Fresno-Clovis Metropolitan Area Public Transportation Service Evaluation

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&

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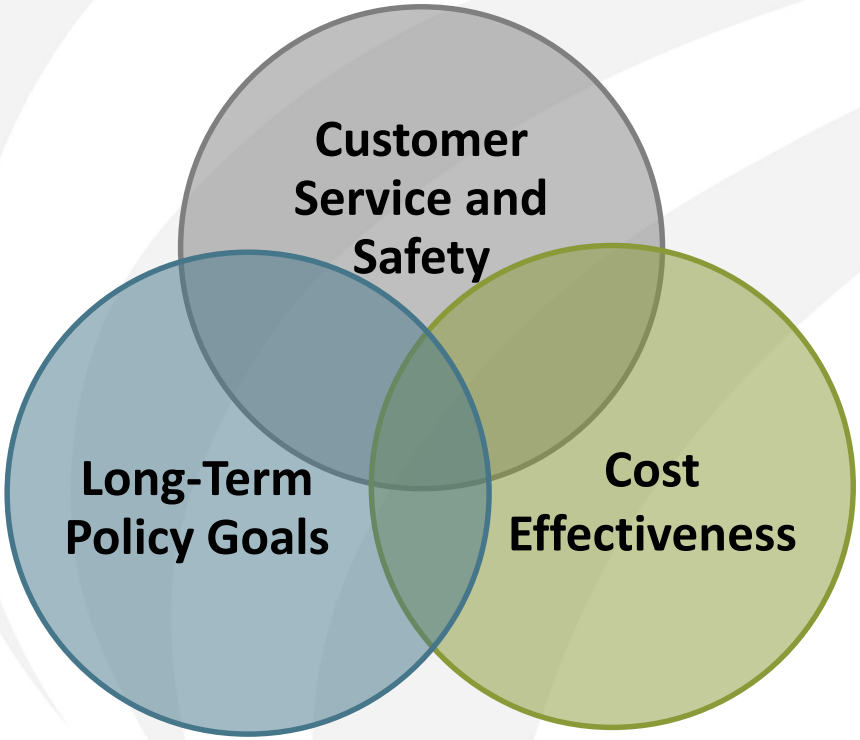
Fresno Council of Governments

PARSONS BRINCKERHOFF

March 13, 2012

Project Objectives

Balance the three transit considerations….

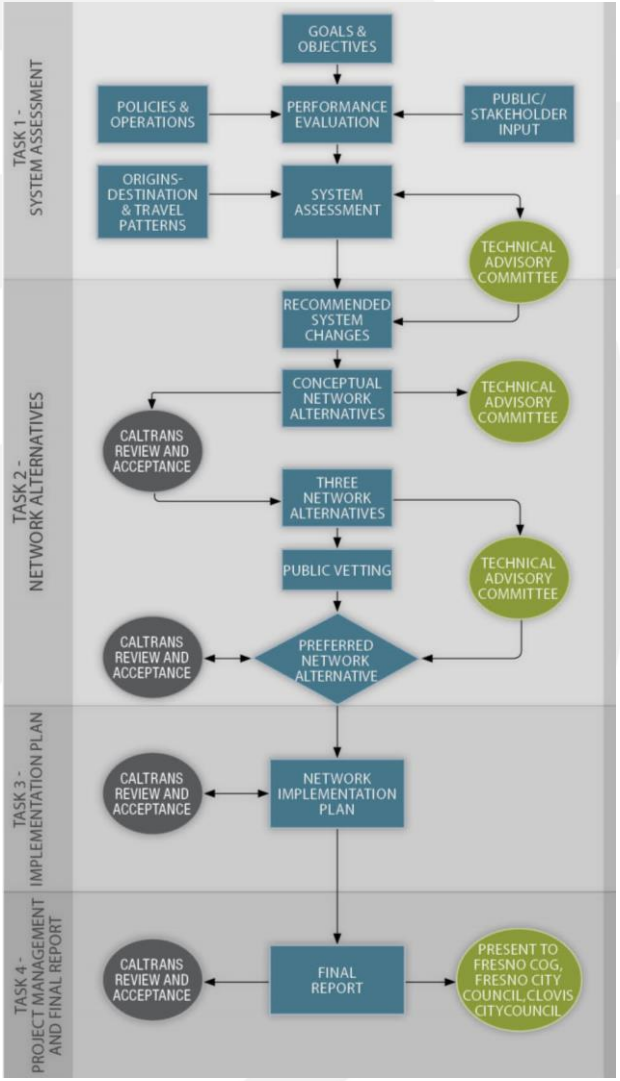


…by addressing the following goals:

- Assess and implement plan to improve services
- Develop linkages to major trip generators
- Increase productivity
- Increase cost-effectiveness

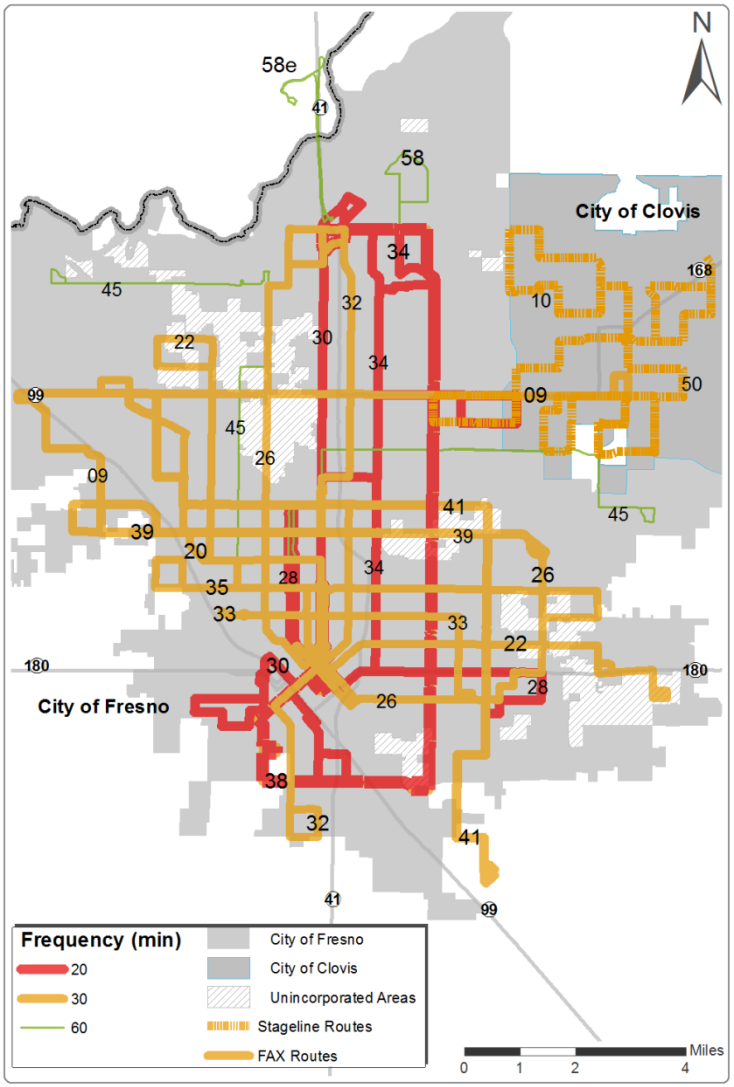
Project Process

We are here



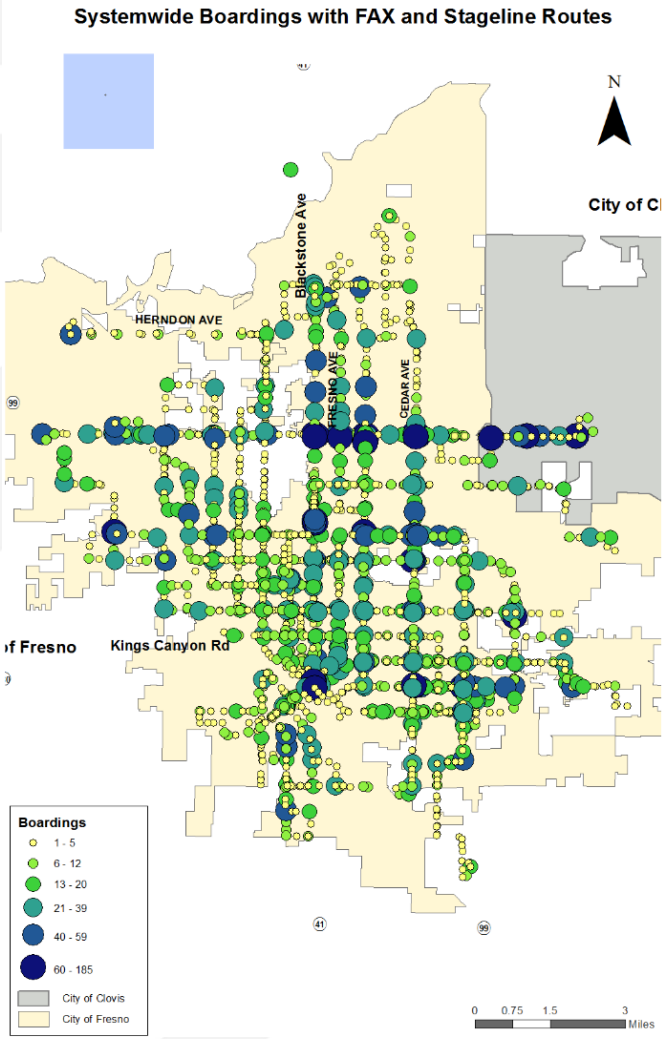
SYSTEM PERFORMANCE

Frequency of Current Service

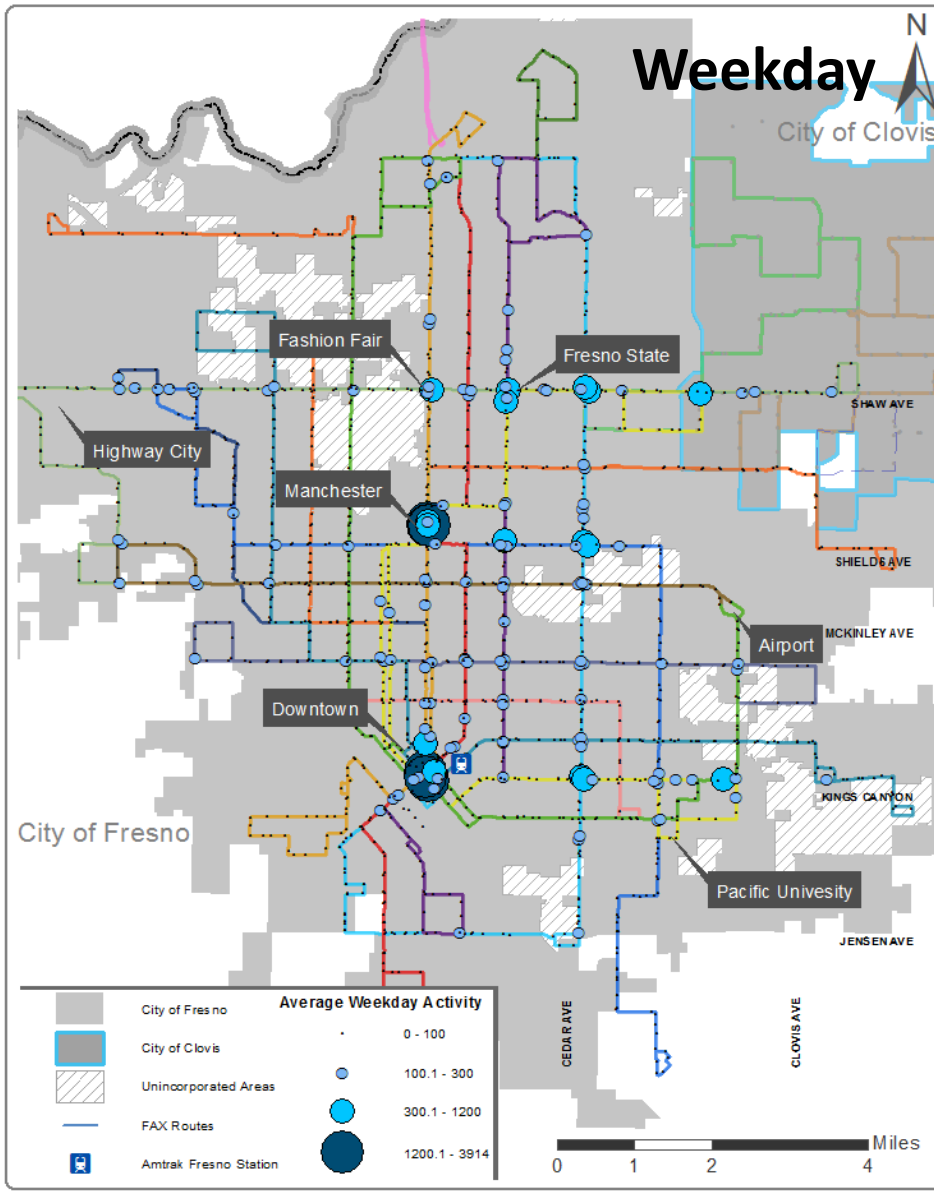


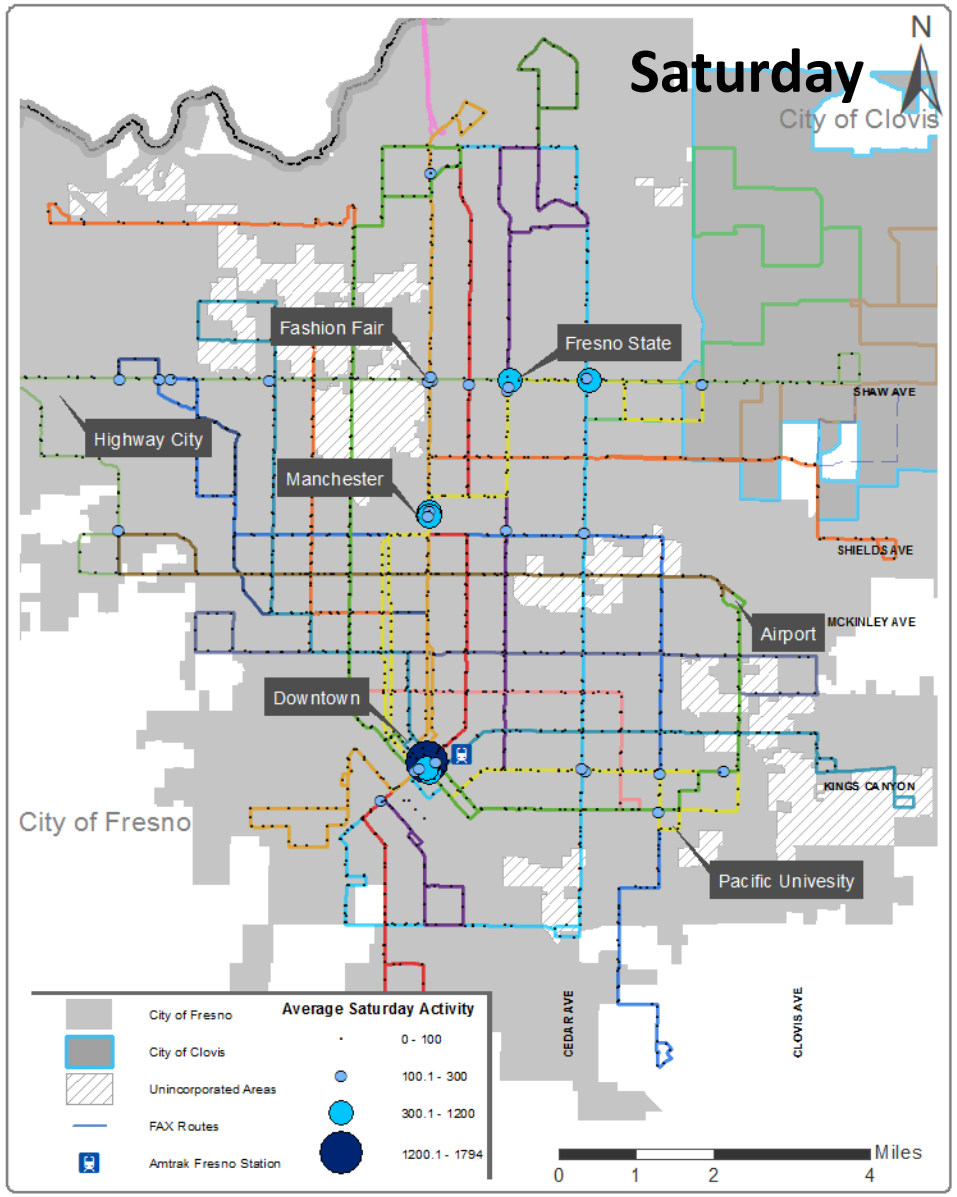
We know where the ridership is.

- Stop-by-stop ridership data

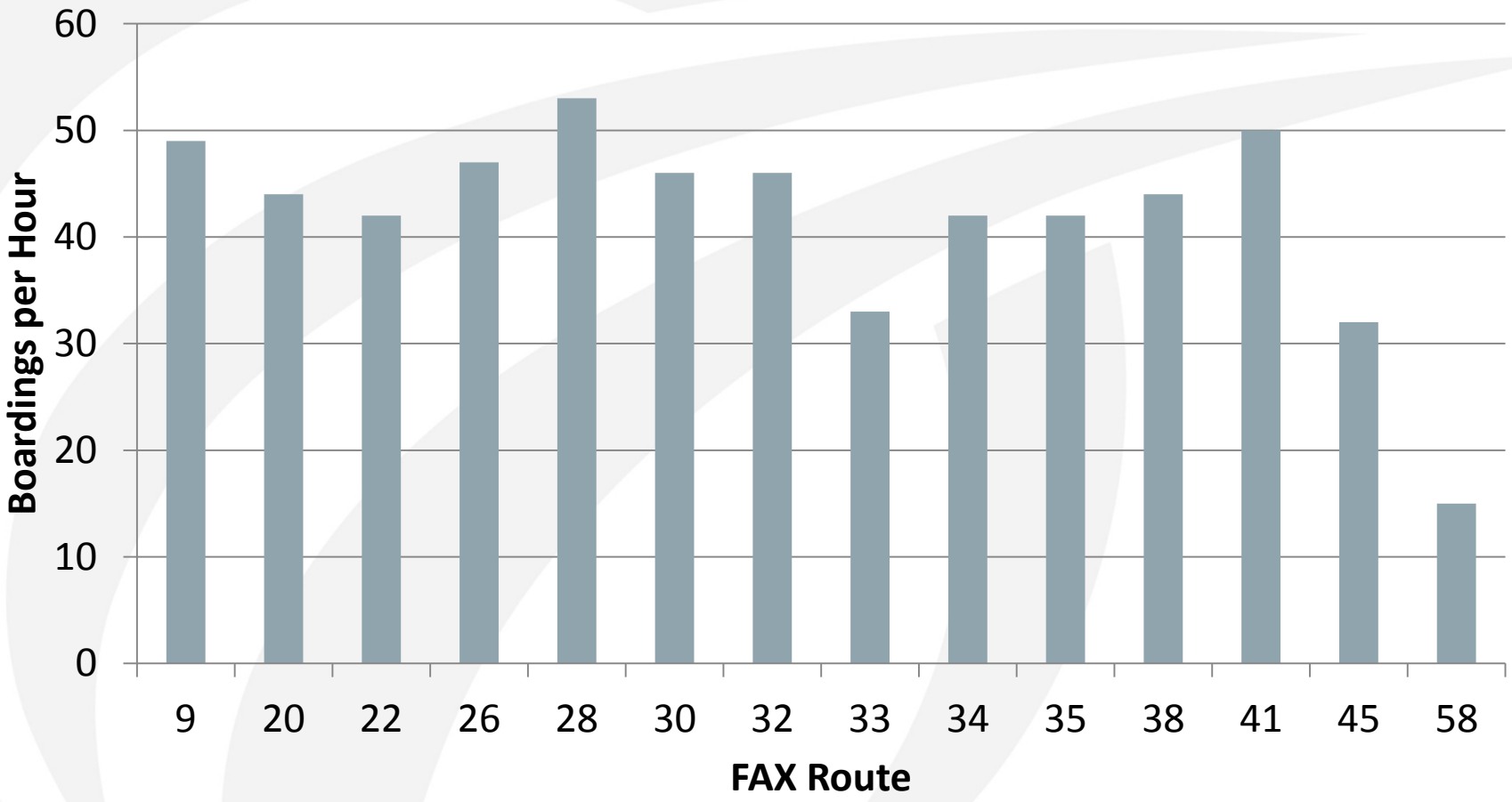


Ridership, weekday vs Sat.

