

GIS Data to Support Transit System Planning

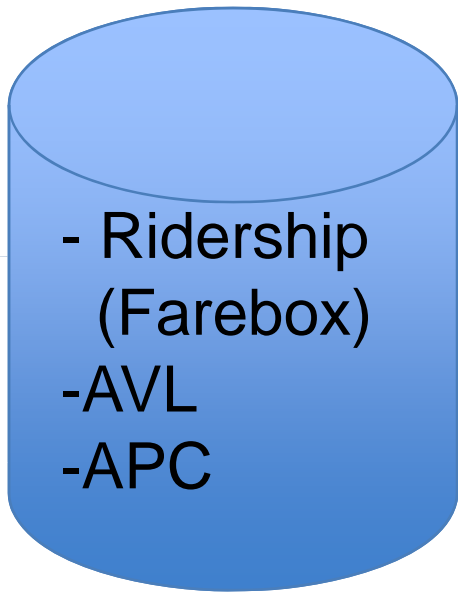
ORIGIN & DESTINATION TRANSIT TRIP TABLE FROM FAREBOX DATA



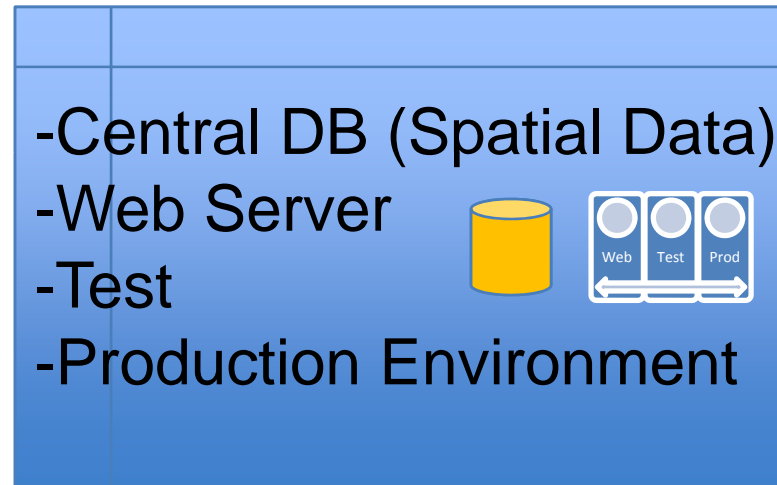
OCTA GIS – WHERE WE FIT IN?



HOW GIS INTERACTS WITH DATA WAREHOUSE



Data Warehouse



GIS

LINKING DATA WAREHOUSE TO GIS

DATA WAREHOUSE:

FAREBOX:

DATE	TIME	BUS	ROUTE	DIR	TRIP	STOP	FARE TYPE	PASS ID

GIS DATA:

ROUTES:

ROUTE	DIR	PATTERN	LENGTH

STOPS:

STOP ID	RTE	DIR	PATT	LAT	LONG



HOW TO BUILD A TRIP TABLE?

- **ON –BOARD SURVEY**

- Expensive.
- Infrequent.
- Time consuming.
- Small sample size

- **APC (Automated Passenger Counts)**

- Boardings / Alightings.
- Trip ends not connected.
- Not comprehensive data stream (yet).

