there is connectivity, there is an increase in ridership.

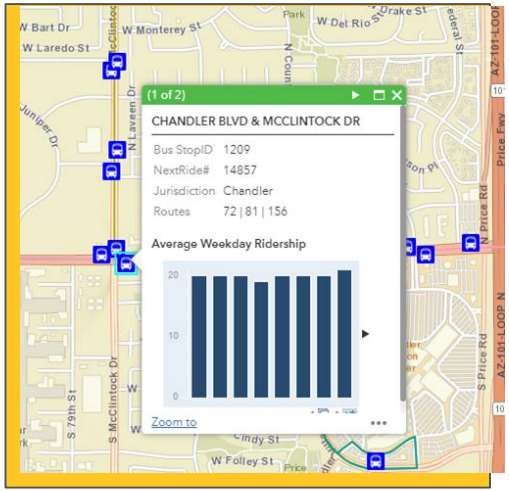
~15 Weekday Riders



~80 Weekday Riders



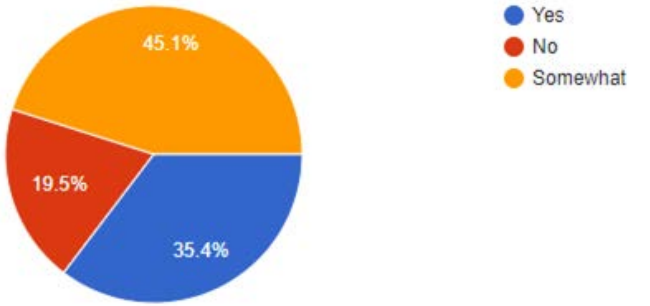
~20 Weekday Riders



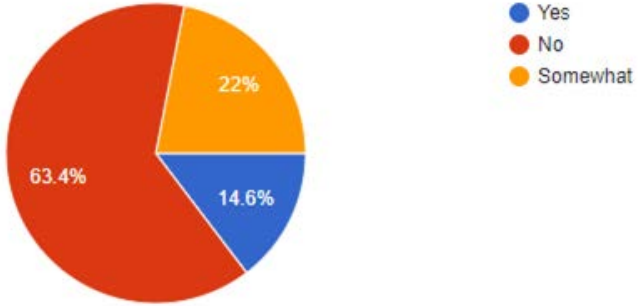
Retrieved from https://valleymetro.maps.arcgis.com/apps/webappviewer/index.html?id=27366893b9ee41f6a4eb002a4af9690c.

“What would you change?”

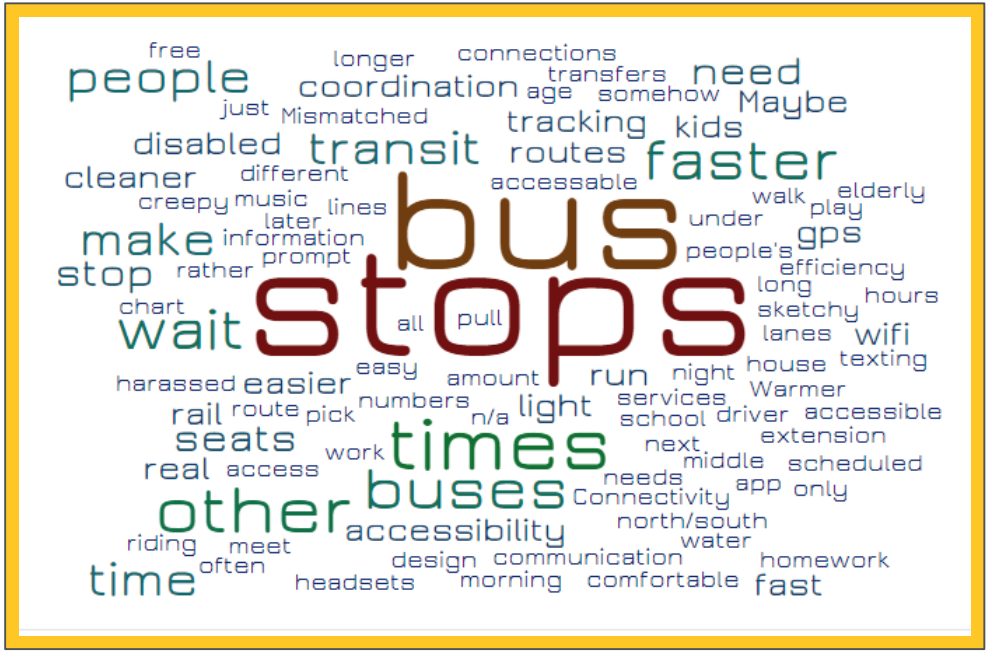
How comfortable is the 81?