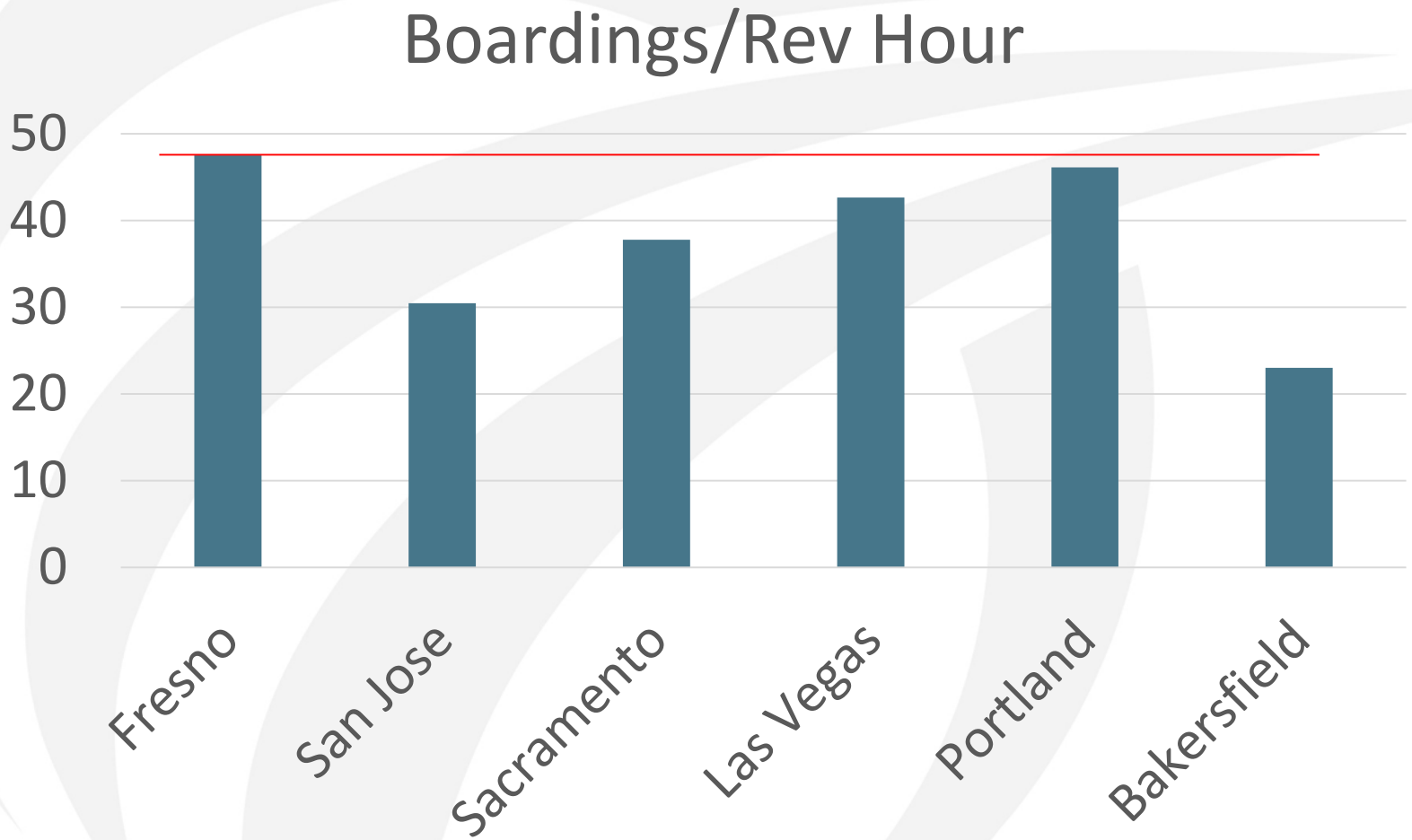




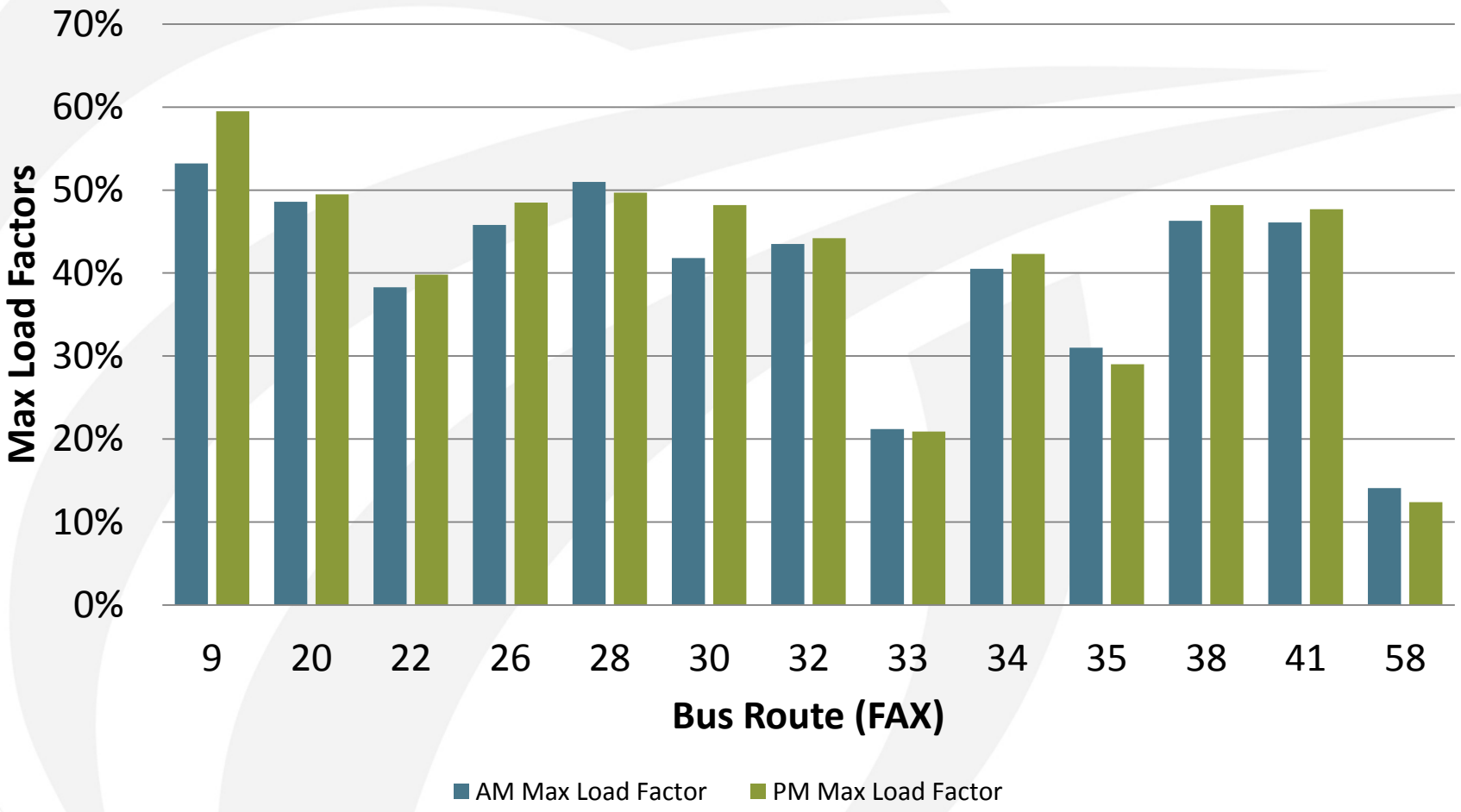
Route Productivity: Boardings per Hour



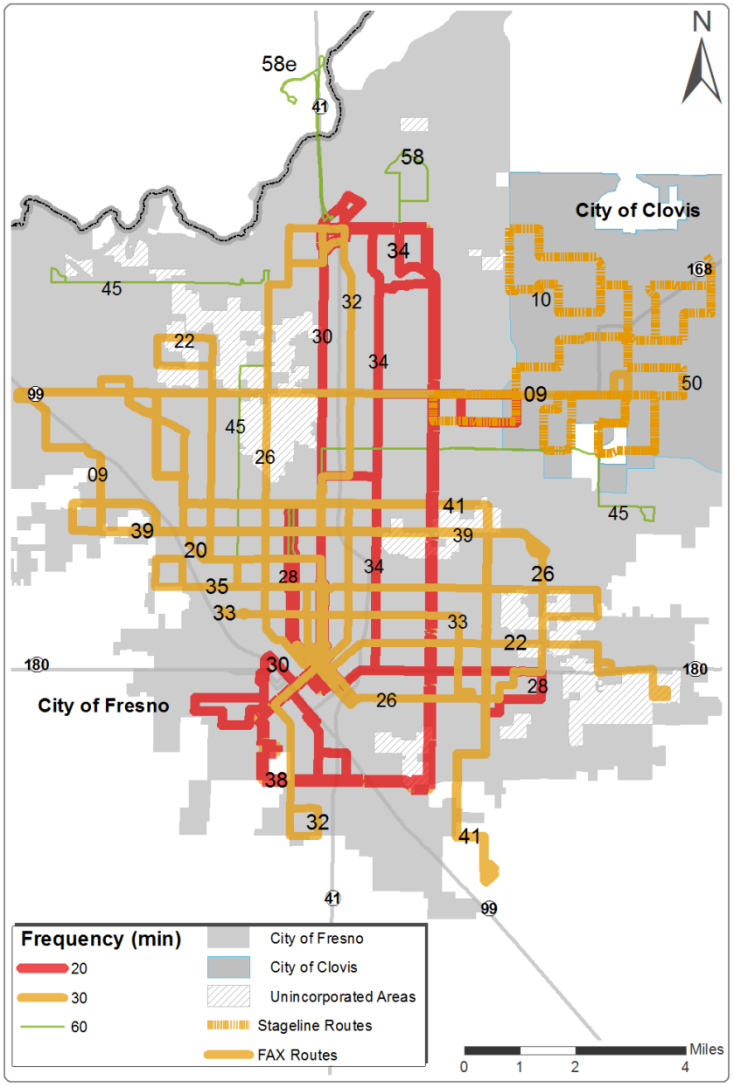
FAX is incredibly productive



Only 2-3 routes are much below average!



Unproductive Routes = Thin Green Lines

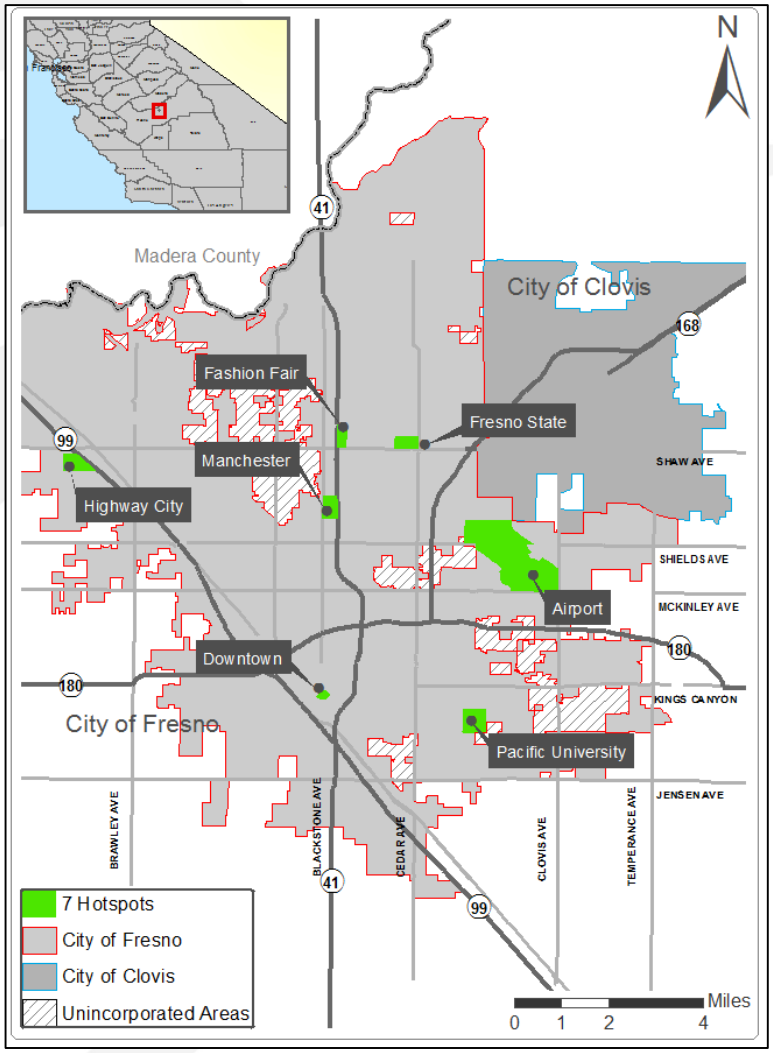


This isn't surprising, when you think about the areas served →

TRAVEL MARKET ANALYSIS

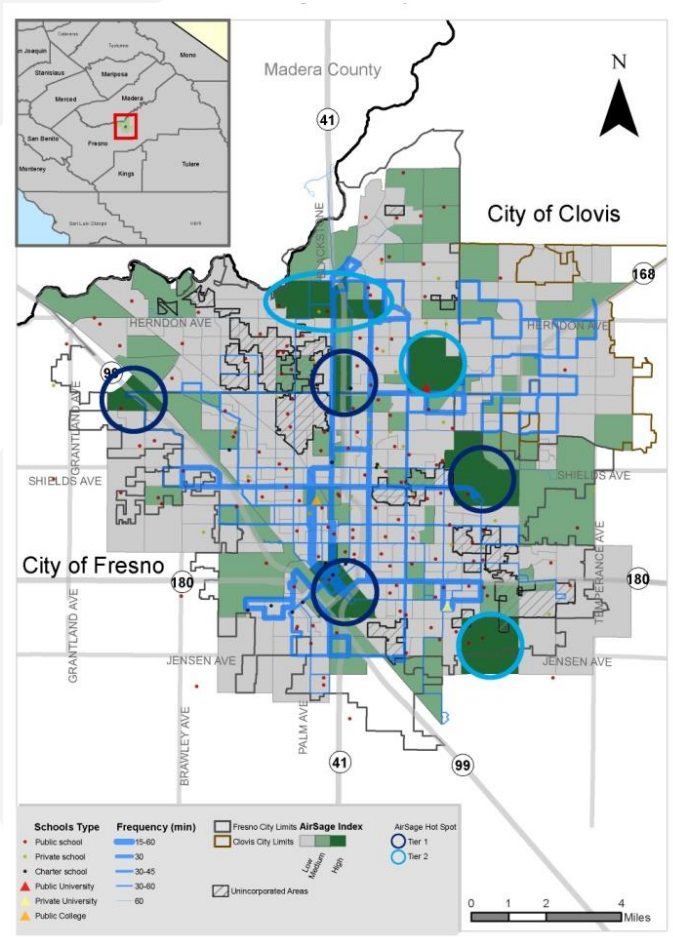
Major Origins/Destinations

1. Downtown
2. Fresno Pacific University
3. Manchester Transit Center
4. California State University, Fresno
5. Highway City residential area
6. Fashion Fair Mall/Fresno-Shaw
7. Fresno Yosemite Airport

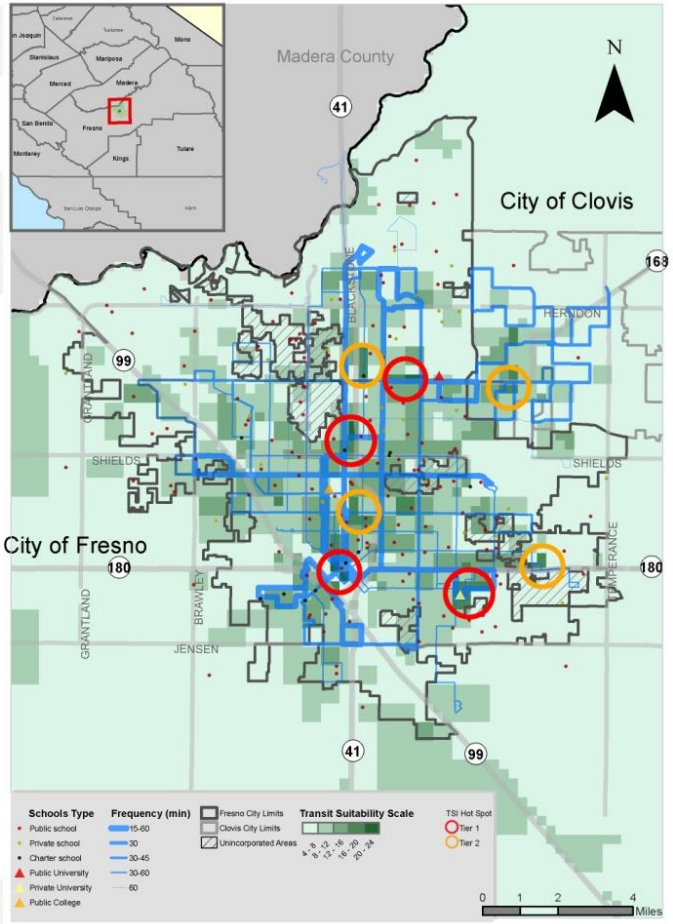


Travel Markets

Anonymous Cell Phone Data



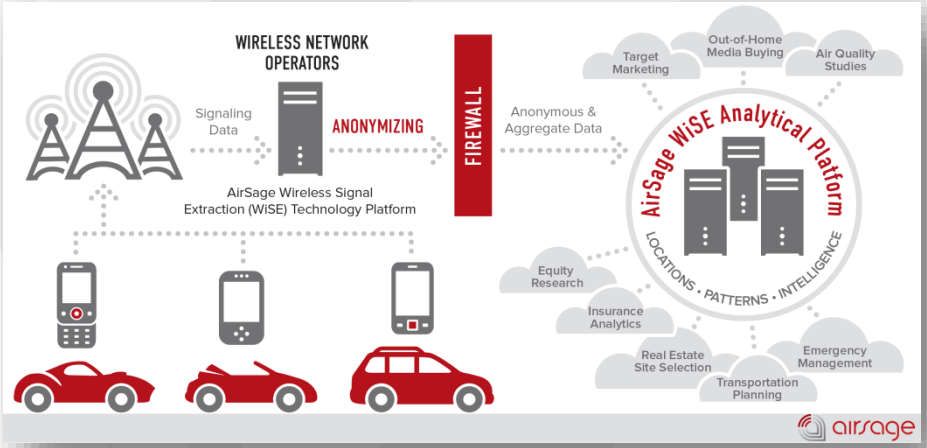
Transit Suitability Index (TSI)



Overview of Data

Anonymous Cell Phone Data – All Modes

- Tracks travel patterns for all modes
- Data collected in Fall 2013

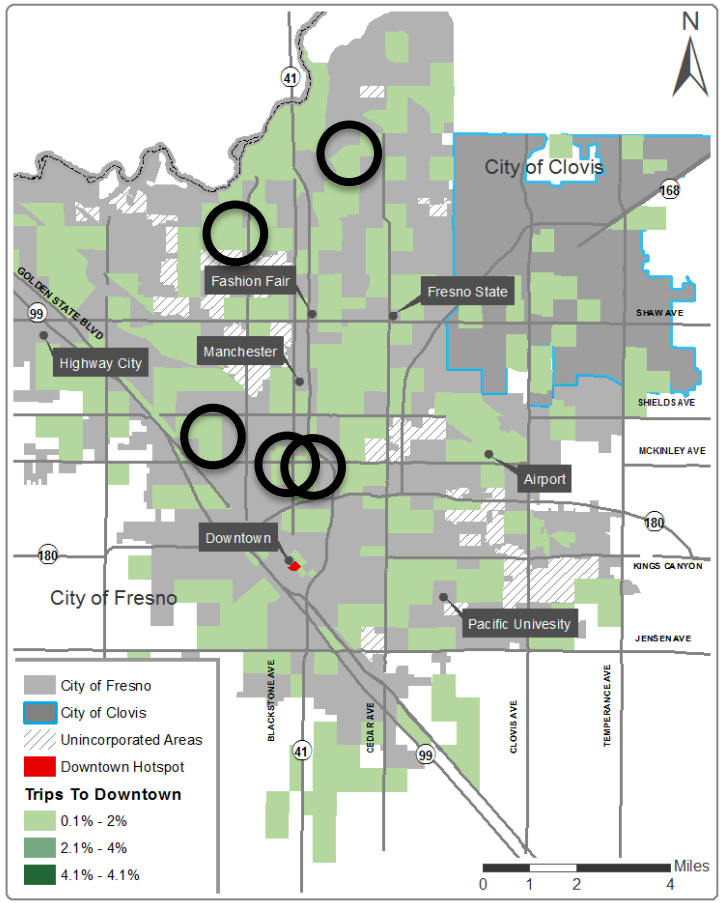


O-D Survey – Transit Trips Only

- Survey conducted on Fall 2013 on FAX and Stageline buses
- Results from 3,730 surveys included in analysis:
  - 3,379 weekday surveys
  - 351 weekend surveys
  - 125 Spanish language surveys
  - 154 Clovis Stageline surveys