- **FAREBOX RECORDS**

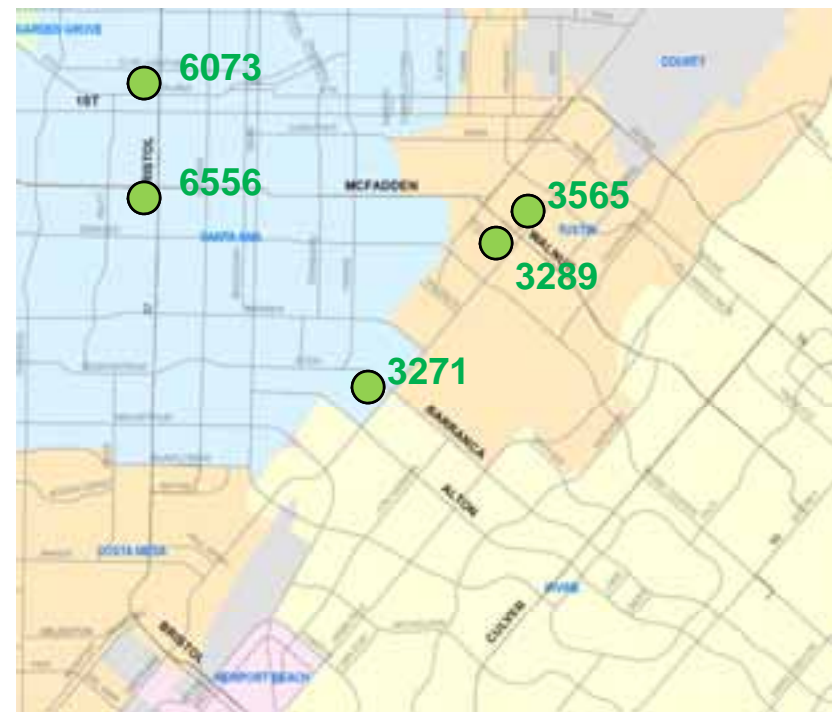
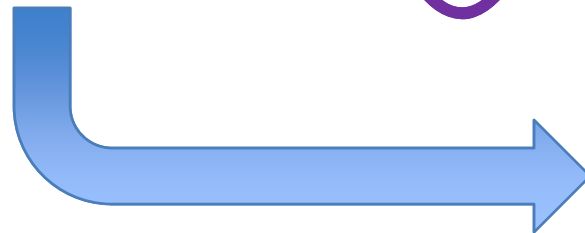
- Boardings (Origins) only
- Time of boarding.
- Location of boarding – bus stop
- Linkages to other data
- Thousands of records per day.



ORIGINS – GET FROM FAREBOX DATA

Farebox Records

TRIP	BUS	ROUTE	DIR	STOP ID	SEQ	TIME
3101742	2269	57	S	6073	995682	0510
3102303	5502	66	E	6556	995682	0538
3101369	5619	79	S	3289	995682	0628
3101351	5663	79	N	3271	995682	1405
3102298	2209	66	W	3656	995682	1423