Are routes confusing?



What needs improvement?



Commuter Interviews

What riders are saying about the 81: Generally people like the bus & want more fellow riders!

- **Routes are poorly connected to other routes/ transit & there is no communication between other drivers.**
- **Fare is inexpensive but long or unpredictable wait times.**
- **Frequent harassment on busses and at stops: While some feel comfortable, women feel unsafe & insecure.**
- **Do not run late enough- resort to Lyft or Uber**
- **Buses and stops are not handicap friendly spaces.**

"Where's the bus?" Personal reflections…

- **Easy to navigate & inclusive.**
- **Harassment is noticeable.**
- **Generally inexpensive fair.**
- **Long wait times!**
- **Not easily accessible.**
- **Stops are not matched/ coordinated to connecting routes & transit.**
- **Stops are frequent but not friendly.**

“If I could tell the commission”...

What riders want the planning commission to know:

- **Buses need more equitable accessibility and service staff for disabled riders.**
- **There must be communication between drivers and busses rather than at terminals to increase headways.**
- **Stops and bus environments are unsafe.**
- **Some riders feel like their needs are not met.**
- **Drivers need control but also need to balance rider’s needs.**
- **Bus routes are uncoordinated with other routes and forms of transit for not seamless transit connectivity.**

Looking at N.Y.C.’s SBS

Pros

- **Off-board fare payment & low-floor, three-door buses**
- **Transit signal priority & wider stop spacing**
- **10-12% ridership growth in first year & 19% reduced travel time**
- **Added city benefits: Pedestrian safety islands, bicycle paths and lanes, & additional sidewalk space (New York City Department of Transportation)**

Cons

- **Right-turning vehicles are allowed to turn from the bus lane**
- **No GPS to track real time**
- **Lanes not centered (Young, 2013).**

Looking at Curitiba's BRTS

Pros

- **70% commuter ridership, 90 second headways, & unlimited transfers.**
- **Traffic lights & dispatch control are centralized at terminals (Algulhun et al, 2015)**
- **Includes radial routes (direct and express), feeder services, & inter-neighborhood services (Lindau et al, 2010).**
- **Platforms are raised & easily accessible.**
- **Areas are zoned to be higher density/ integrated to limit congestion & increase inclusion (Algulhun et al, 2015; Lindao et al, 2010).**

Cons

- **Riders complain of poor weather protection & temperature control.**
- **Mobility is still an issue (Reed, 2015).**

General Challenges & Major Concerns

- **Property values increase along rapid transit systems (Deng et al., 2016).**
- **Rapid transit system increase the level of "vibration transmitted to buildings in close proximity" and degrade the acoustics of urban areas (Kassomenos et al., 2016).**
- **Higher income households are more likely to use rapid transit (Barton & Gibbons, 2015).**
- **Rapid transit system locations can result in the gentrification of lower-income residents (Stokenberga, 2014).**
- **Extending transit can positively impact crime rates (Ihlanfeldt, 2003).**

Transition Strategies & Recommendations

- **Design transportation stops to deter criminal behavior and increase safety & increase security (Pearlstein & Wachs, 1982; Guerro, 2002).**
- **Expand affordable housing options & zone for high density (Cavers & Patterson, 2014)**
- **Design transit systems to reduce their impacts on urban acoustics (Kassomenos et al., 2016)**
- **Adopt & embrace complete streets through transit coordination, bikeways, & walkability (Reed, 2015).**
- **Center bus lanes, off-board fare, and raise boarding platforms.**
- **Insure GPS real tracking systems and have available real time information for riders.**
- **Curitiba system adopted a gradual implementation process and a Mobility Integrated System for centralized management (Lindau et al, 2010).**

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Thank You

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