Trips to Downtown

Anonymous Cell Phone Data – All Modes



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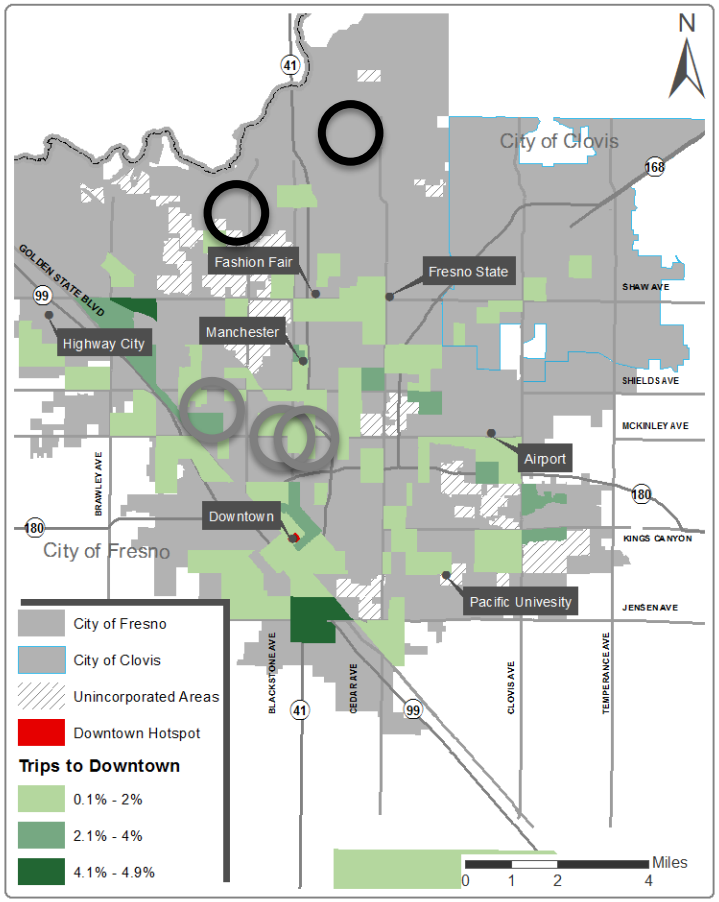
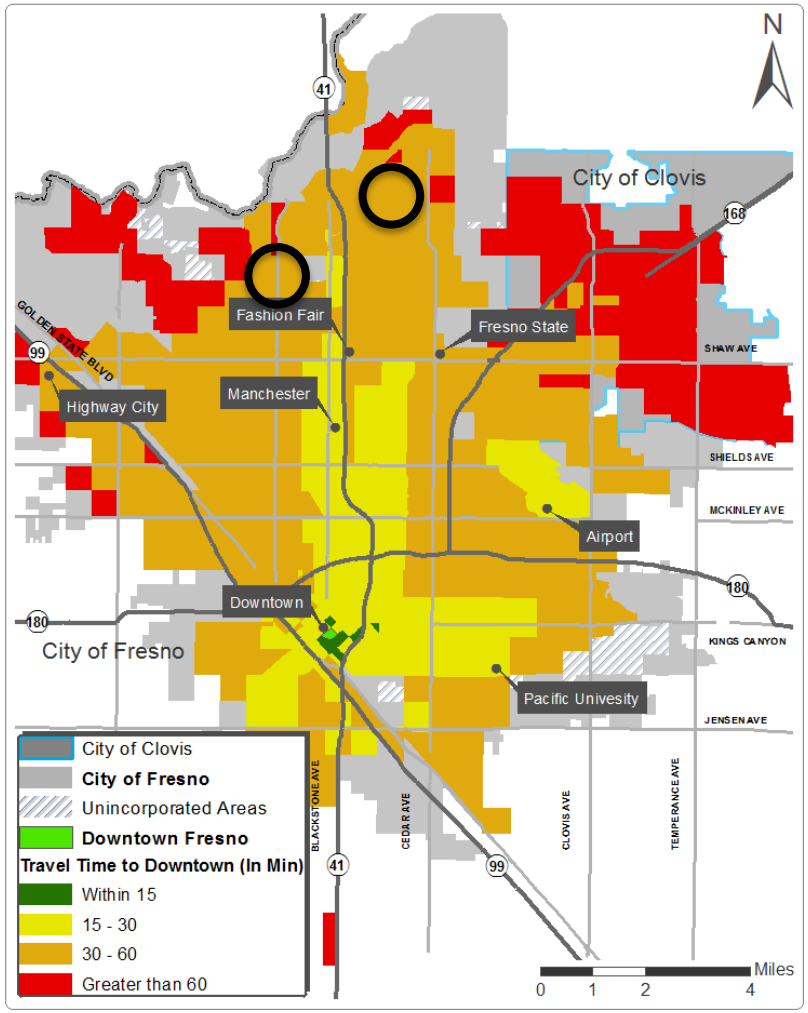
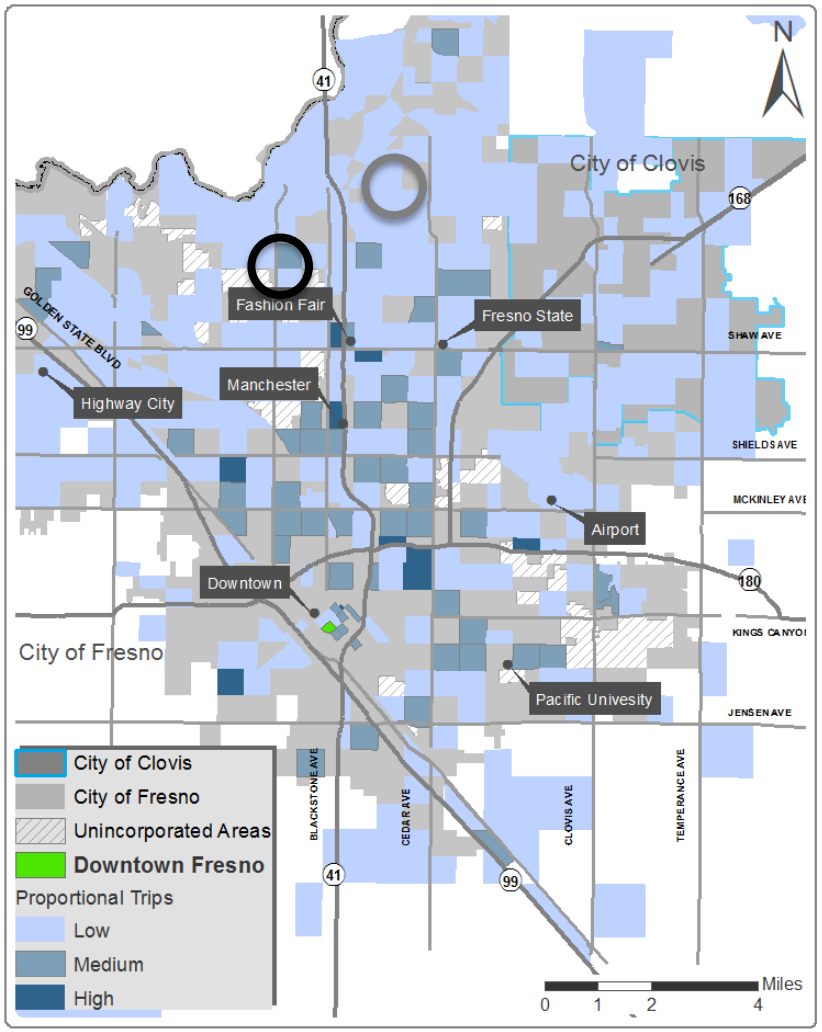


Current Transit Travel Times to Downtown

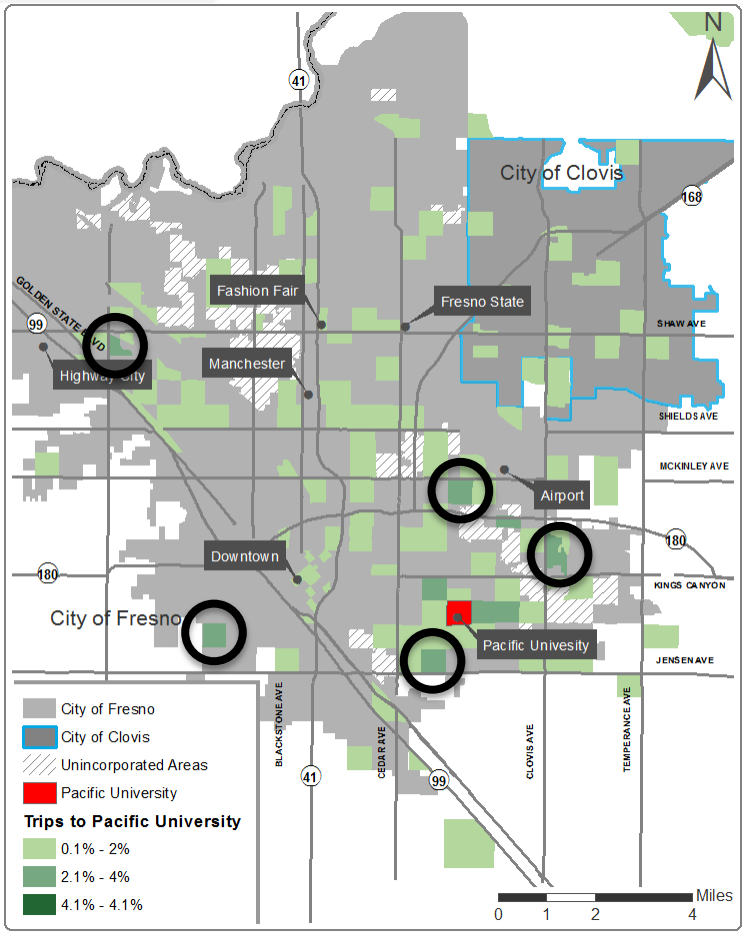


Trips from No Vehicle Households to Downtown



Trips to Fresno Pacific University

Anonymous Cell Phone Data – All Modes



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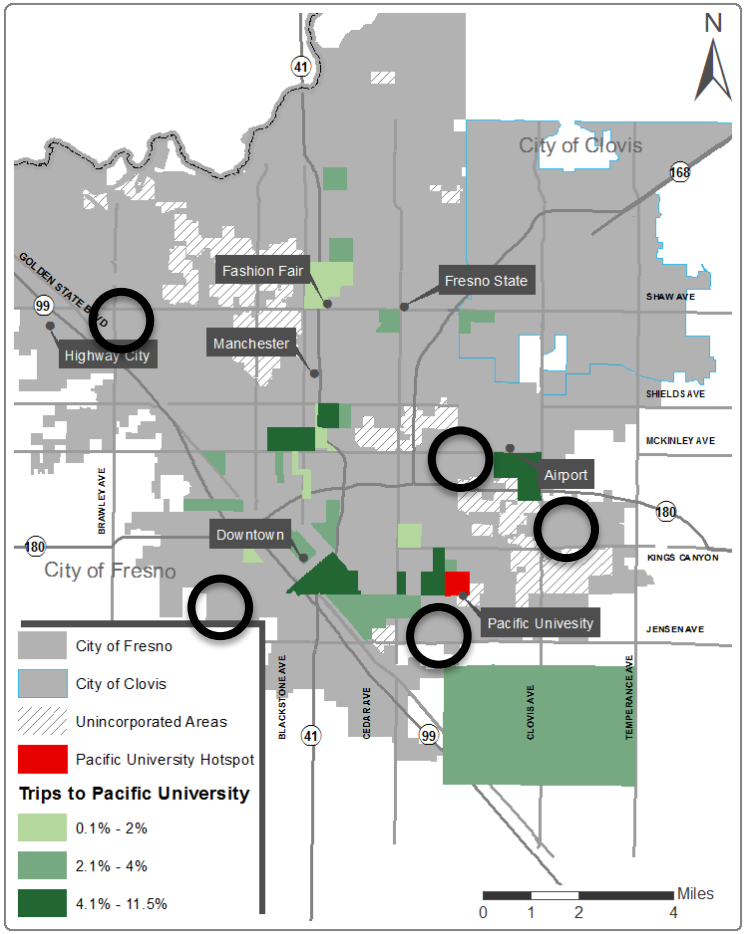

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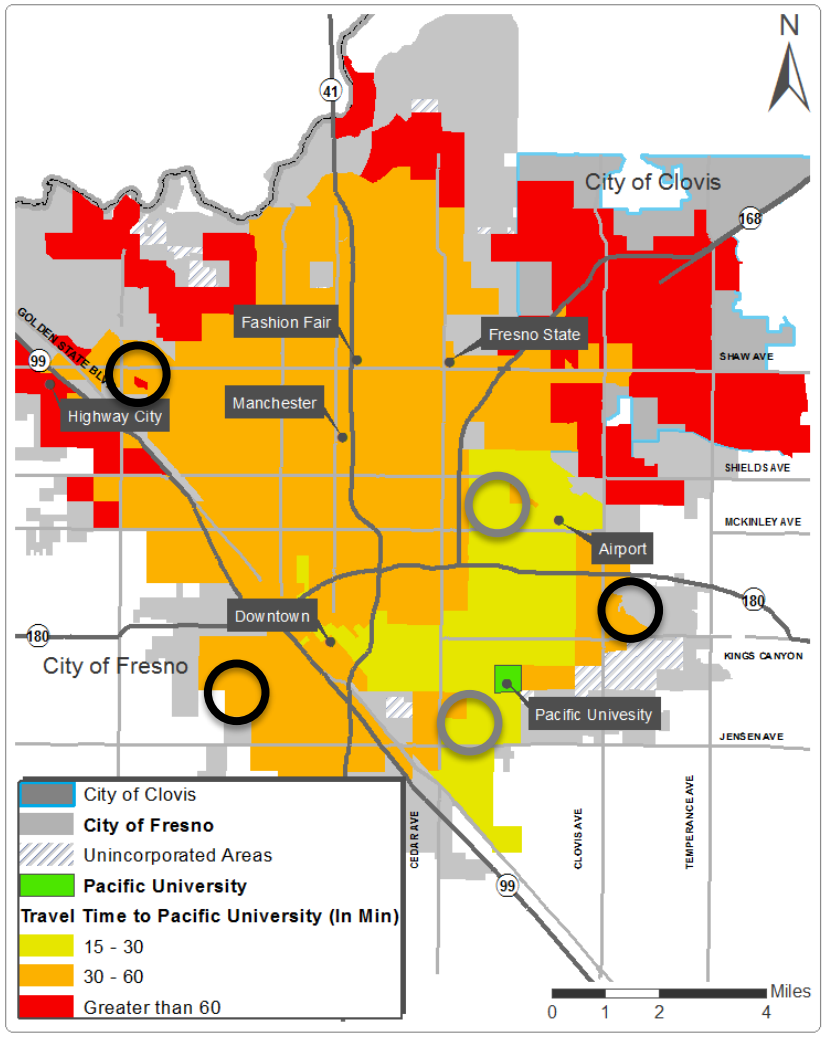
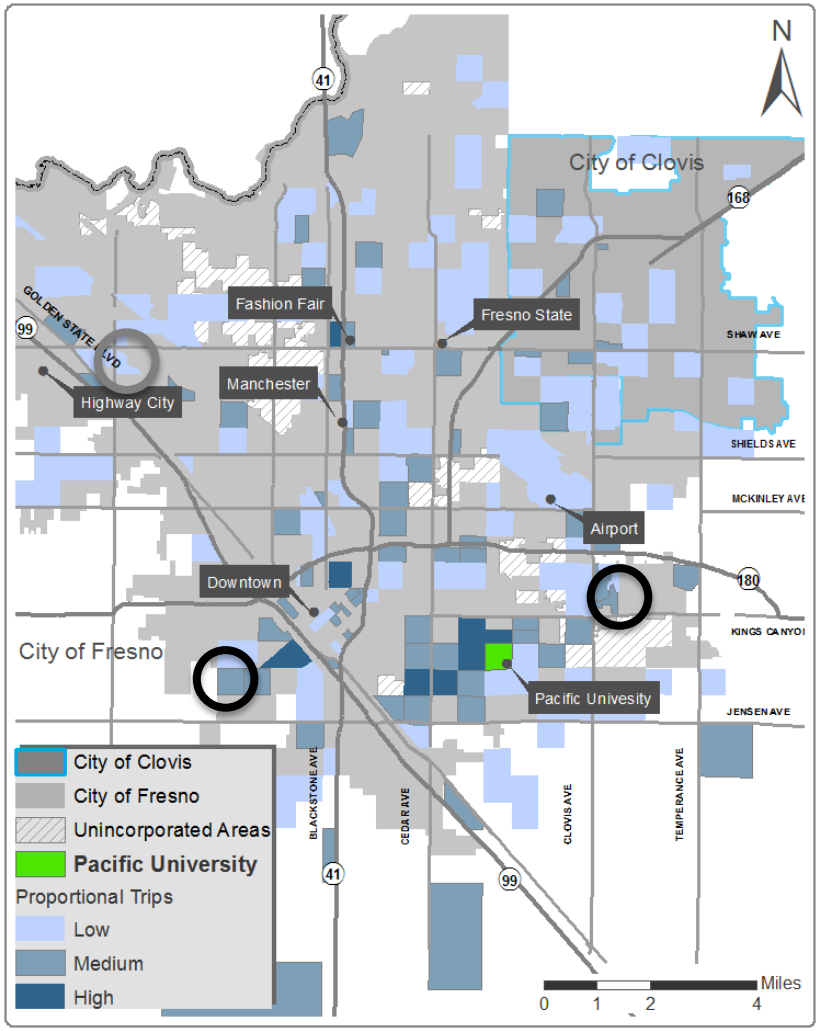
Current Transit Travel Times to Fresno Pacific