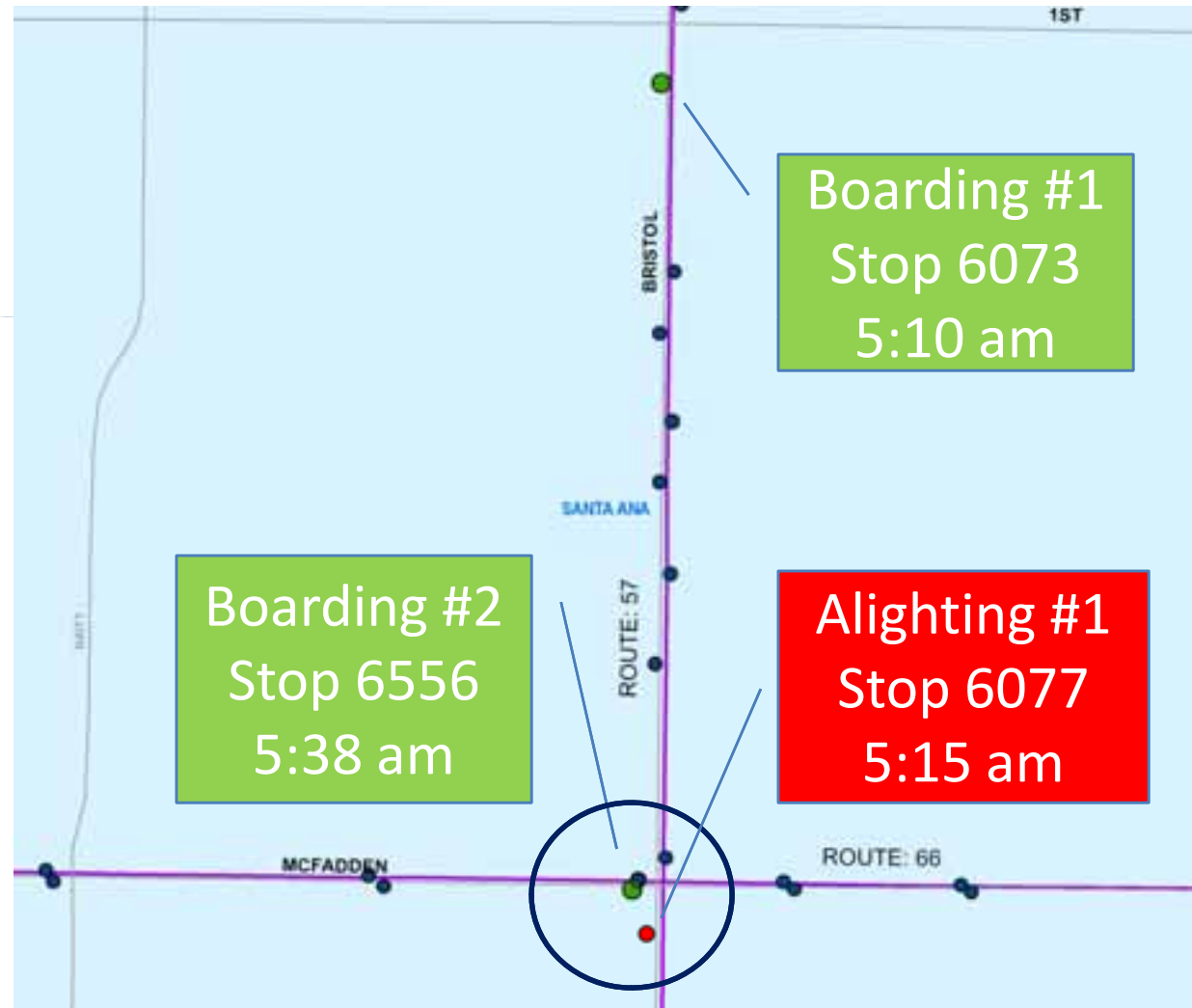


DESTINATIONS - PROCESS FAREBOX BOARDING DATA

¼ Mile Search

Alighting time –
Calculate based
on Boarding #1 &
Boarding #2
farebox times.

TRANSFER
or
DESTINATION ?



