



YUMA WEST

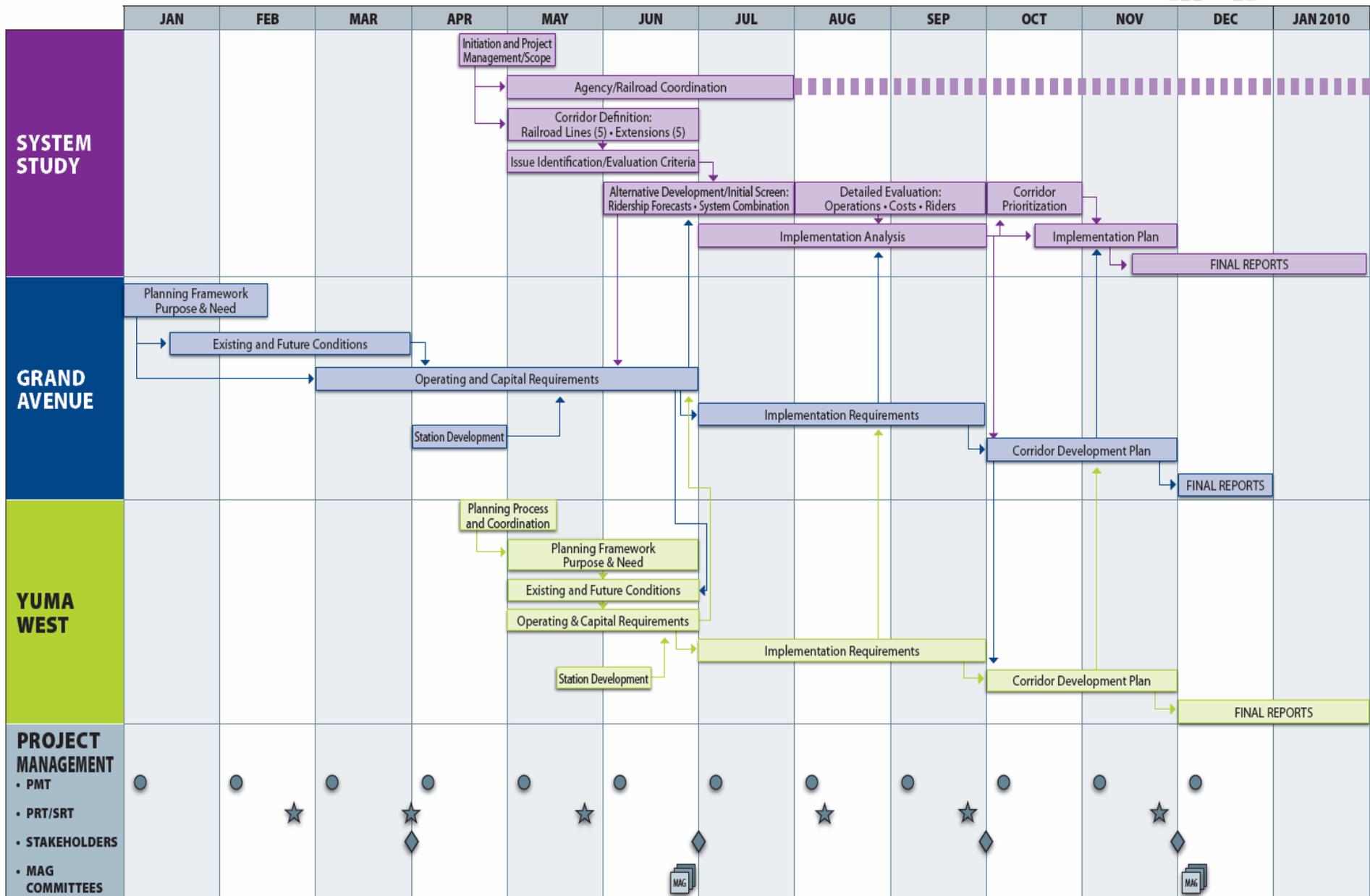
COMMUTER RAIL CORRIDOR
DEVELOPMENT PLAN

Project Review Team Meeting #3 11.19.09

Meeting Agenda

- ◀ **Introductions**
- ◀ **Overall Project Schedule**
- ◀ **Ridership Forecasting**
- ◀ **Capital and Operating Cost Estimates**
- ◀ **Other Issues and Next Steps**