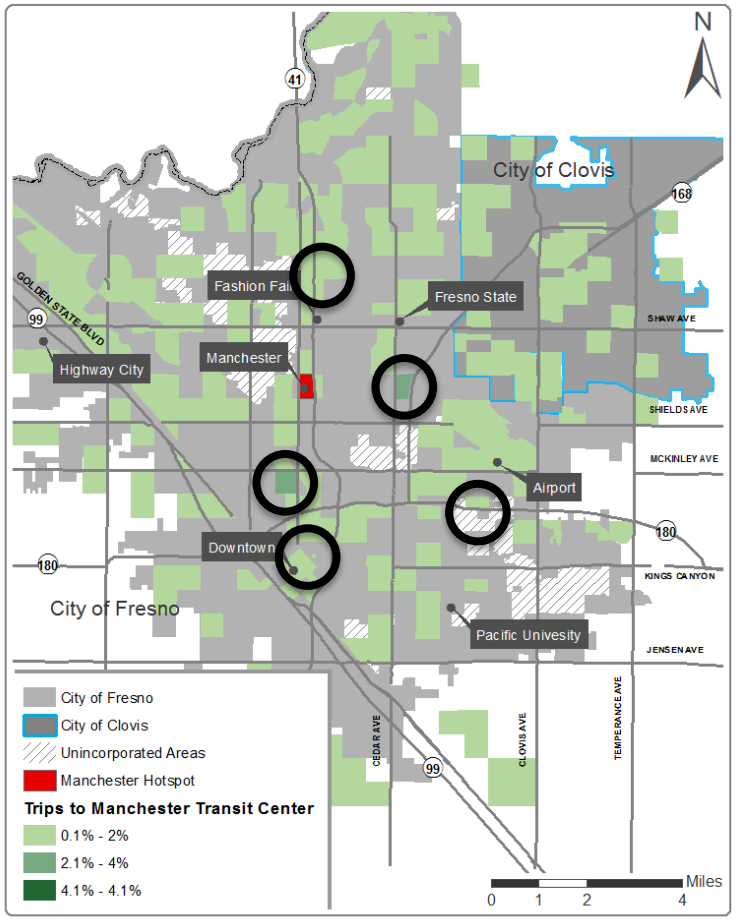


Trips from No Vehicle Households to Fresno Pacific



Trips to Manchester Transit Center

Anonymous Cell Phone Data – All Modes



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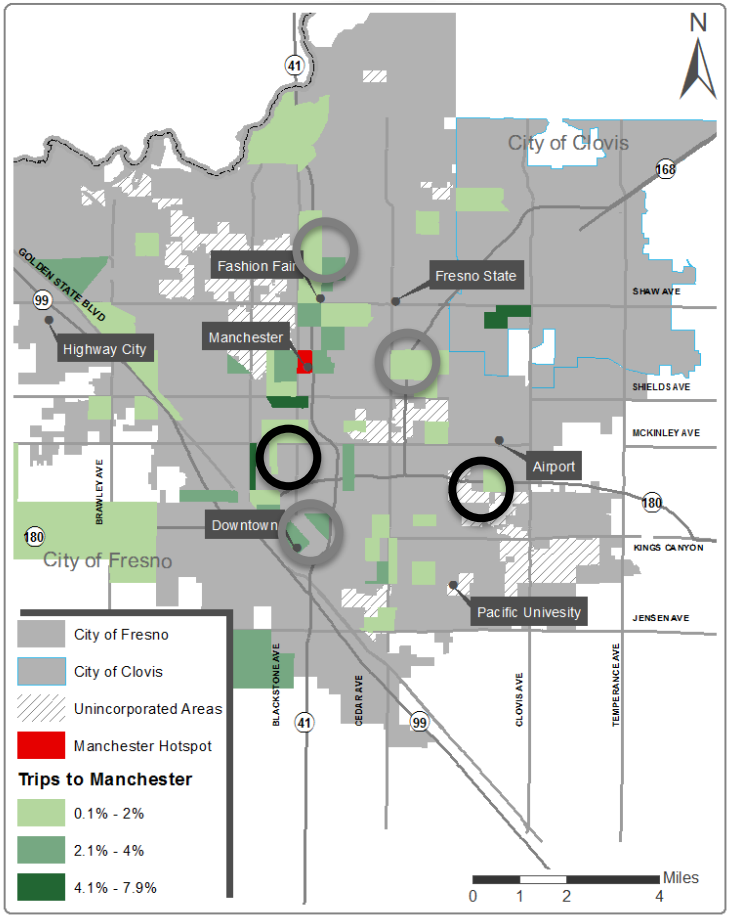
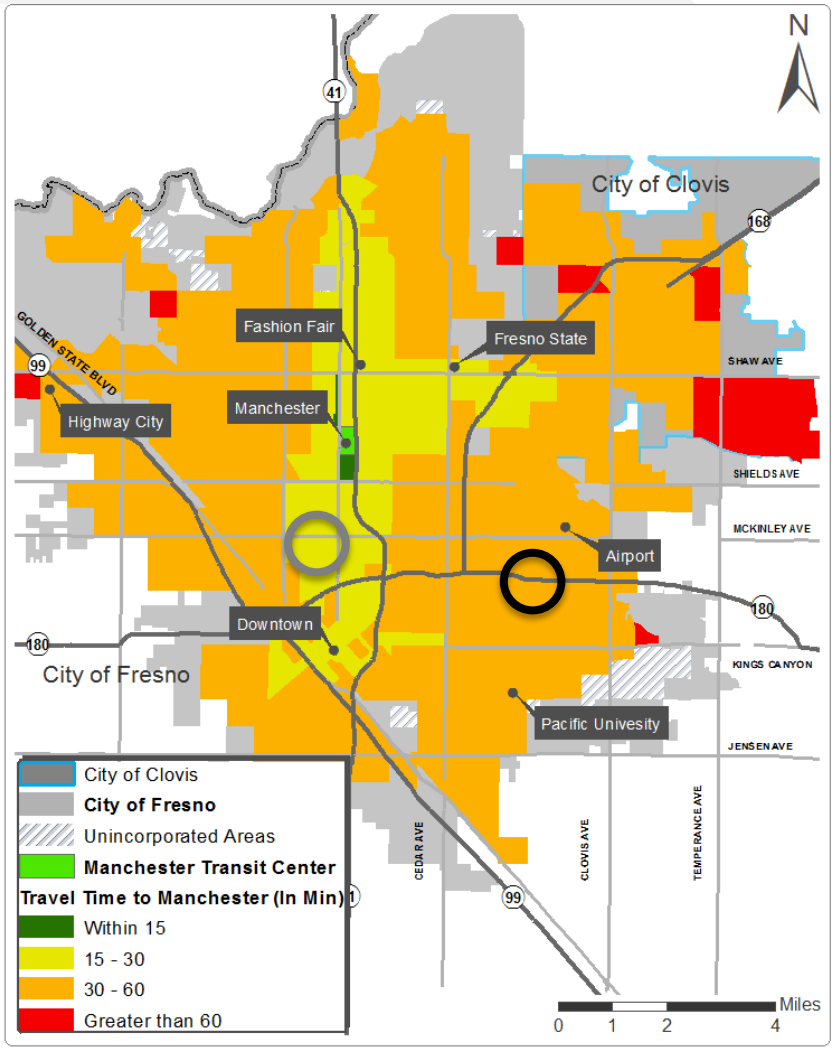
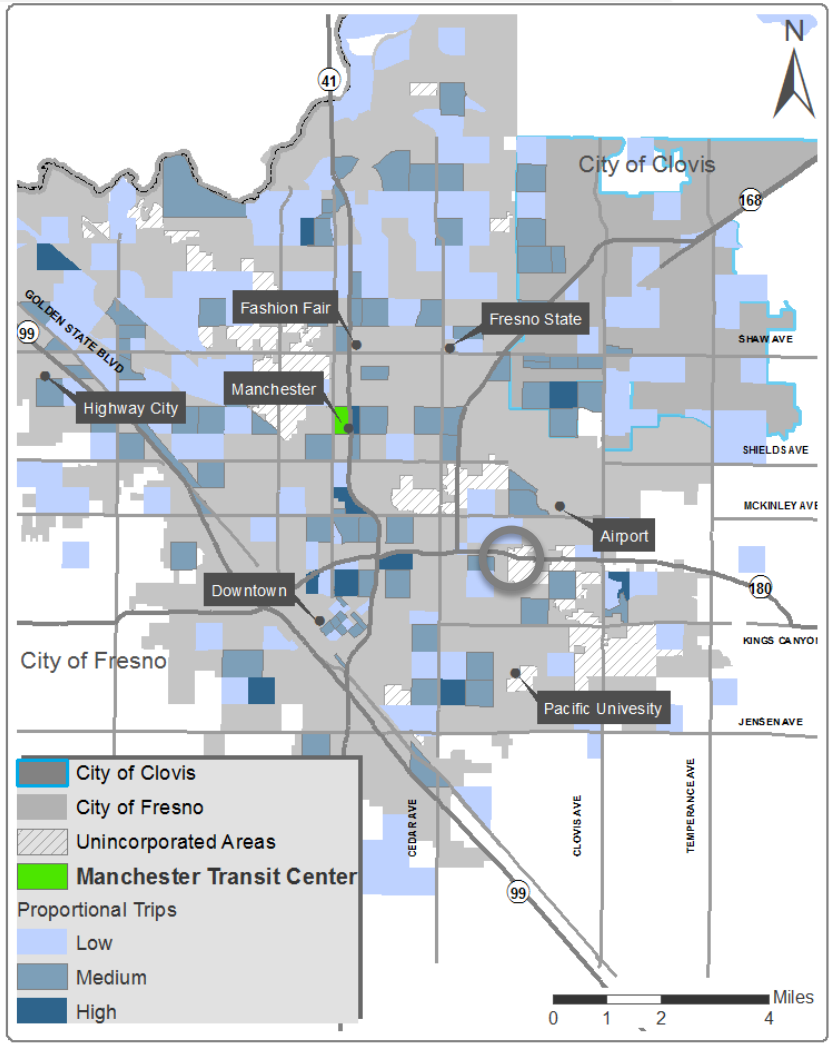


Current Transit Travel Times to Manchester Transit Center

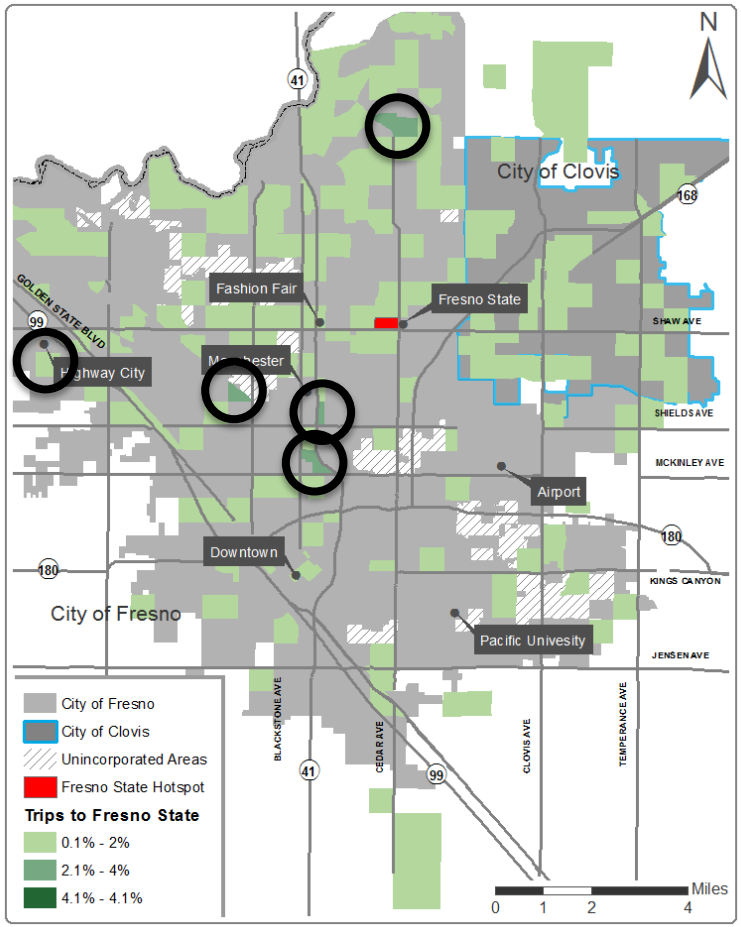


Trips from No Vehicle Households to Manchester Transit Center



Trips to Fresno State

Anonymous Cell Phone Data – All Modes



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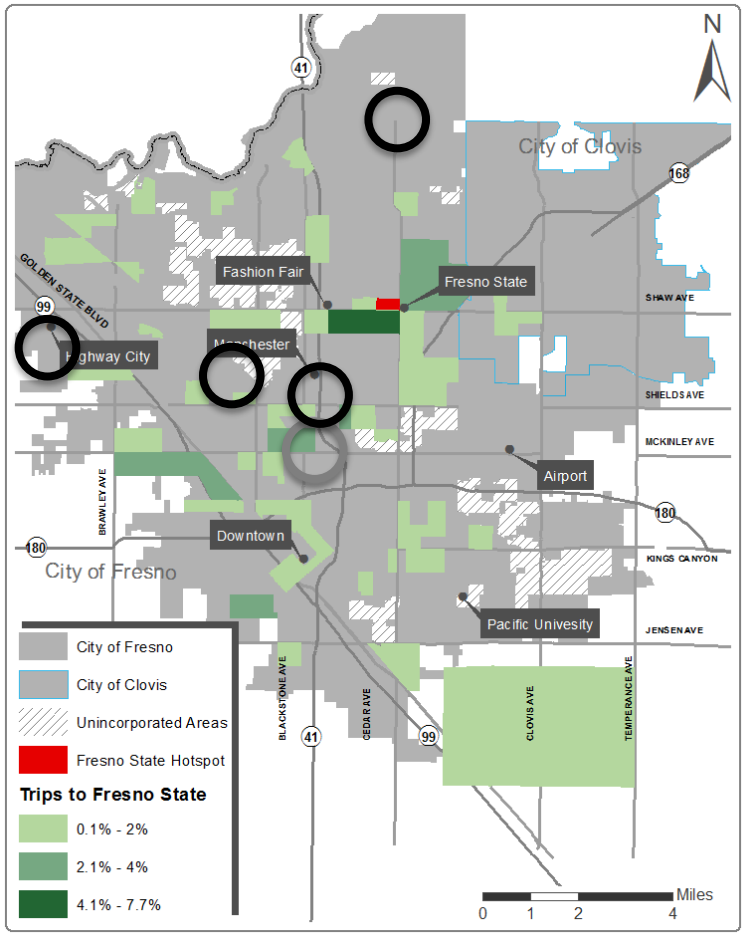
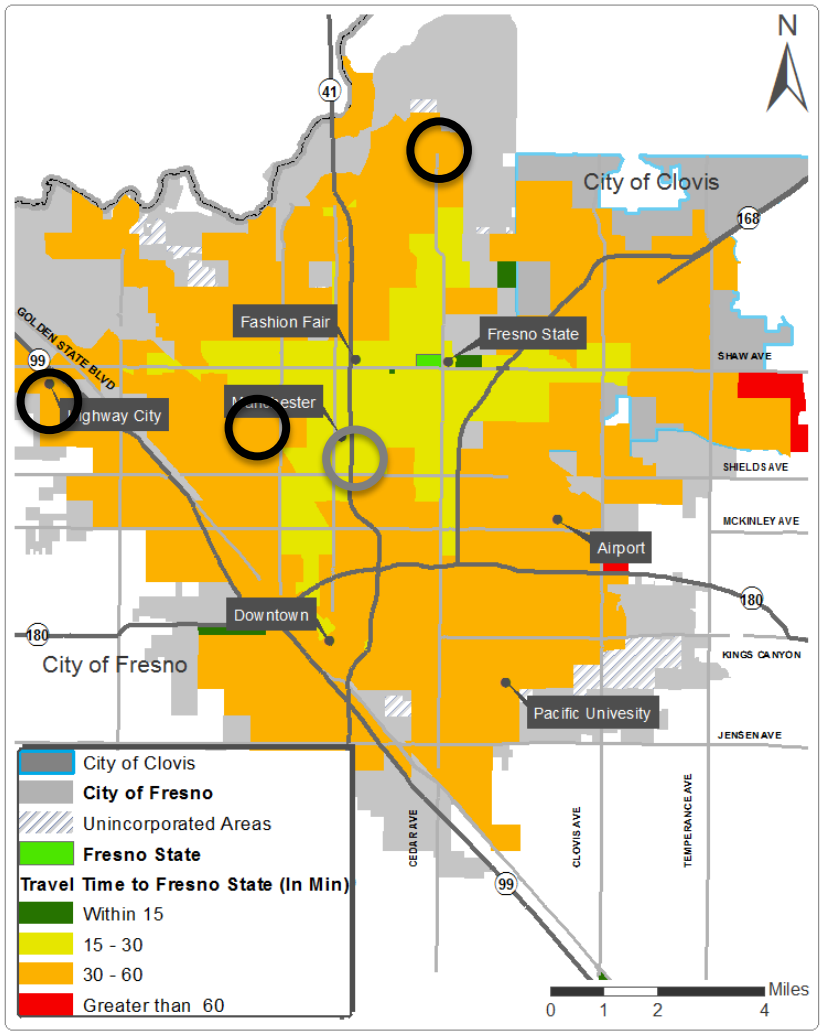
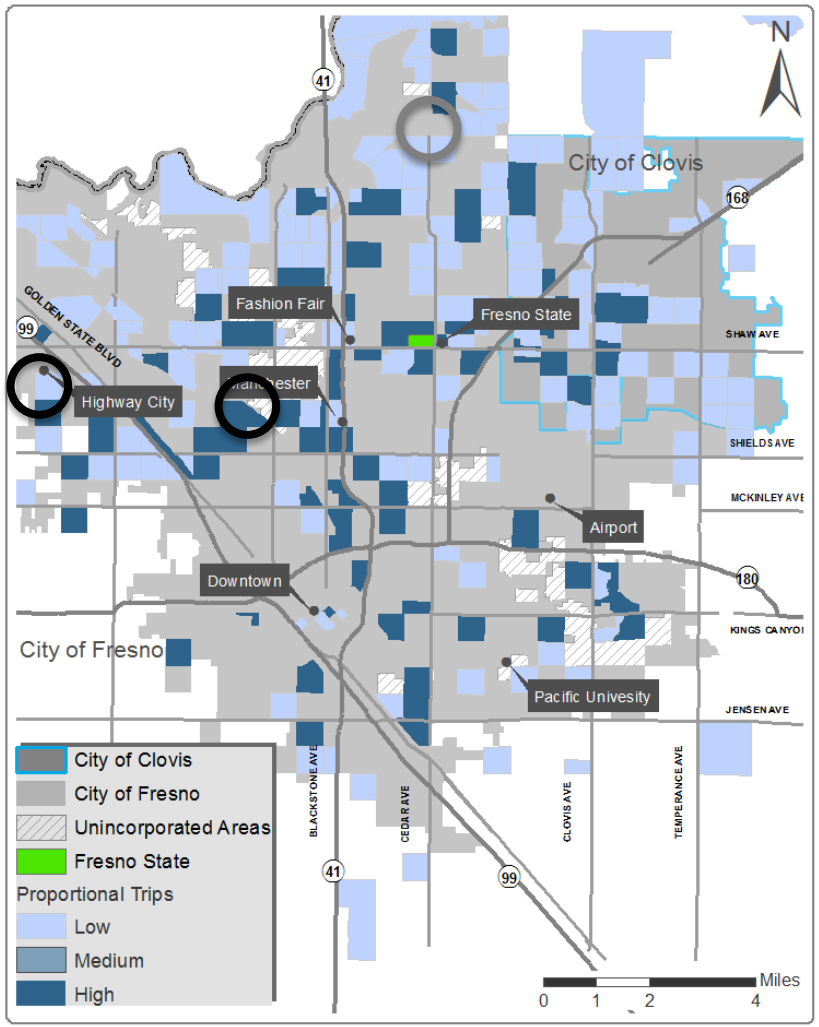


Current Transit Travel Times to Fresno State

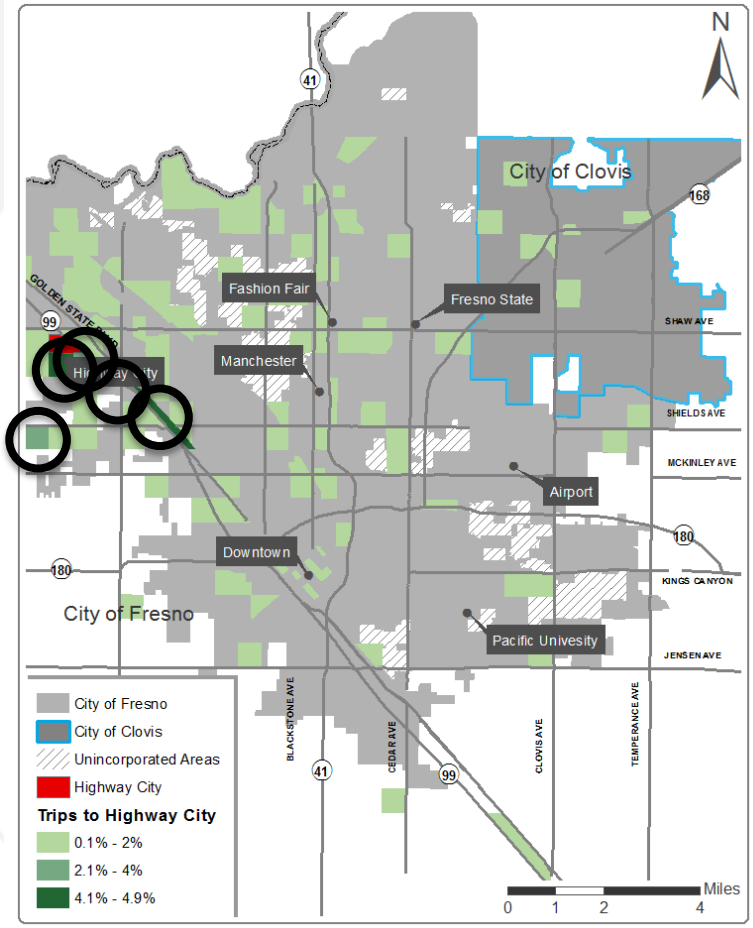


Trips from No Vehicle Households to Fresno State



Trips to Highway City

Anonymous Cell Phone Data – All Modes



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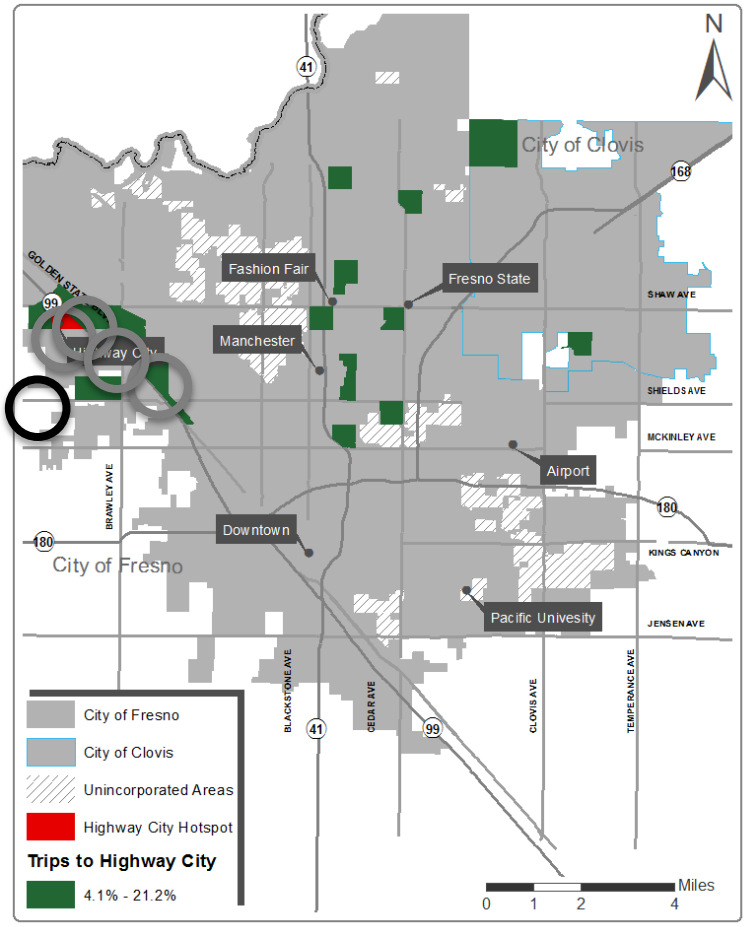