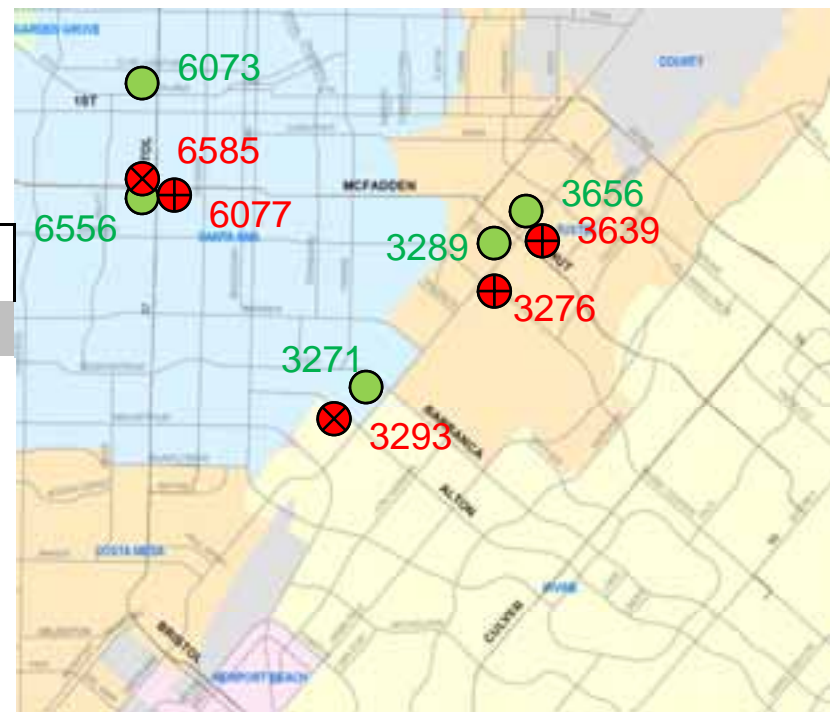
ORIGINS & DESTINATIONS

FAREBOX RECORDS

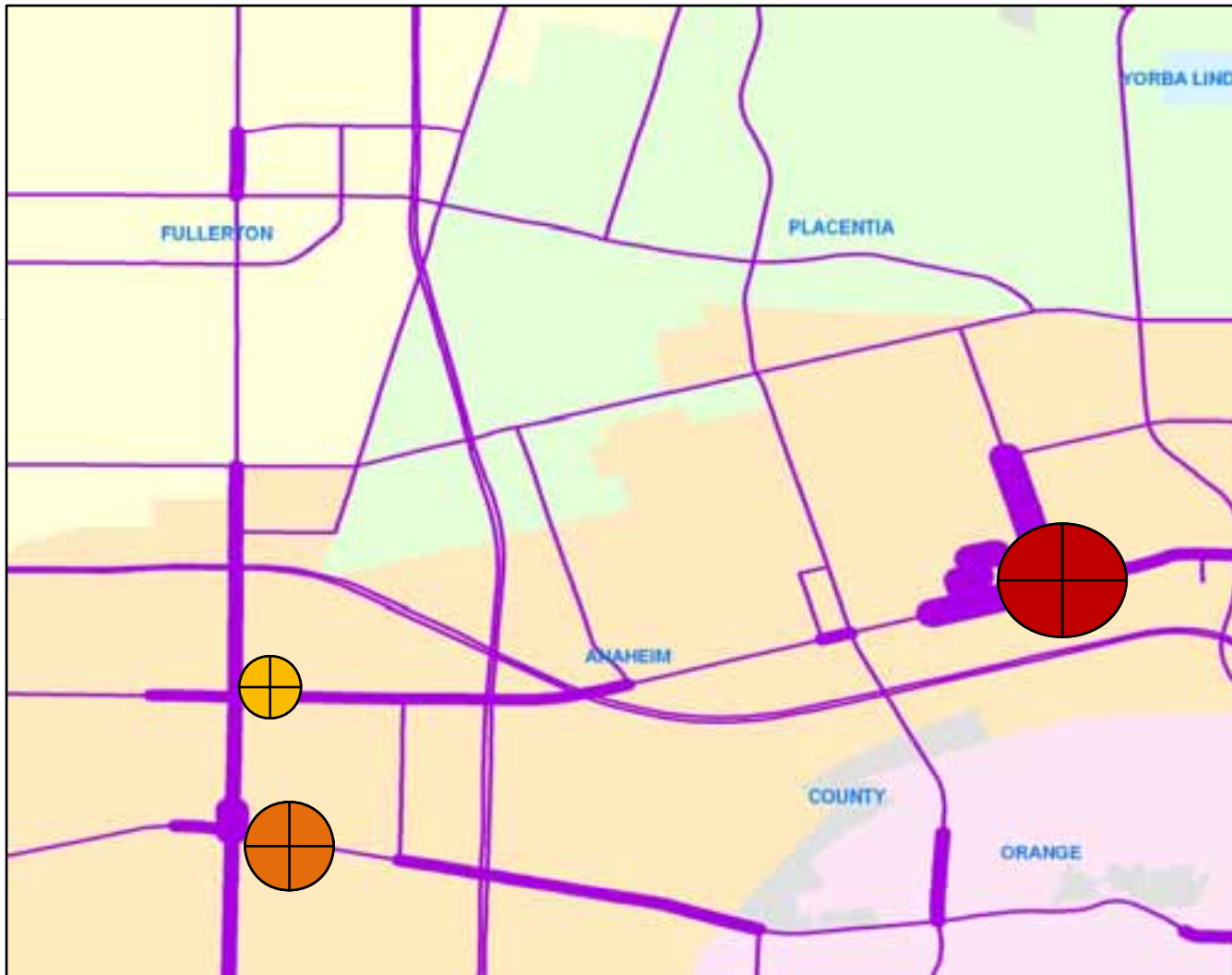
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TRIP TABLE