COMMUTER RAIL PROJECT INTEGRATION - DRAFT

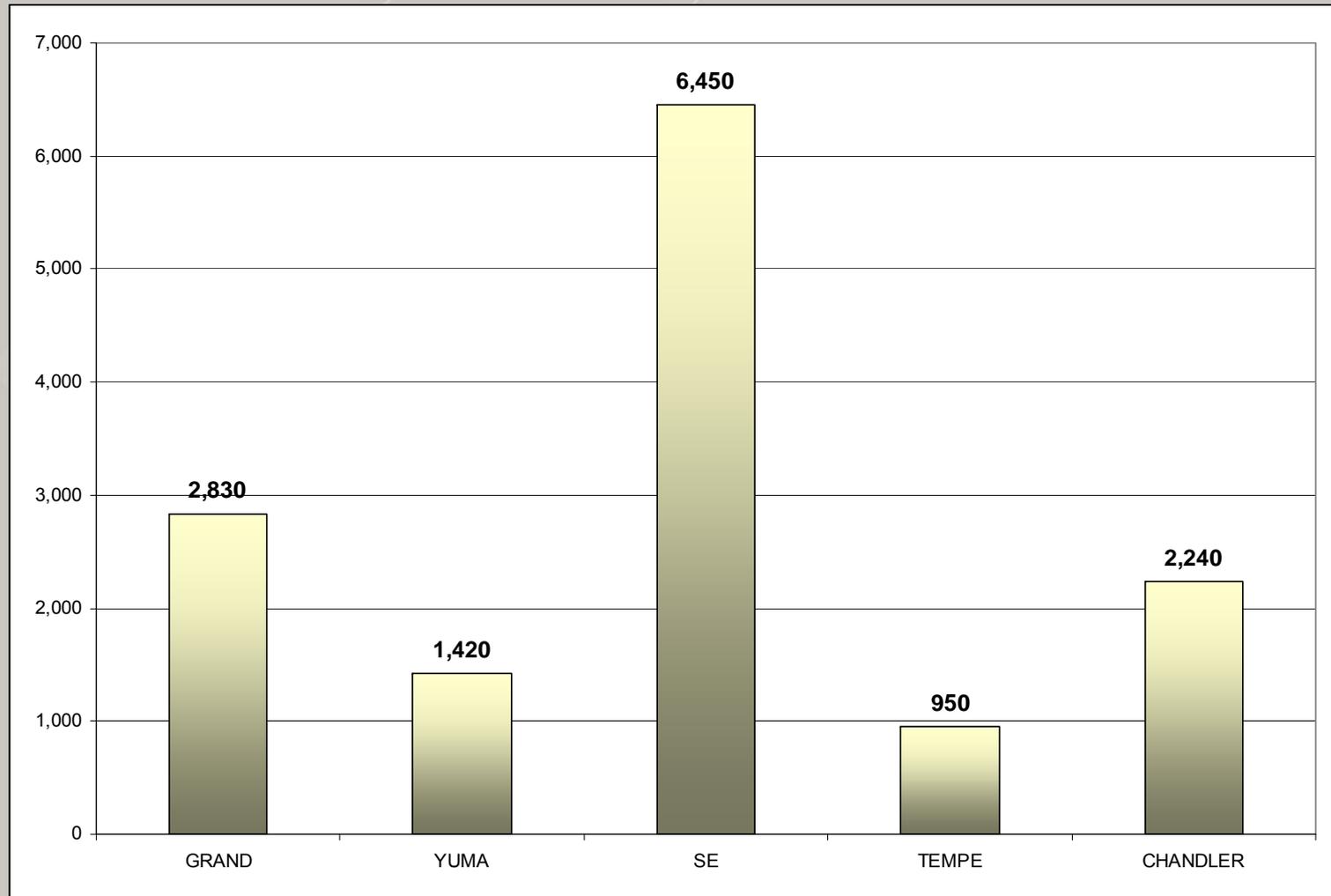


November 12, 2009

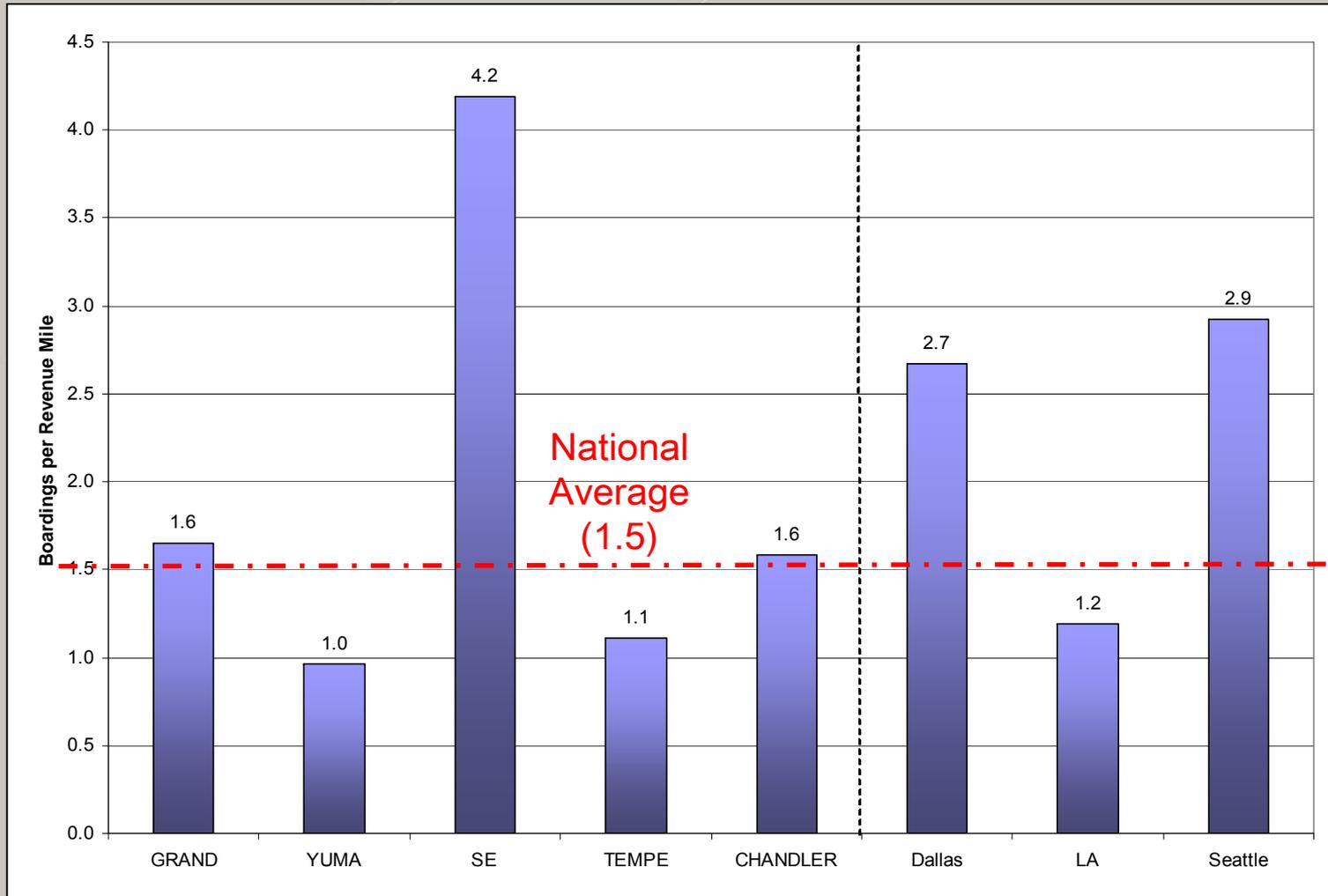
What's New in Ridership Forecasting

- ◀ Interlining results with Chandler in place of Southeast (Base model results)
- ◀ Updated approach for sensitivity tests and extension ridership forecasting

2030 Daily CRT Ridership Base Stand-alone Corridors



2030 Daily CRT Boardings per Revenue Mile Base Stand-alone Corridors



Interlined Model Runs

1-Corridor Alternatives

- Grand-SE: Wittmann to Downtown Queen Creek (30/60)
- Yuma-SE: Buckeye to Downtown Queen Creek (30/60)