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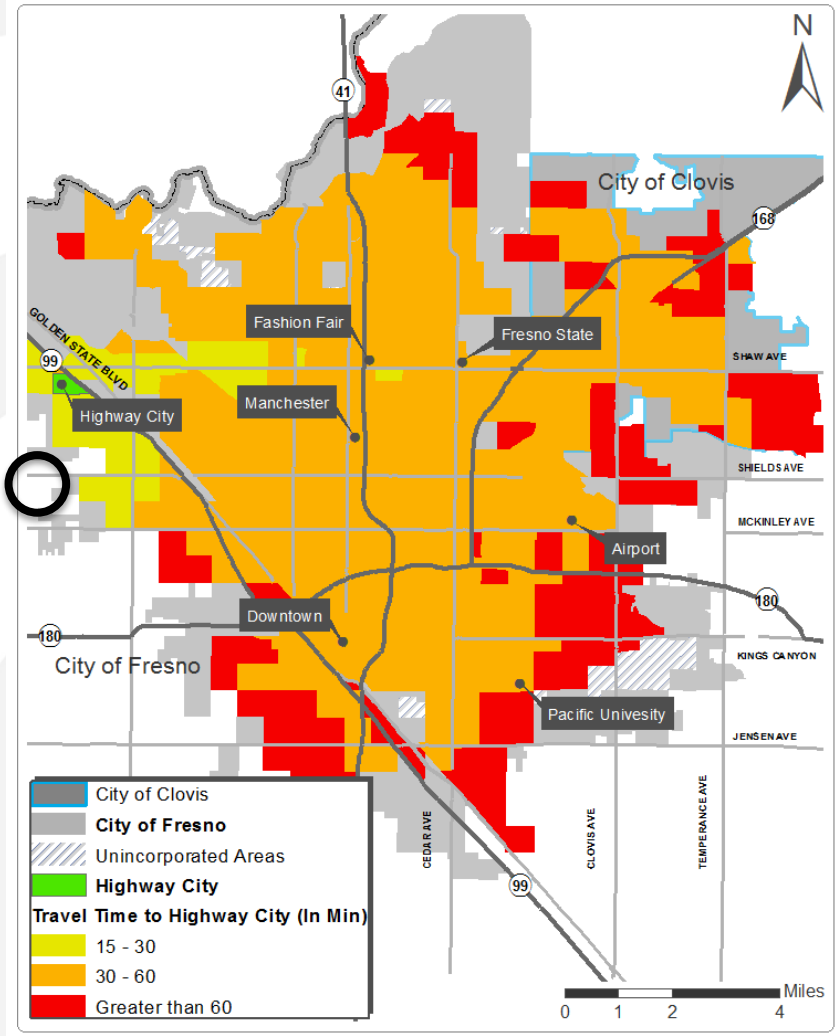
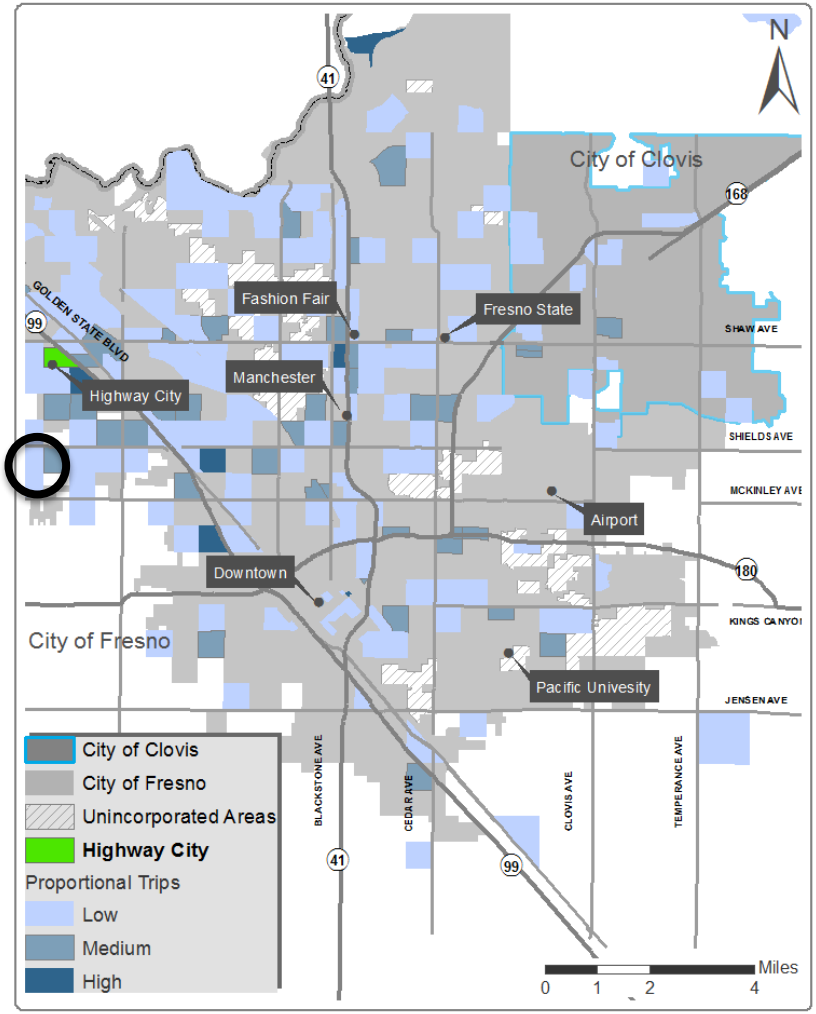
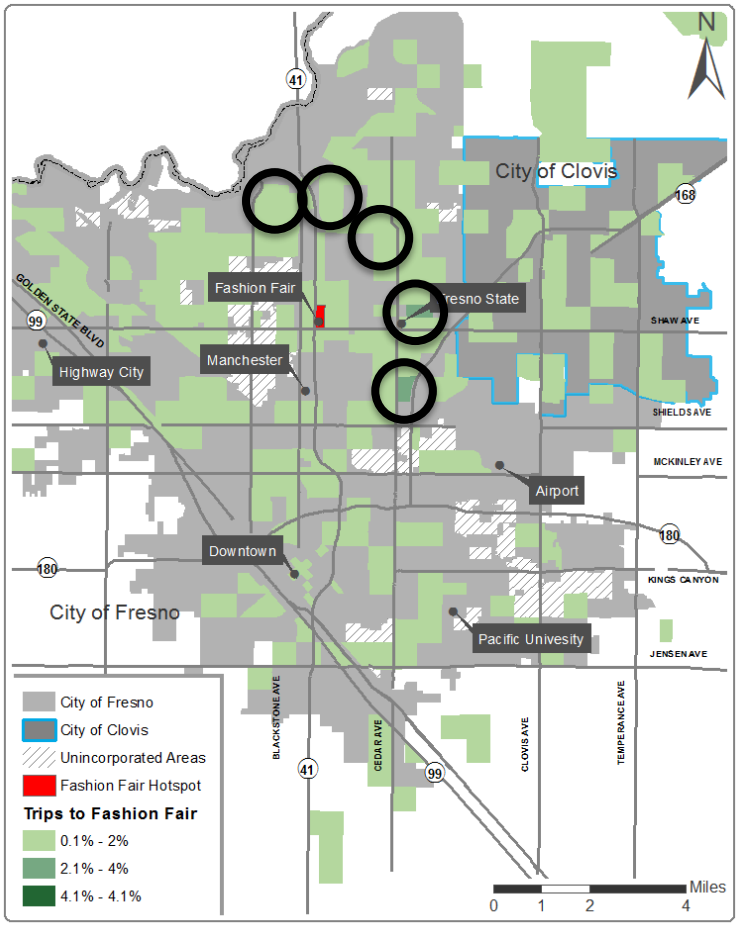


Trips from No Vehicle Households to Highway City



Trips to Fashion Fair Mall

Anonymous Cell Phone Data – All Modes



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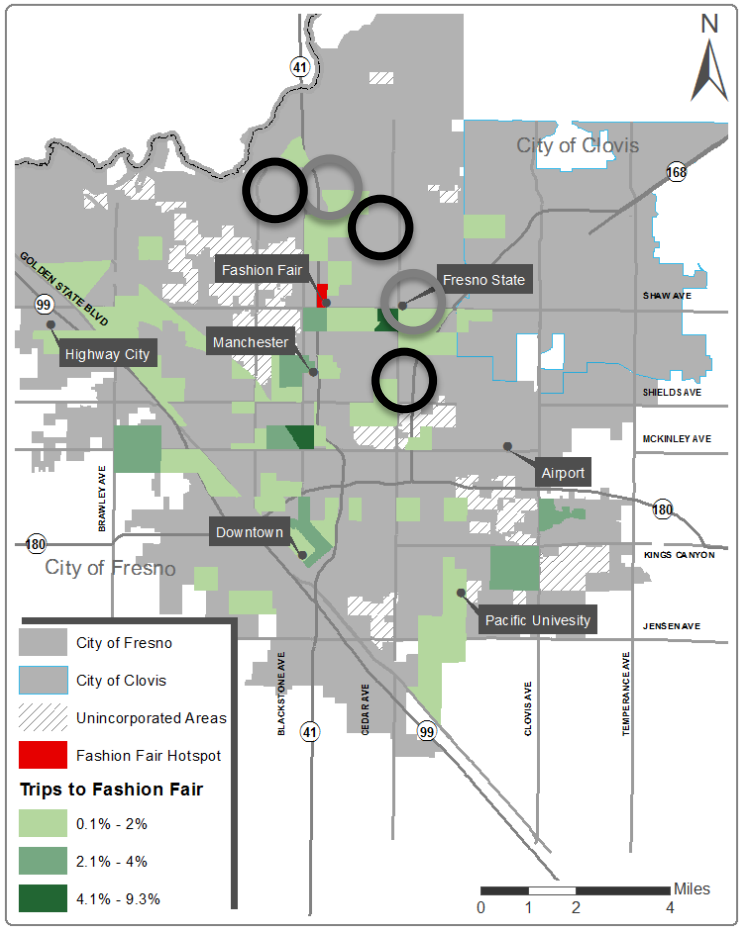
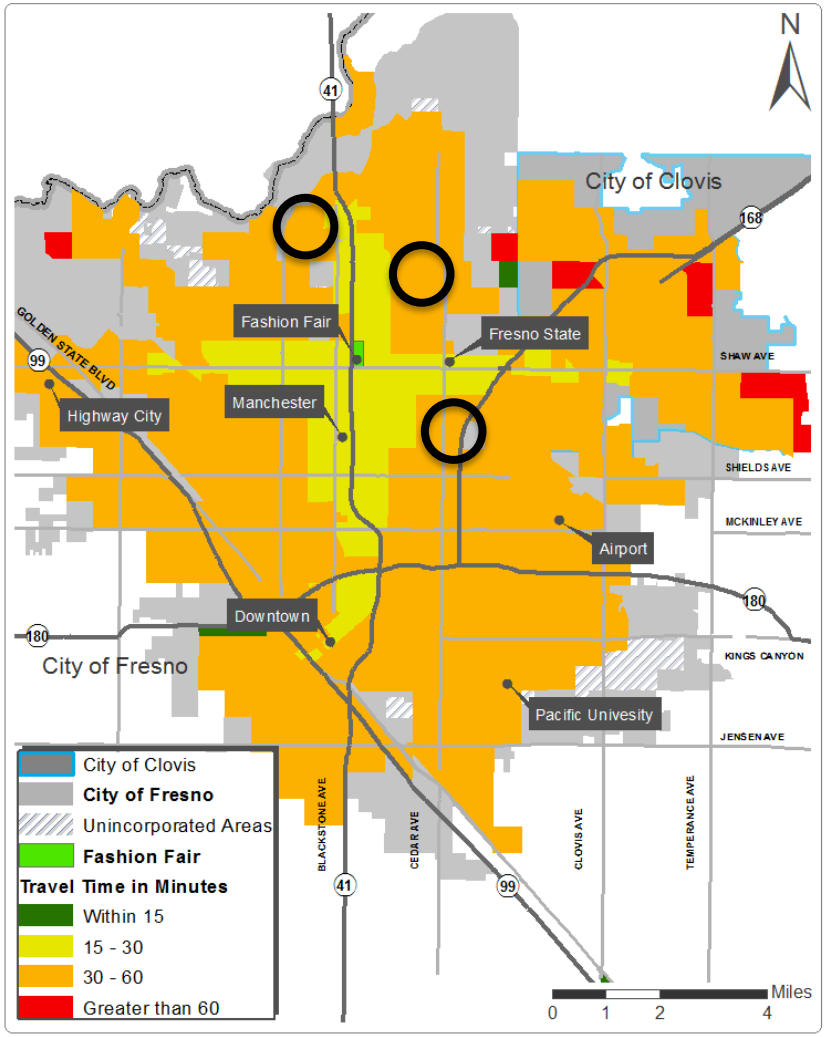
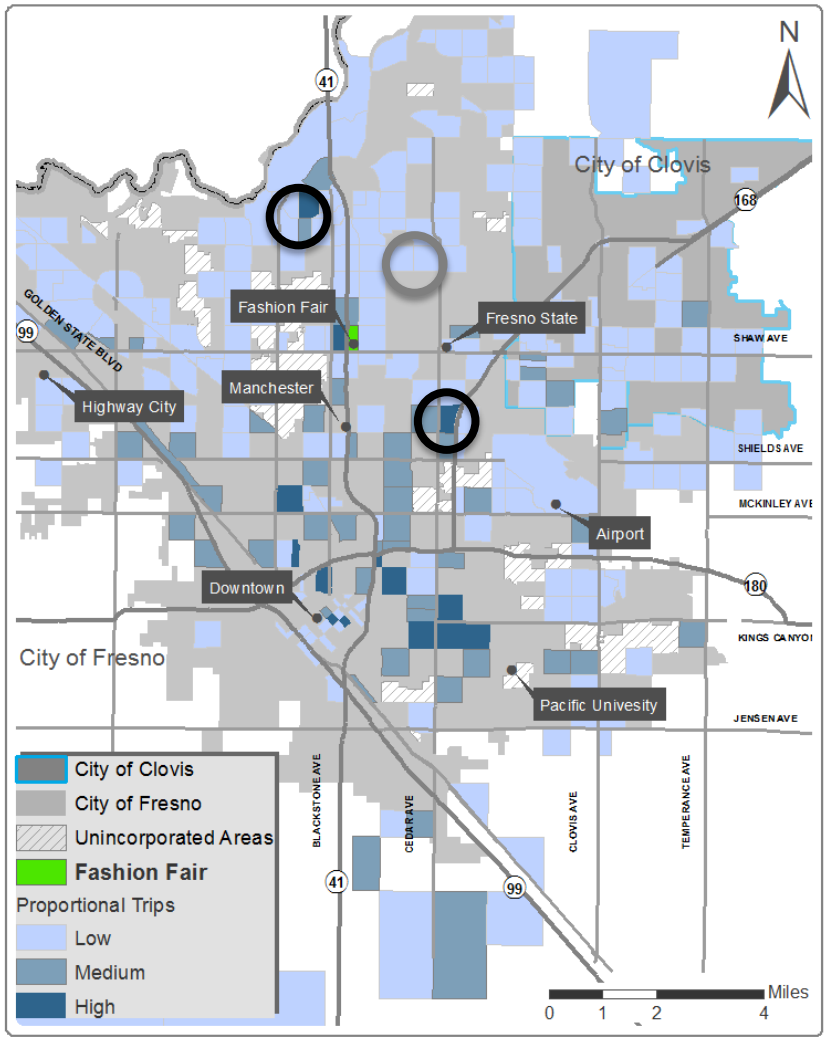