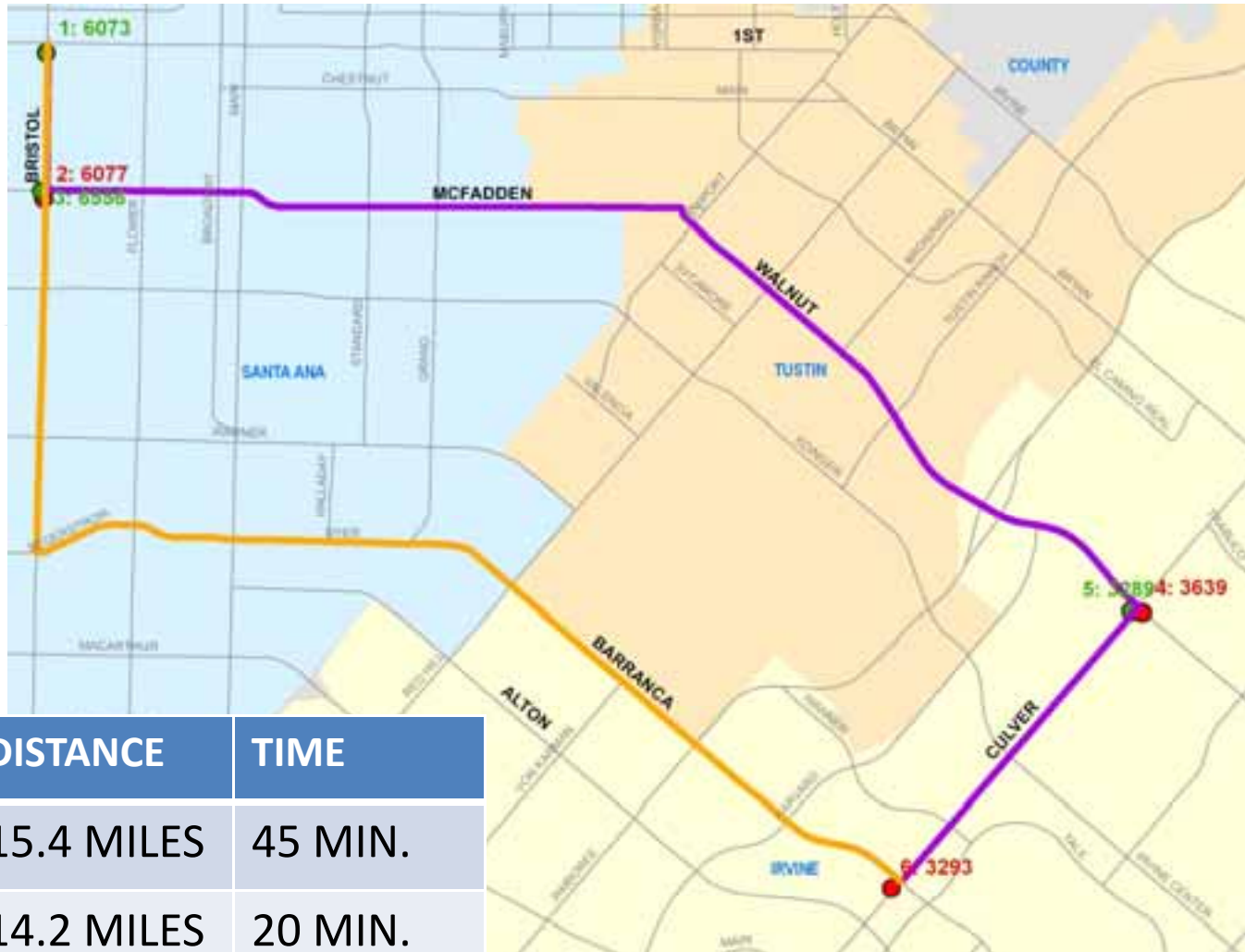
PASS ID	ROUTE	ORIGIN	TIME	DESTINATION	TIME	TYPE
995682	57 S	6073	0510	6077	0515	TRANSFER
995682	66 E	6556	0538	3639	0603	TRANSFER
995682	79 S	3289	0628	3293	0634	DESTINATION
995682	79 N	3271	1405	3276	1407	TRANSFER
995682	66 W	3565	1423	6585	1445	DESTINATION