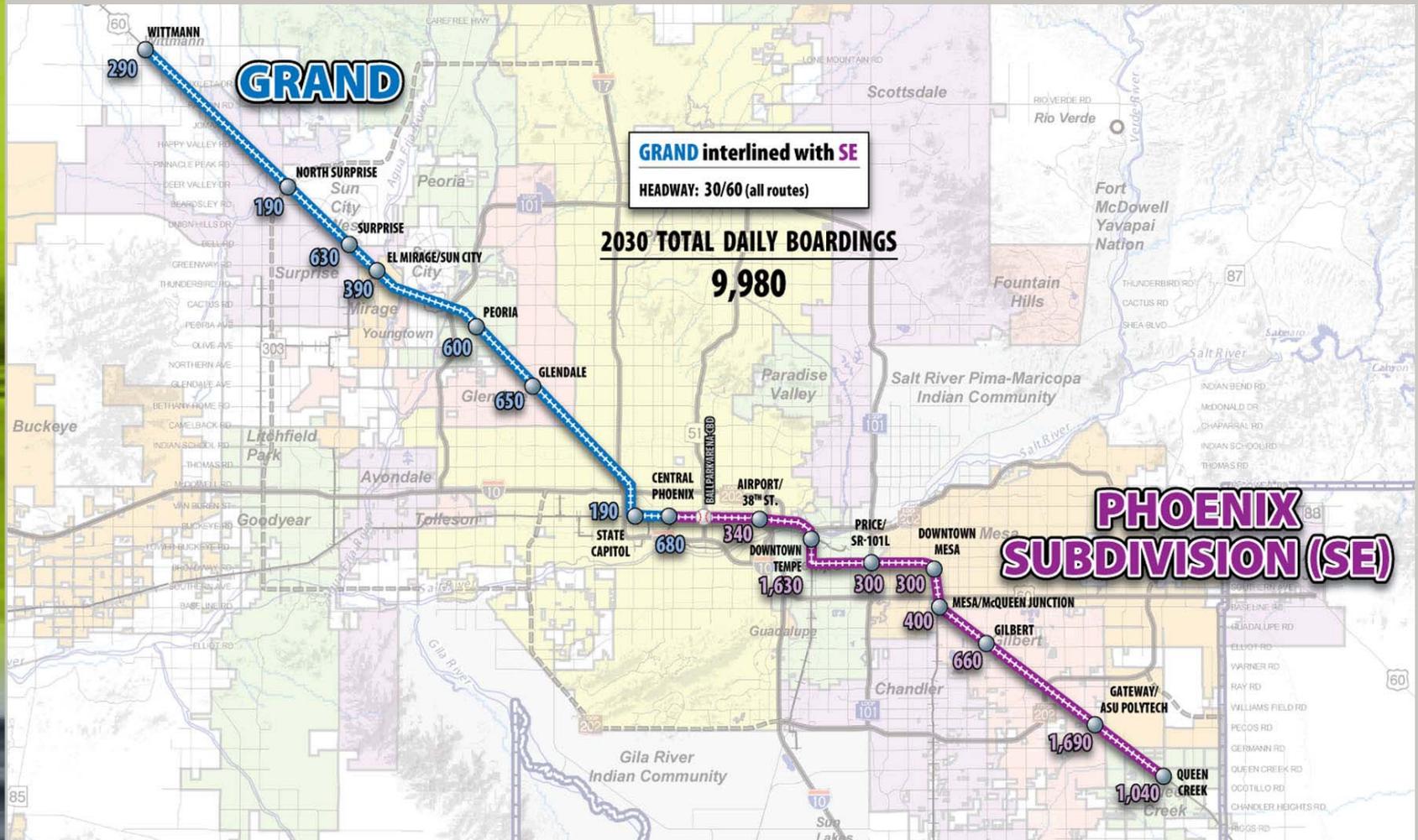
Multi-Corridor Alternatives

- Grand-SE (30/60), Yuma-SE (60/60)
- Grand-Chandler (30/60), Yuma-Chandler (60/60)