Current Transit Travel Times to Fashion Fair Mall

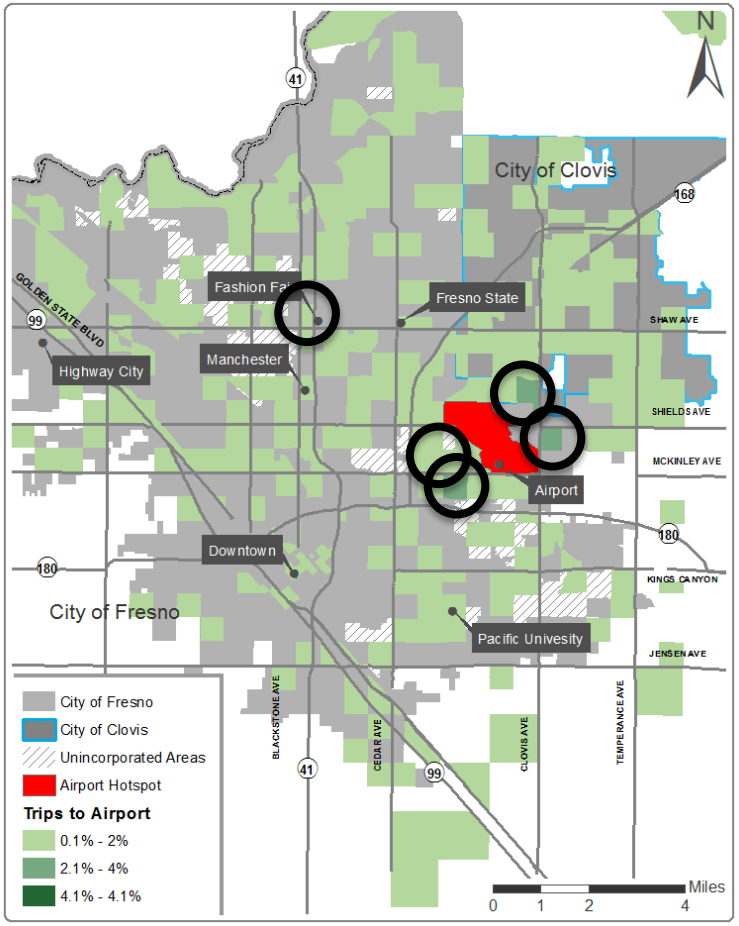


Trips from No Vehicle Households to Fashion Fair Mall

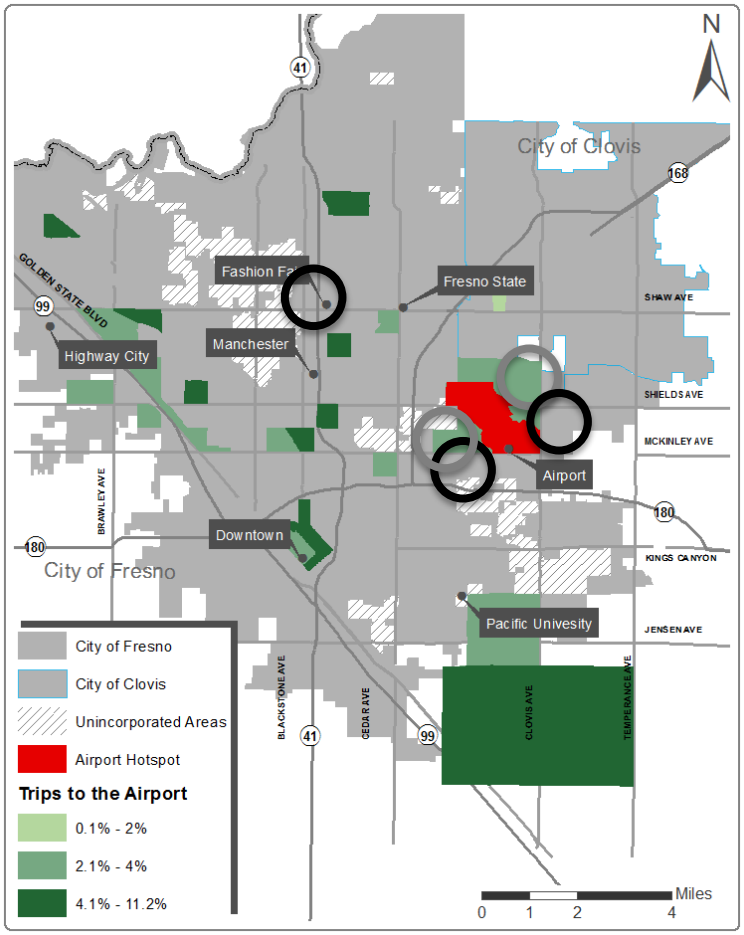


Trips to Airport

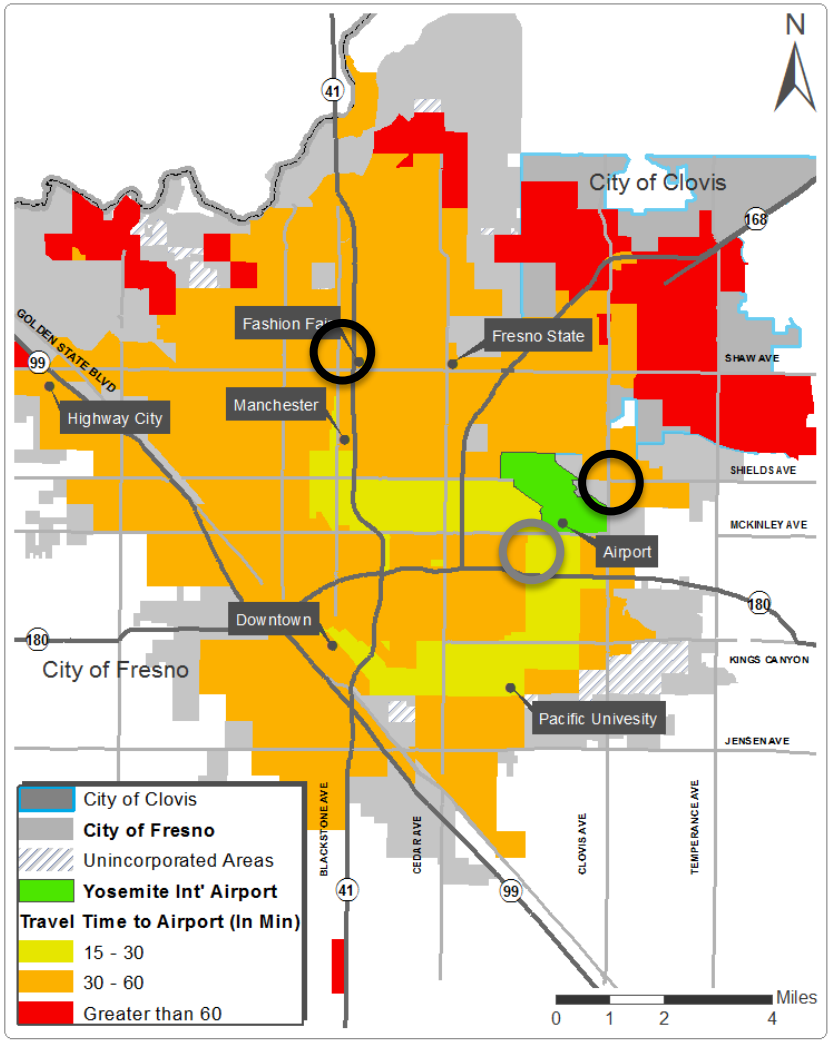
Anonymous Cell Phone Data – All Modes



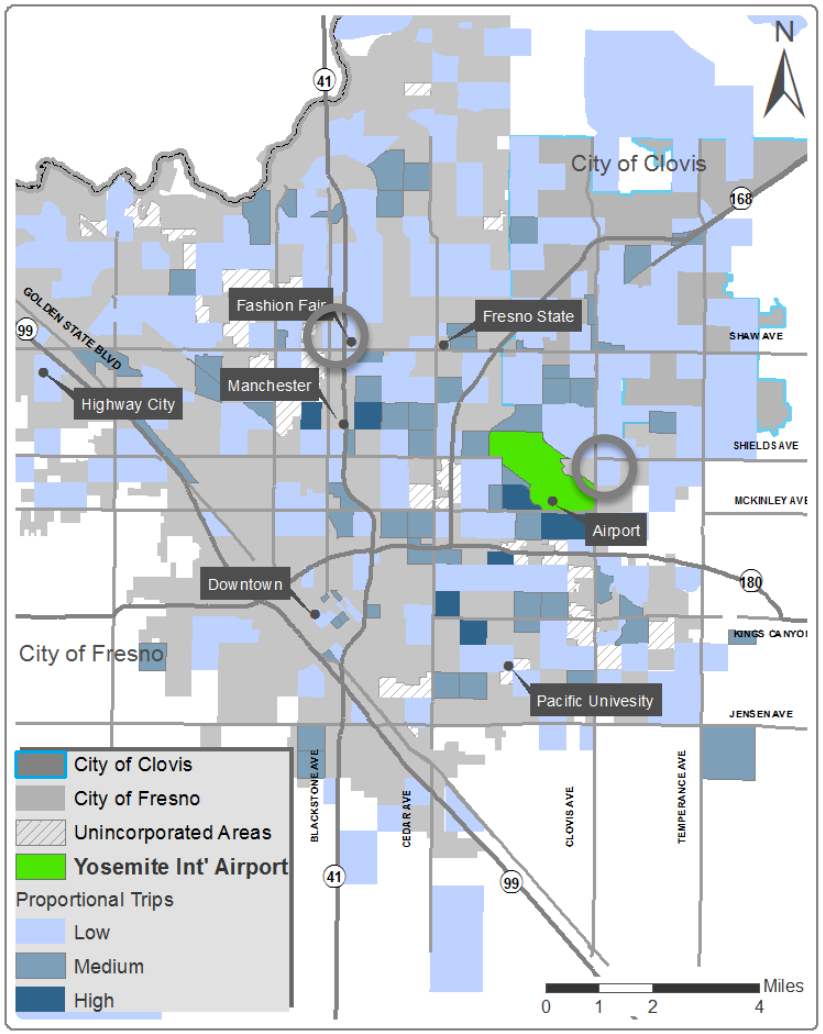
O-D Survey – Transit Trips Only



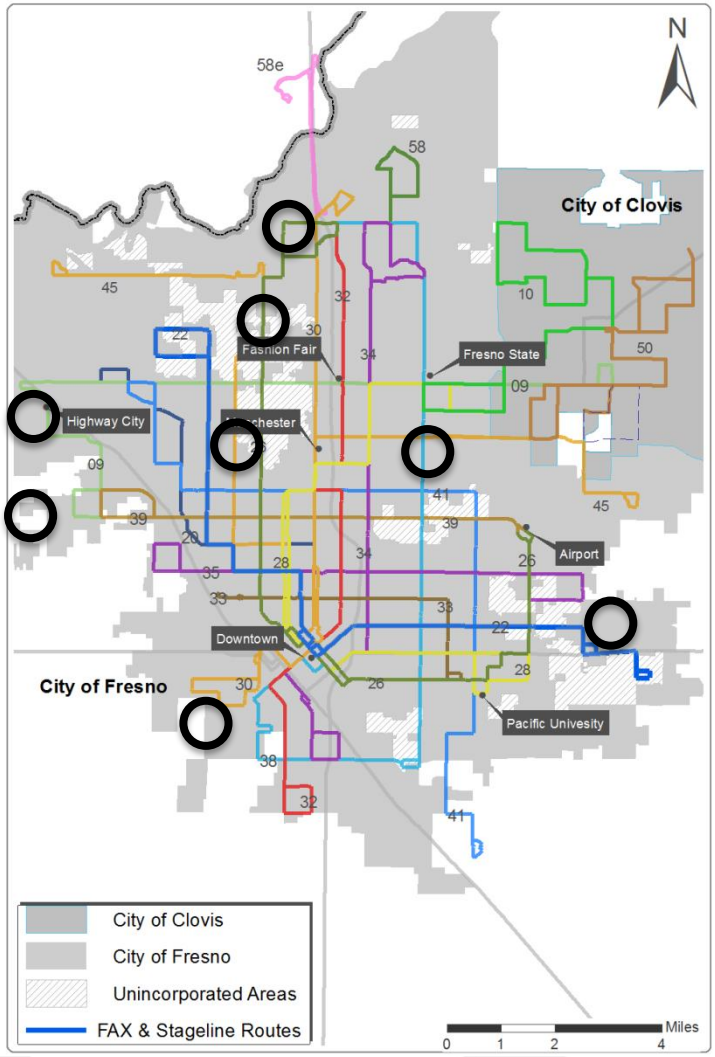
Current Transit Travel Times to Airport



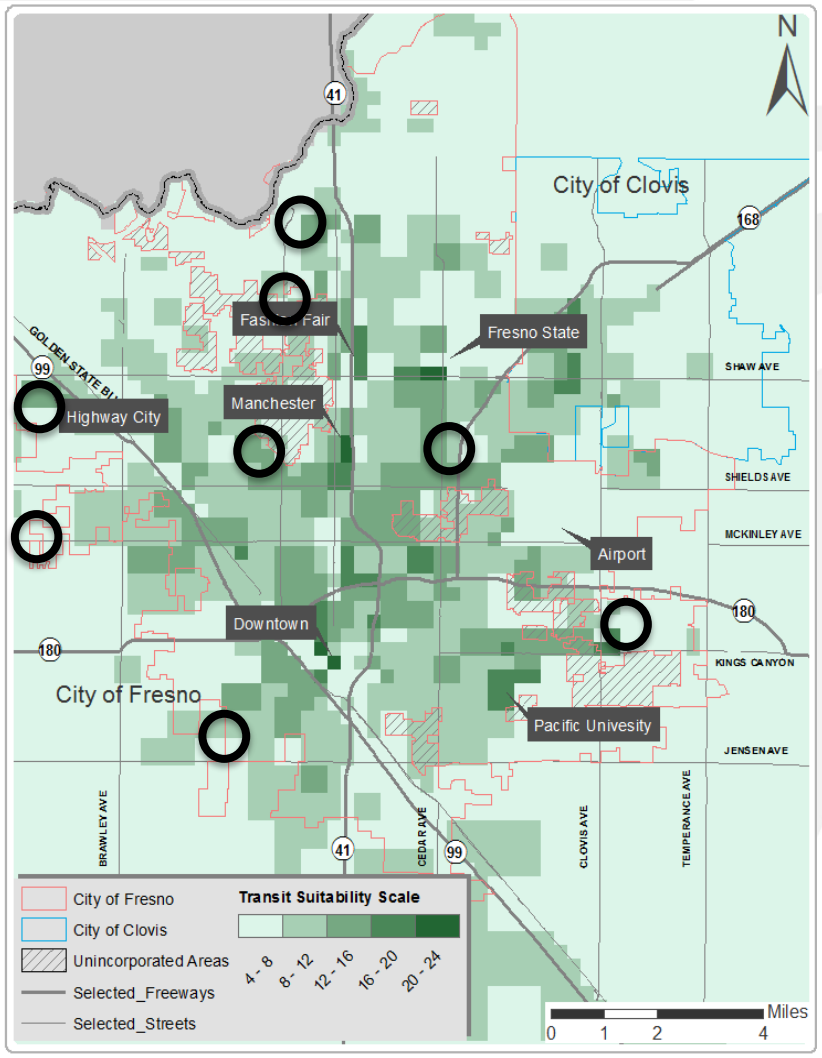
Trips from No Vehicle Households to the Airport



Potential Markets



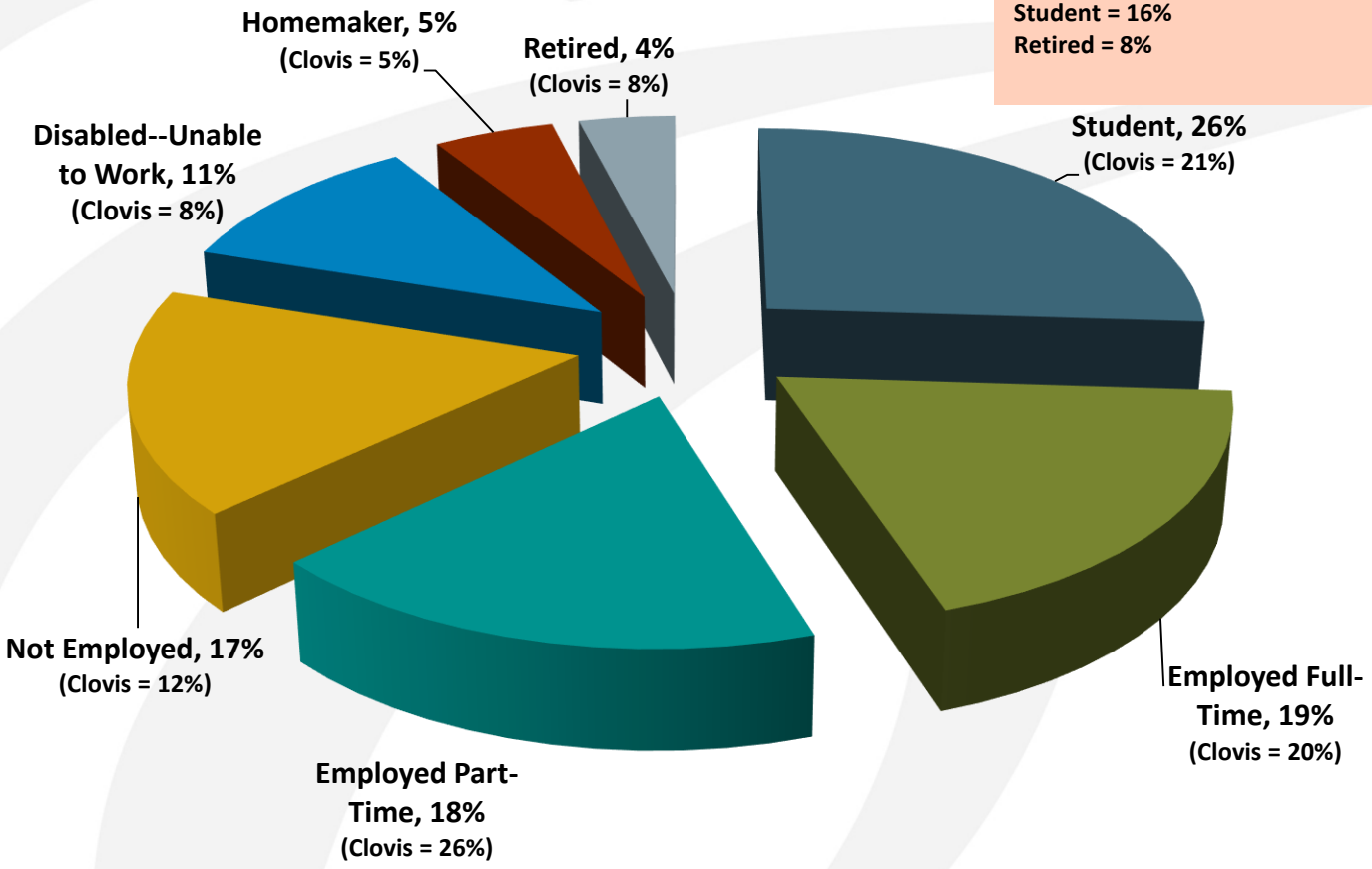
Potential Markets & TSI Analysis



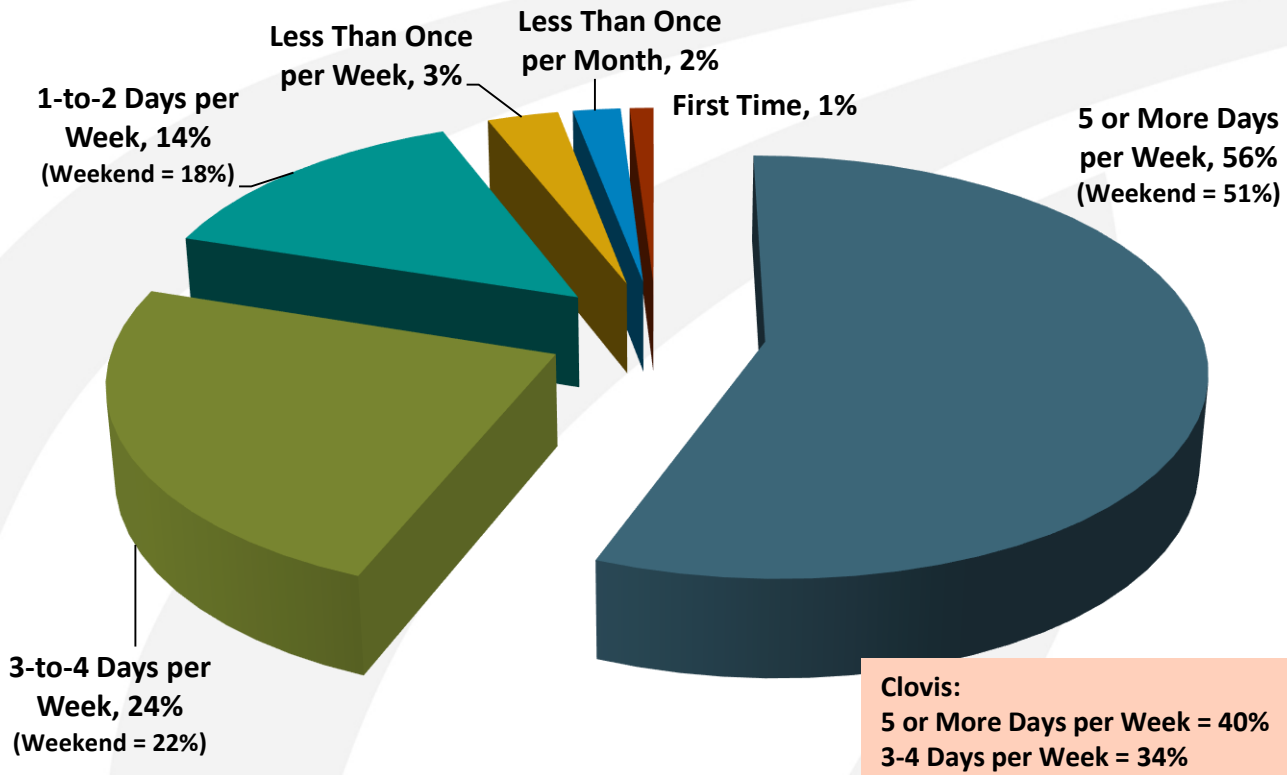
WHO RIDES FAX TODAY?

Riders have many purposes

Weekend:
Employed Full-Time = 28%
Student = 16%
Retired = 8%



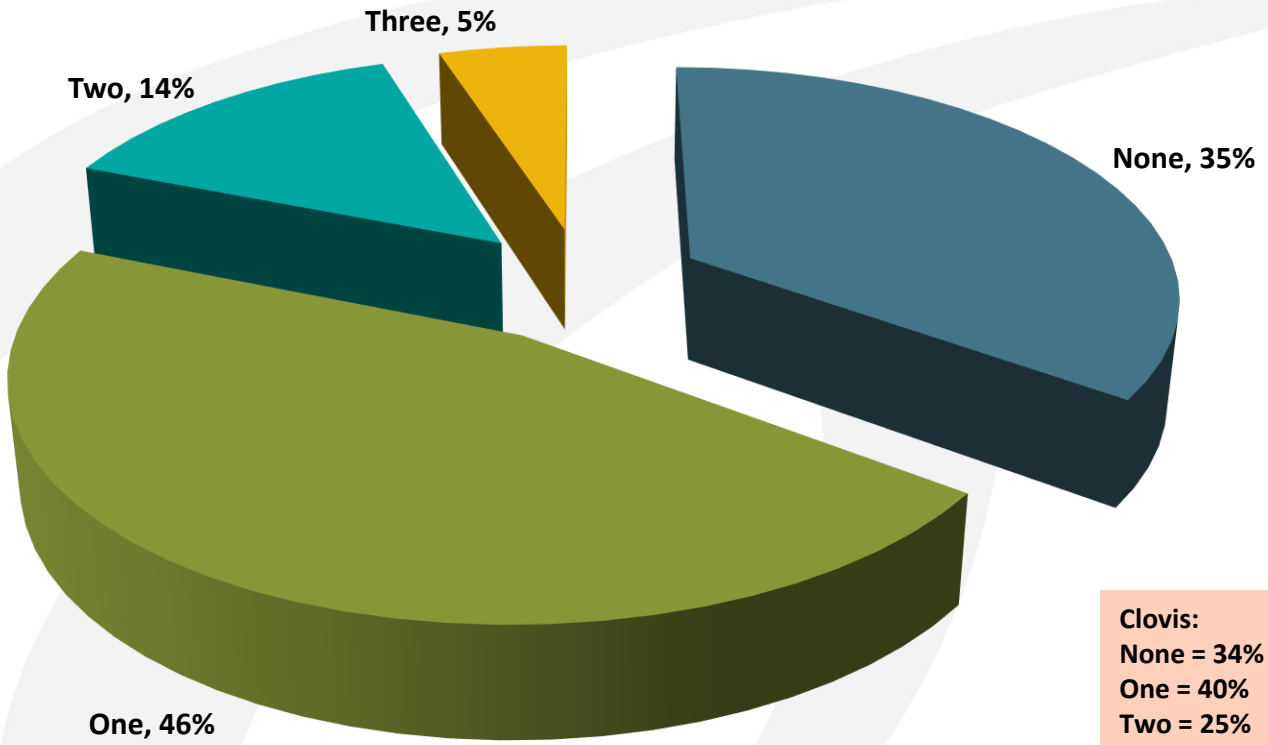
Spontaneous, occasional use is a critical value.



Clovis:
5 or More Days per Week = 40%
3-4 Days per Week = 34%
1-2 Days per Week = 19%

Transfers are inevitable features of an efficient network.