TRIP PATTERNS & TRANSFER POINTS

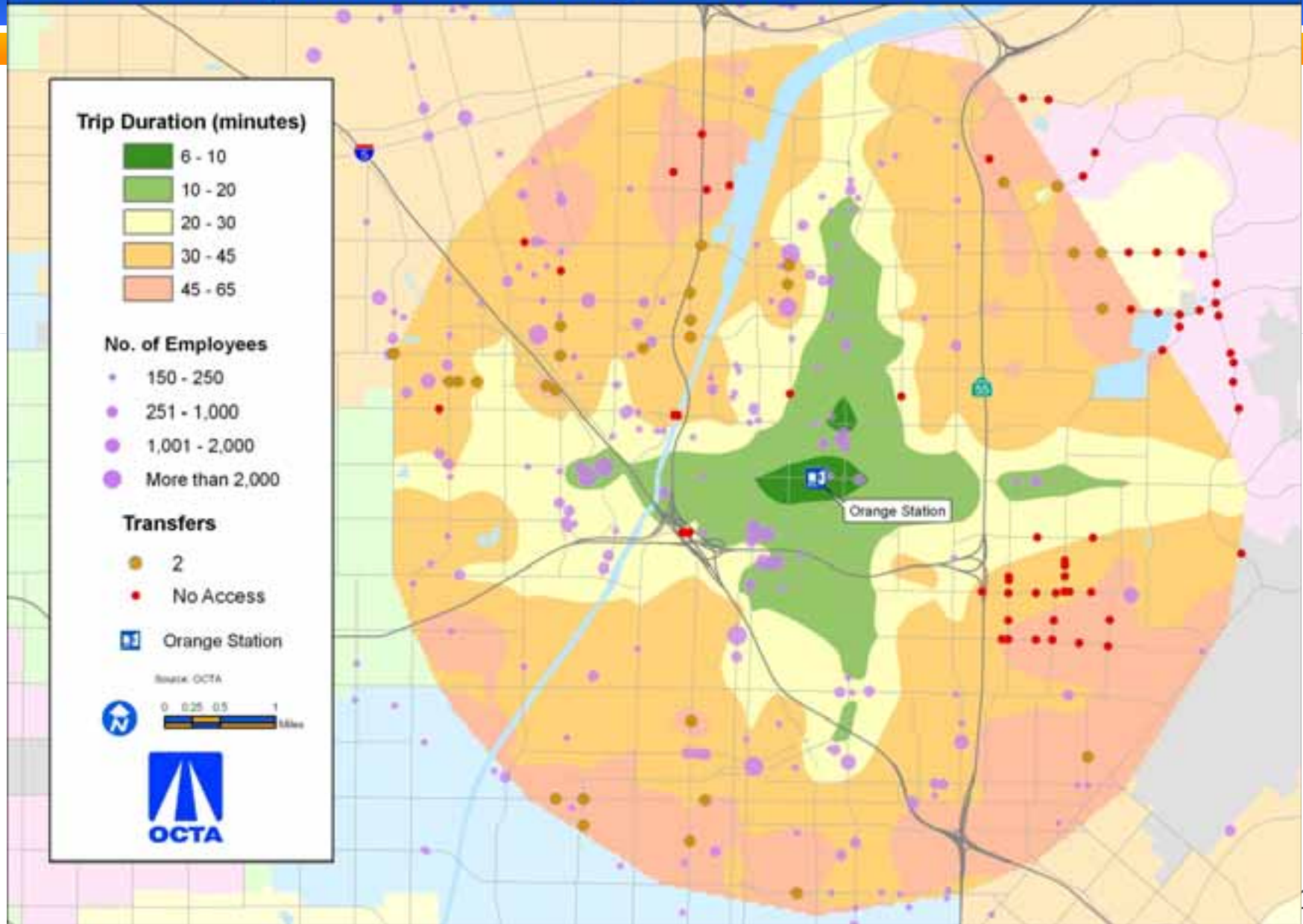


TRAVEL TIMES, DISTANCE & SPEED



MODE	DISTANCE	TIME
BUS	15.4 MILES	45 MIN.
CAR	14.2 MILES	20 MIN.