Mean Number of Transfers --all bus riders = 0.89
Mean Number of Transfers---riders who transfer = 1.37

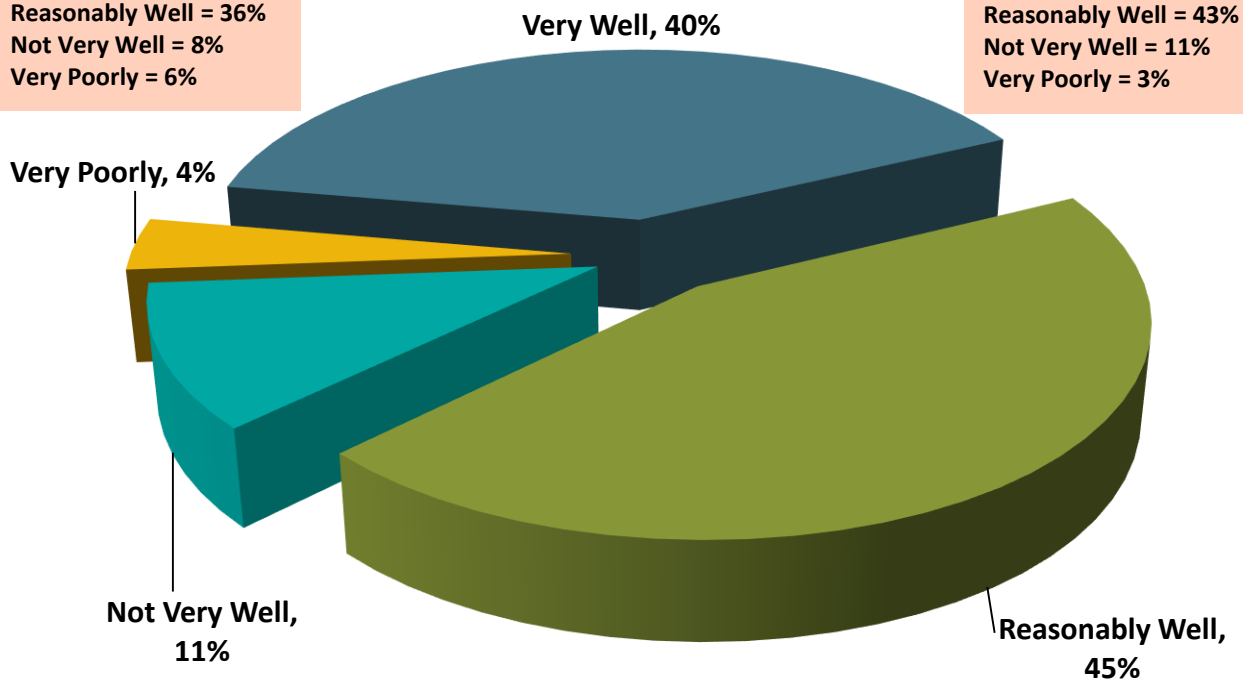


Clovis:
None = 34%
One = 40%
Two = 25%
Three = 1%

Existing riders are grateful, but they're also self-selected.

Clovis:
Very Well = 50%
Reasonably Well = 36%
Not Very Well = 8%
Very Poorly = 6%

Weekend:
Very Well = 43%
Reasonably Well = 43%
Not Very Well = 11%
Very Poorly = 3%



STAKEHOLDER INPUT

Feedback from Stakeholders

Long-Term Policy Goals

- Encourage infill development downtown
- Assess developers a fee for increased service to new outlying areas
- Support fare increases to improve service, suggest raising fares on an annual basis
- Provide incentive to take bus
- Concern over long-term financial viability of operating the system
- Cleaner buses, friendlier and safer environment

Requests for Improvements that would Raise Productivity

- Better align service with high school and college students' travel patterns
- Improve night service for off-peak commuters, including night shift workers and students
- Accommodate bicycles on buses
- Improve communication and better market service
- Locate bus stops on Fresno State Campus.
- Communications for Hmong community.

Requests for Improvements that would Lower Productivity

- Provide improved service to Southeast Fresno
- Revive Route 12, which looped around Southeast Fresno and served seniors

NETWORK ALTERNATIVES

How to recognize a development pattern that supports high-ridership transit.

Density

- How many people are going to and from the area around each bus stop?

Walkability

- Of these people, how many can walk to a bus stop, in their desired direction, safely and in reasonable distance?

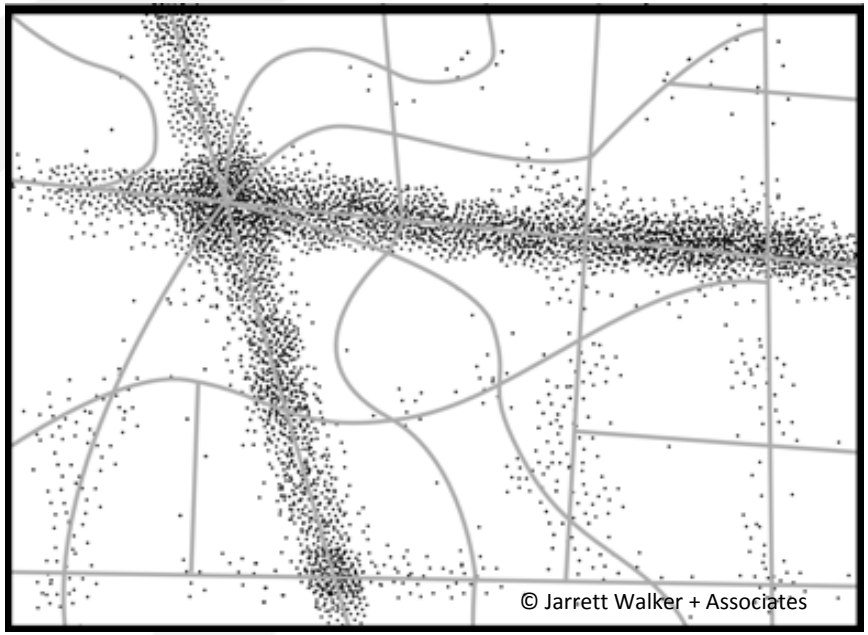
Linearity

- Can the bus follow a straight line that many people will find useful, or must it meander through an obstructed street pattern?

Ridership or Coverage?

Fictional Urban Area

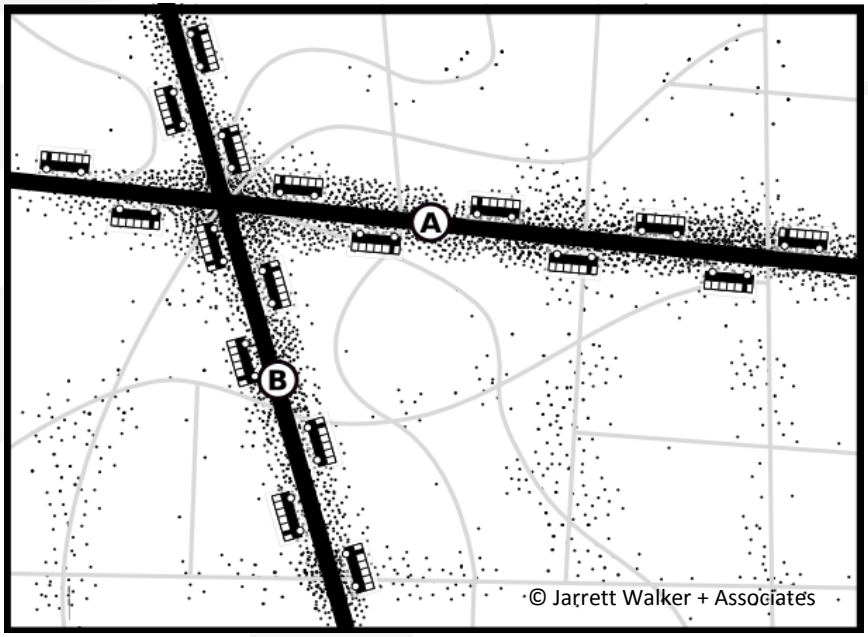
- 4 miles x 3 miles
- Dots = residents and jobs
- 18 buses



Ridership Goal

To maximize ridership you think like a business, *choosing which markets you will enter*.

The straight lines offer density, walkability, and an efficient transit path, so you focus frequent, attractive service there.



Ridership Network

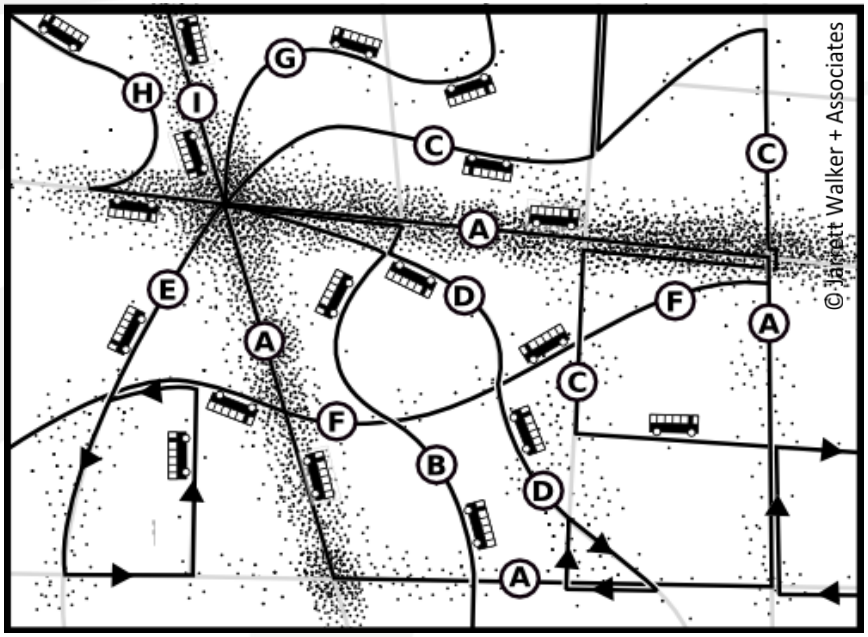
Performance Measure: *Productivity*

Productivity: Passengers per unit of service cost (high)
Operating cost per rider, subsidy per rider (low)

Coverage Goal

To maximize <u>coverage,</u> think like a government service. Try to serve everyone, *even those in expensive-to-serve places*.

The result is more routes covering everyone, but less frequency, more complexity, and lower ridership.

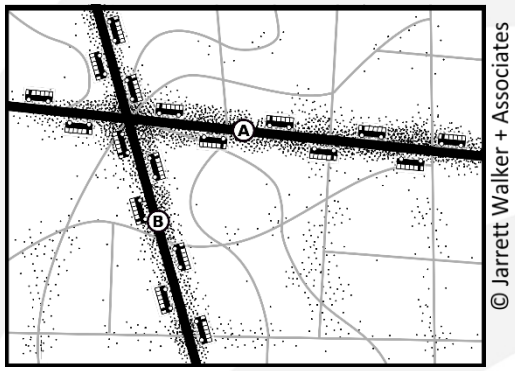


Coverage Network

Performance Measure: *Availability*

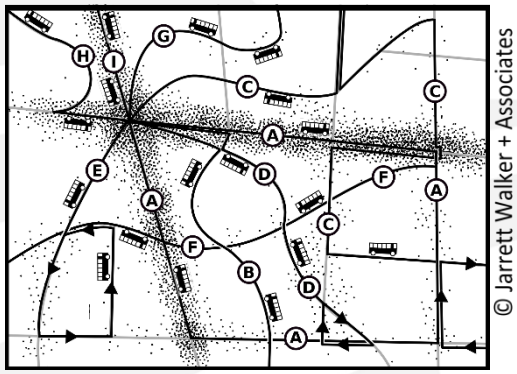
% of population and jobs that can walk to some all-day service

Both goals are important, … but they lead opposite directions!



Ridership Goal

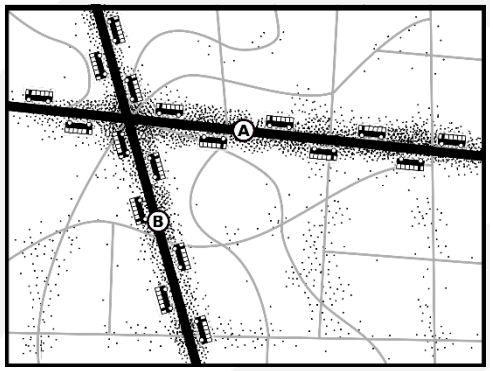
- "Think like a business."
- Focus where ridership potential is highest.
- Support dense and walkable development.
- Max. competition with cars
- Maximum VMT reduction



Coverage Goal

- "Access for all"
- Services for hard-to-serve areas, despite low ridership.
- Support suburban low-density development.
- Lifeline access for everyone.

Ridership or Coverage?



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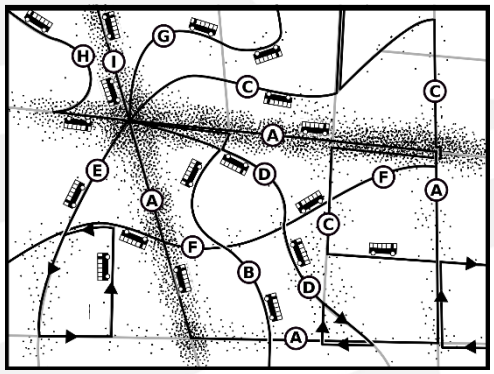

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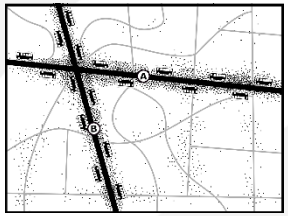
So transit agencies must find their point on the spectrum

Ridership Goal

Think like a business!



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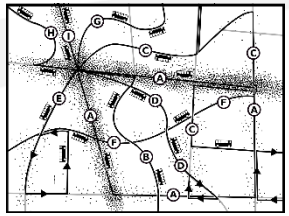

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Ridership Goal

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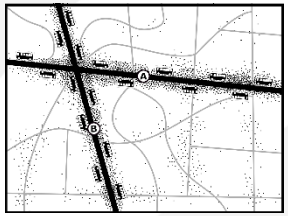
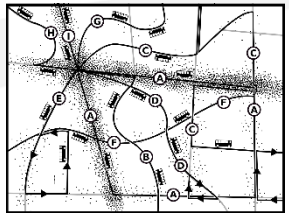


An ideal policy: "Devote __% of our budget to the Ridership Goal, and the rest to the Coverage Goal"

Coverage Goal

Access for everyone!



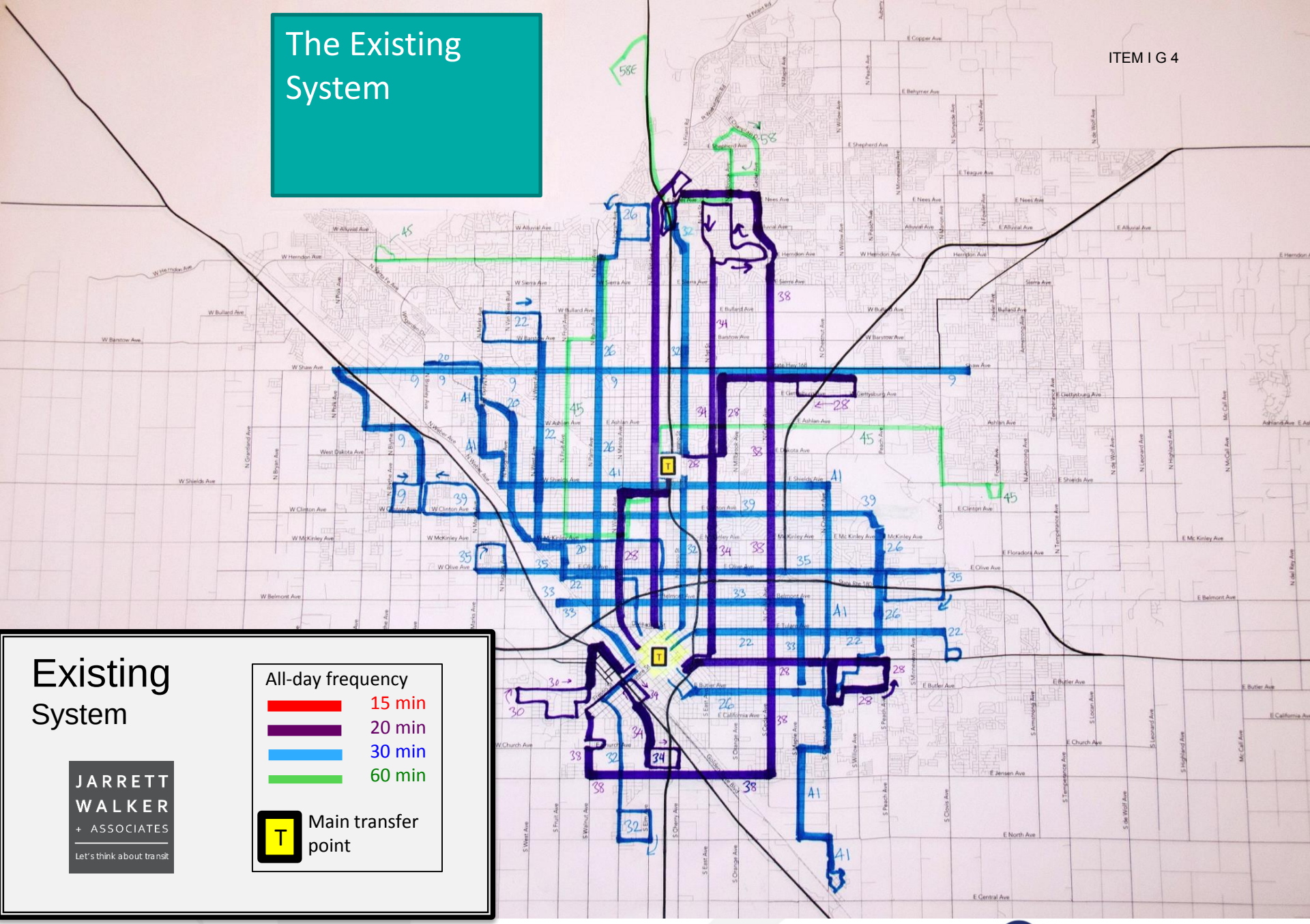
? ? ? ?

Ridership Scenario | Existing System | Coverage Scenario

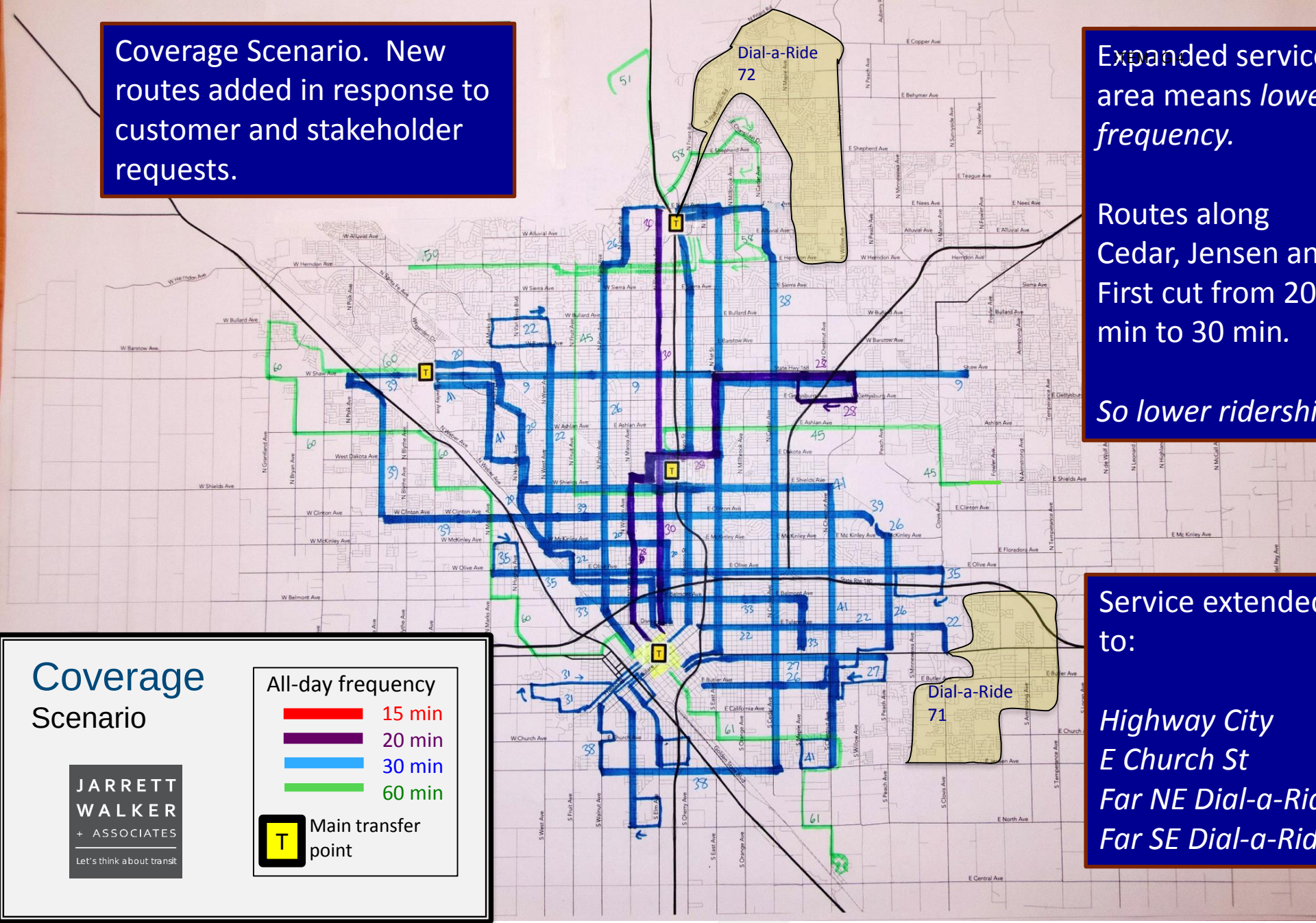
100% 90% 85%

% of service deployed for maximum ridership

The Existing System



Coverage Scenario. New routes added in response to customer and stakeholder requests.