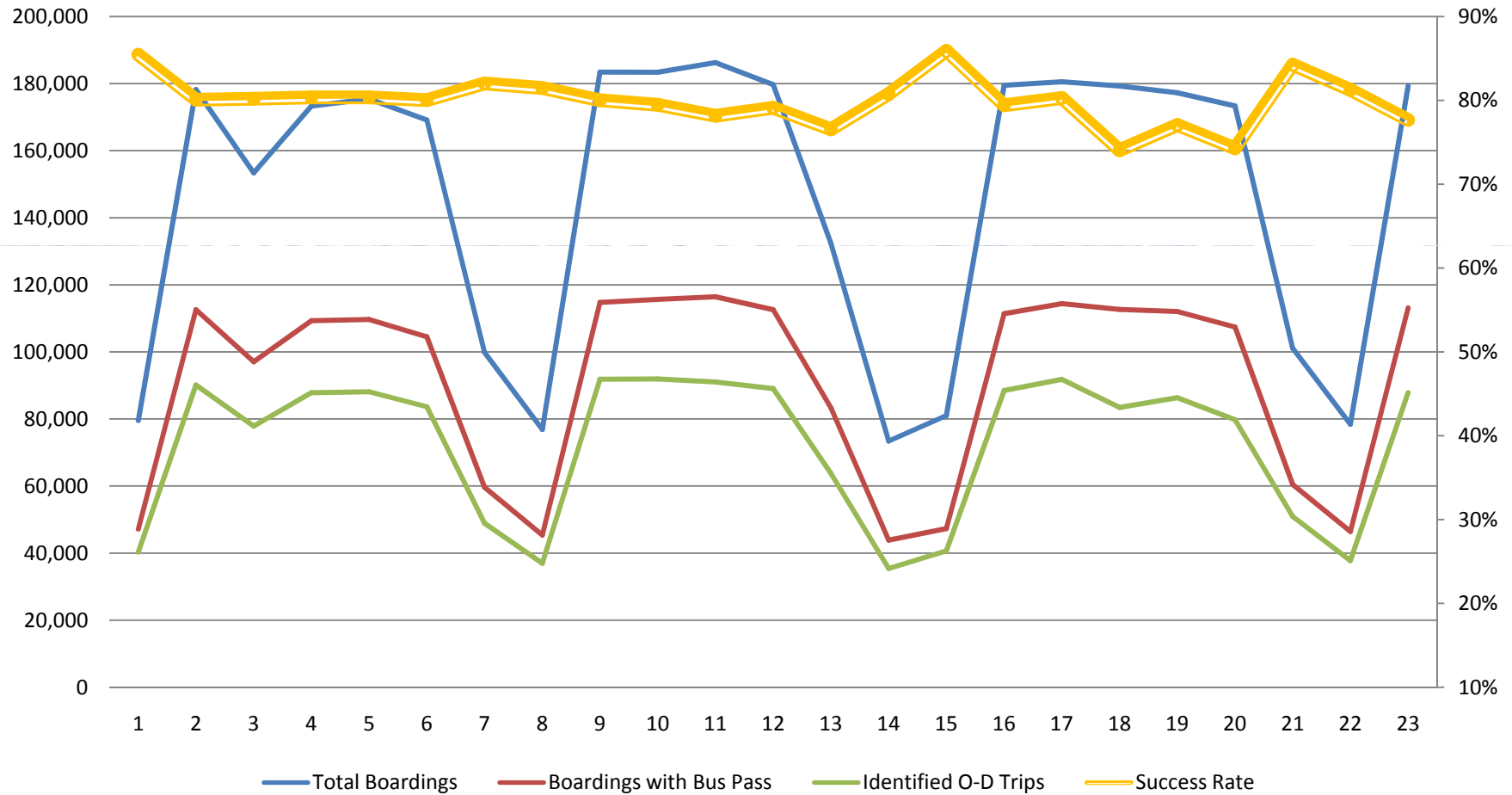
AM Transit Trip Duration from Orange Metrolink Station



PERFORMANCE SUMMARY

- Example Success Statistics:
 - 241,179 daily boardings.
 - Re-create 71,740 linked trips (Origins & Destinations).
 - Represents 113,048 system-wide boardings.
 - 46.9 % of total boardings.

Performance Summary



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