Expanded servic
area means *lowe*
frequency.

Routes along
Cedar, Jensen an
First cut from 20
min to 30 min.

So lower ridershi

Service extended
to:

Highway City
E Church St
Far NE Dial-a-Rid
Far SE Dial-a-Rid

Coverage
Scenario

JARRETT WALKER + ASSOCIATES
Let's think about transit

All-day frequency
- 15 min
- 20 min
- 30 min
- 60 min

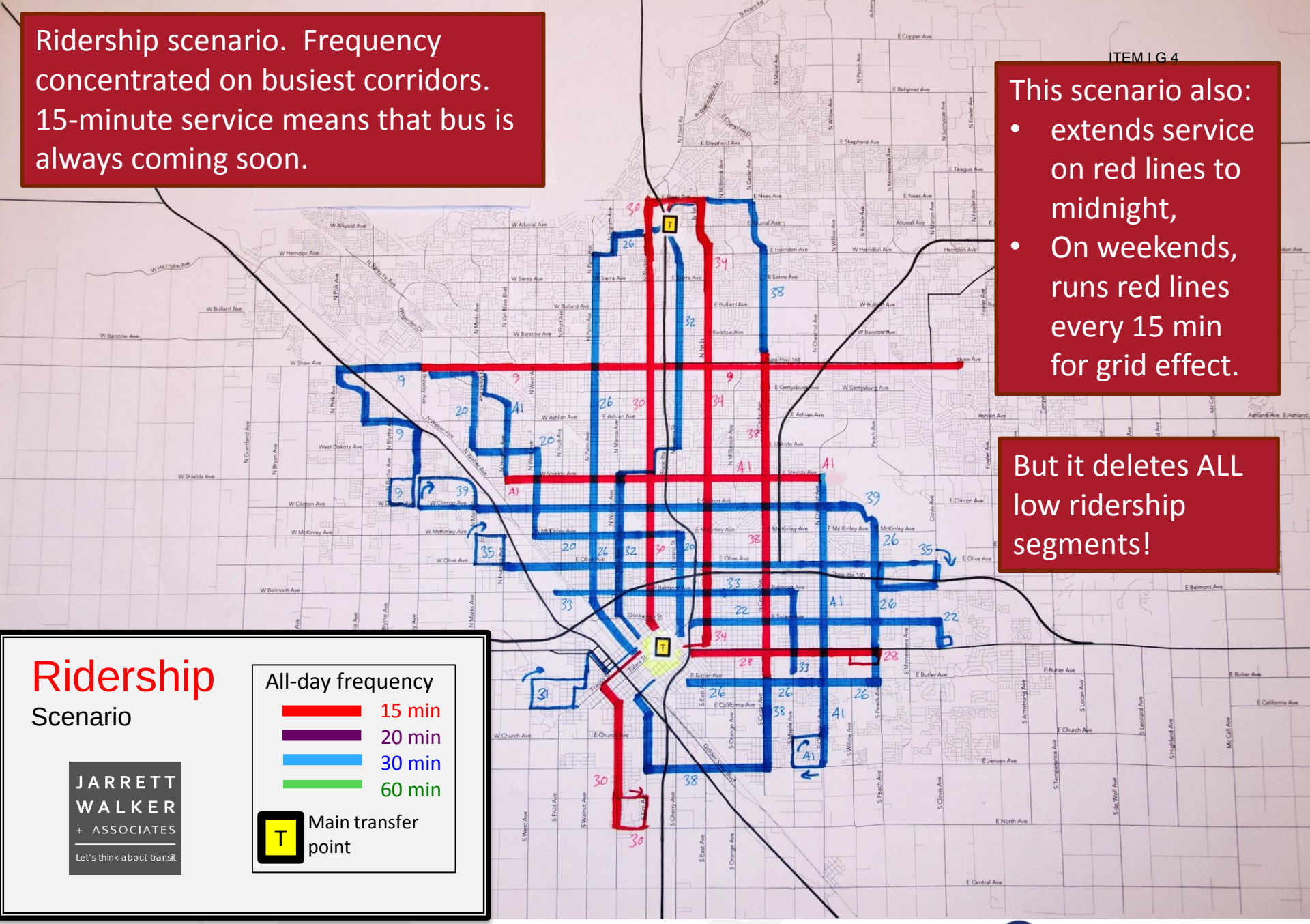
T Main transfer point

Ridership scenario. Frequency concentrated on busiest corridors. 15-minute service means that bus is always coming soon.

This scenario also:

- extends service on red lines to midnight,
- On weekends, runs red lines every 15 min for grid effect.

But it deletes ALL low ridership segments!



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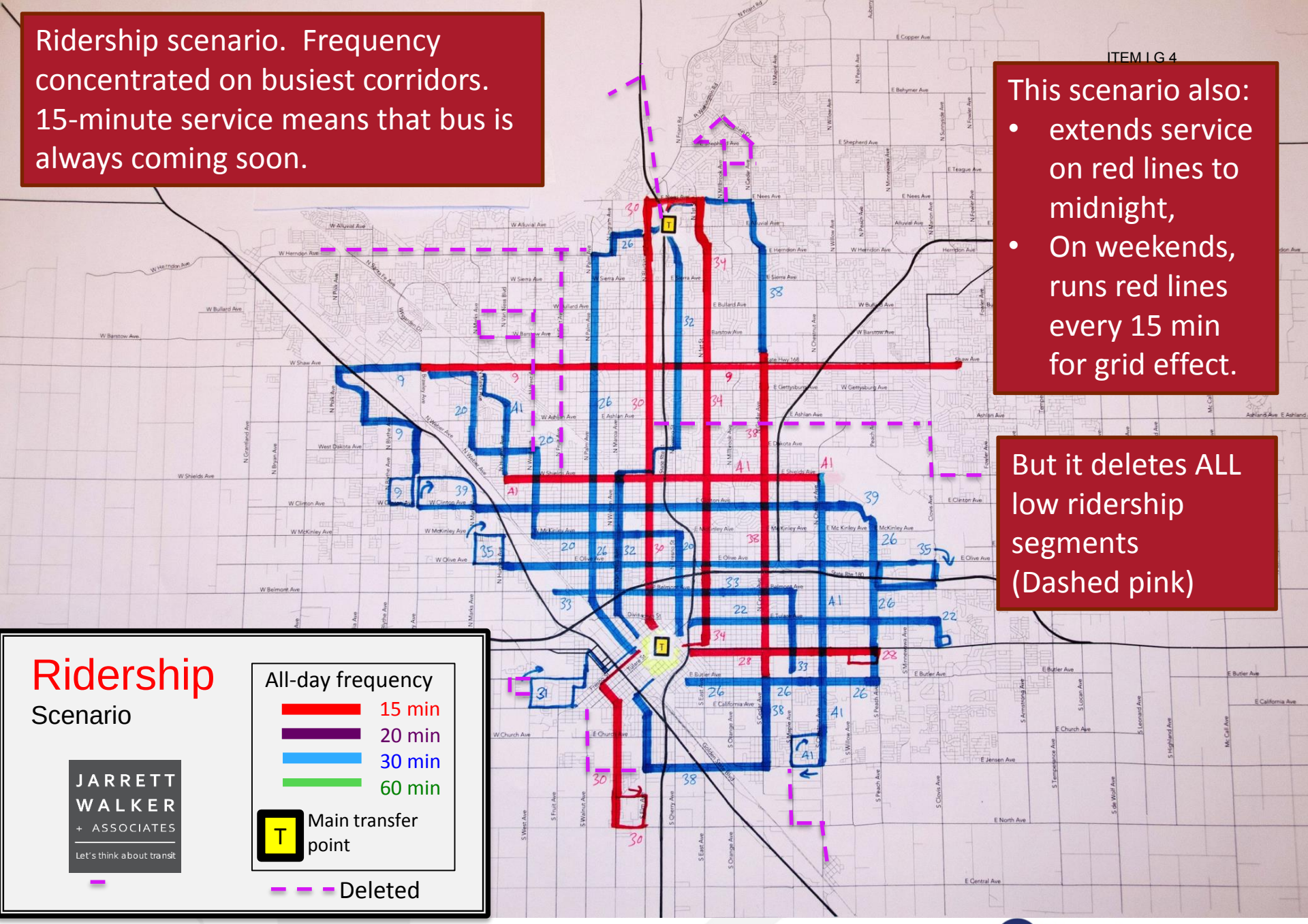


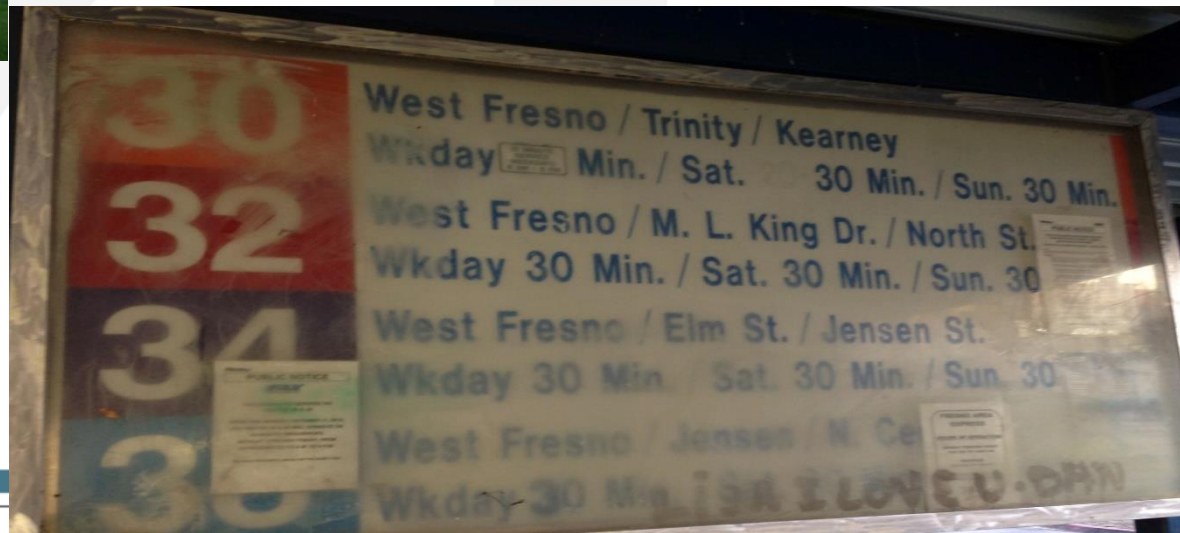
The tradeoffs

	Ridership Scenario	Coverage Scenario
% of residents and jobs covered by <u>any</u> service	↓	↑
% of residents and jobs covered by <u>frequent</u> service	↑	↓
Travel time benefits	↑	↓
Support for land use intensification	↑↑	↓
Positivity of Most Public Feedback	↓	↑
Ridership and Productivity	↑	↓

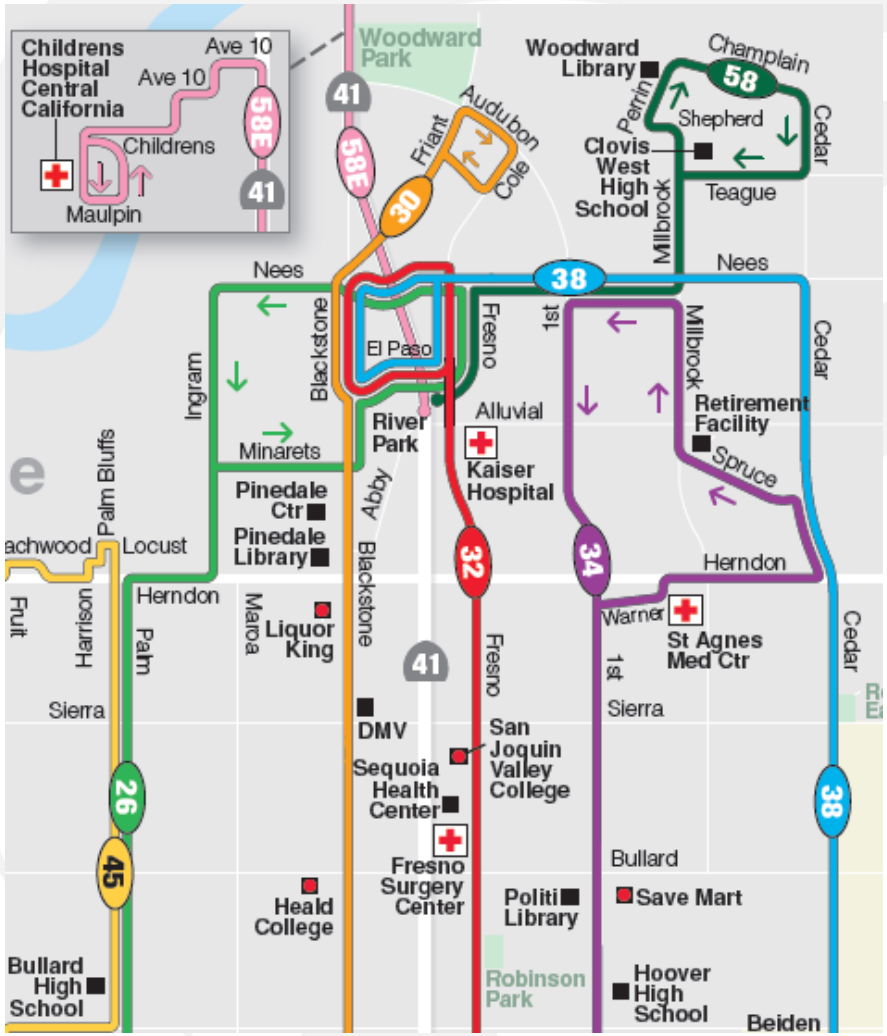
OTHER RIDERSHIP-IMPROVING ACTIONS

Downtown TC issues

- Stops for connecting buses are very far apart and not always in clear sight of each other.
- Wasteful operations arise due to inability of buses to terminate, take end-of-line breaks.
- Signage needs updating, clarity.



River Park TC



- Many routes naturally converge at the north end of Blackstone, and some feeder routes begin.
- These services need a common terminus and transit center.
- Reduce wasteful circulation.
- Safe and legible customer experience.

CSUF Off-Street Stops

- Most major universities have off-street transit centers suitable for their high demand.
- CSUF still requires students to walk to stops on Cedar or Shaw
  - Long walks in some cases
  - High-speed traffic
  - Inadequate space at stops.
  - Night safety issues
- CSUF would also get better service if buses could terminate there.

Legibility “low hanging fruit”

- Info system is too “coded.”
- Name routes after major streets for easy legibility and passive marketing.
  - “30 BLACKSTONE to River Park”
  - “The transit is part of the street.”
- Limit use of “feel good” messages that interrupt info.
  - “Have a Nice Day”
- Refresh signage at major stops.

POLICY OPTIONS

Stop Spacing

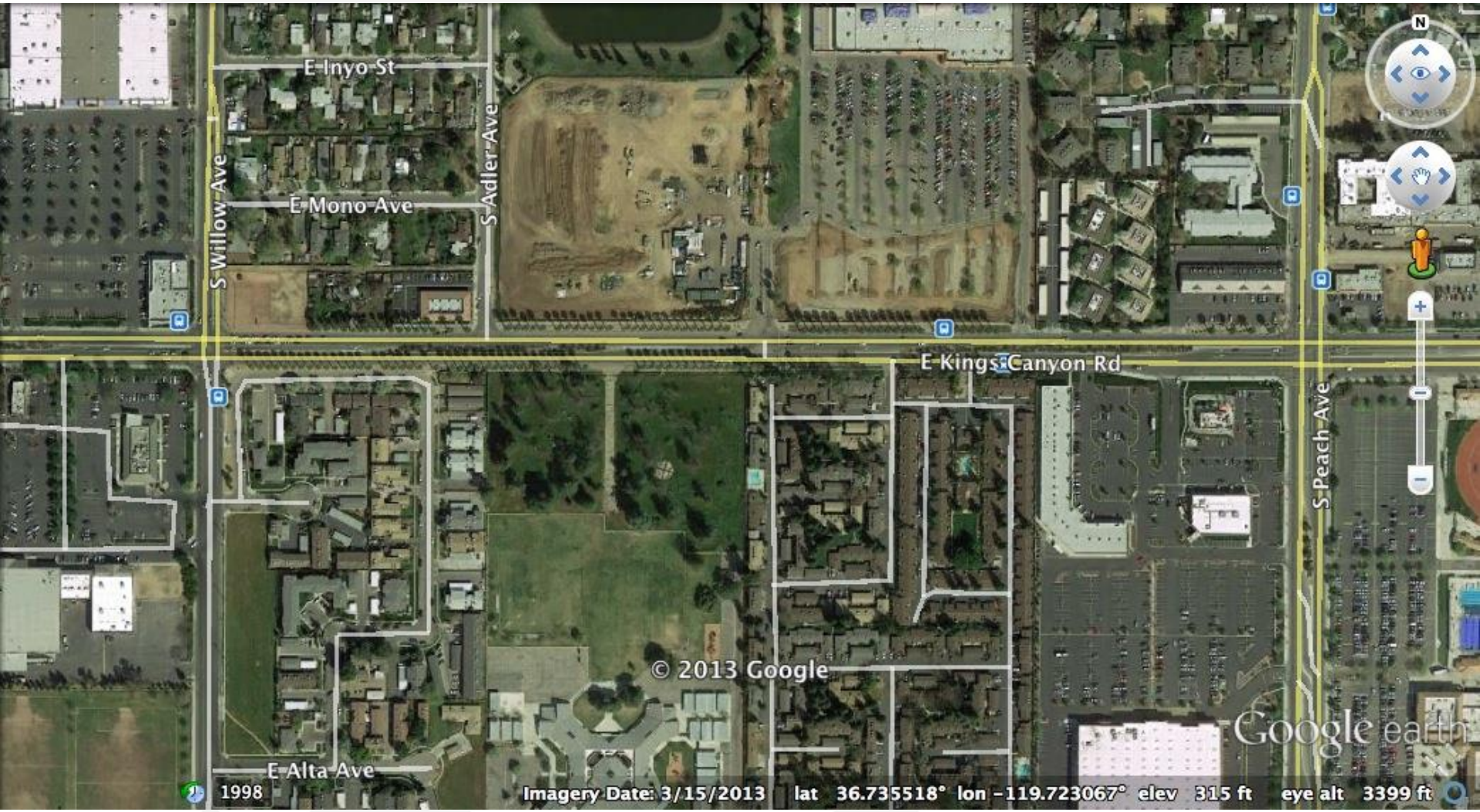
Current policy mandates

- optimum spacing of every 0.2 mile
- and every block in CBD.

Problems:

- These generate very slow travel times, especially in CBD.
- City's ½ mile street grid makes ¼ (0.25) mile more practical than 0.2. In newer parts of city, safe street crossings are rarely < ¼ mile apart on average.
- On high speed streets, stops should not be located where it's unsafe to cross the street.

Stop Spacing and Traffic Planning: the “¼ mile rhythm”



Stop Spacing

Recommended policy:

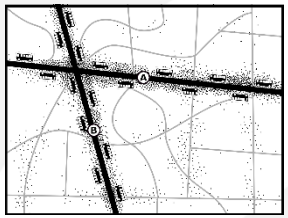
- Aim for a stop every ¼ mile.
- Can be 800-1000 ft in ped-friendly areas (older street grid)*
- Place stops closer only in response to high senior-disabled demand.
- Never place facing stops where it's unsafe to cross the street.
- Work with land use and traffic planners on optimal permanent stop locations averaging ¼ mi.

* 3 lettered streets downtown, or two named streets.

Policy on Service Purpose

Ridership Goal

Think like a business!



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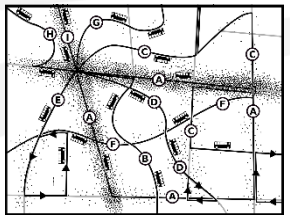

After suitable discussion and outreach, form a policy on the % of resources to be devoted to a Ridership goal. Policy could be:

- *Confirm current practice, about 90%*
- *Shift further toward 100%, deleting coverage. (Ridership scenario)*
- *Shift lower, expanding coverage and lowering ridership. (Coverage scenario)*

DISCUSSION