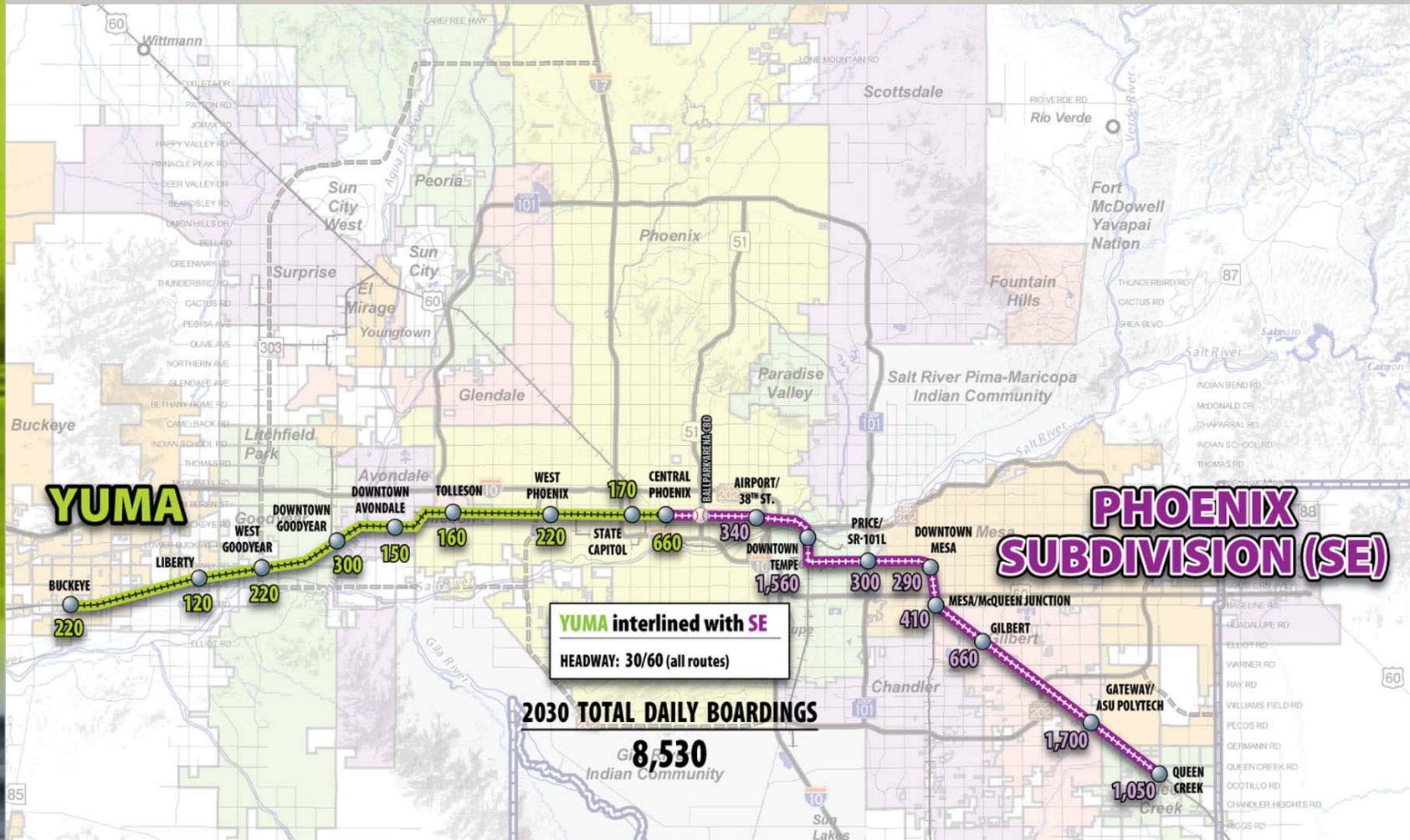
- Grand-SE (20/60), Yuma-Tempe (40/60)
- Grand-Chandler (20/60), Yuma-Tempe (40/60)

- Yuma-SE (20/60), Grand-Tempe (20/60)
- Yuma-Chandler (20/60), Grand-Tempe (20/60)
(Model includes 2030 RPTA/RTP improvements)

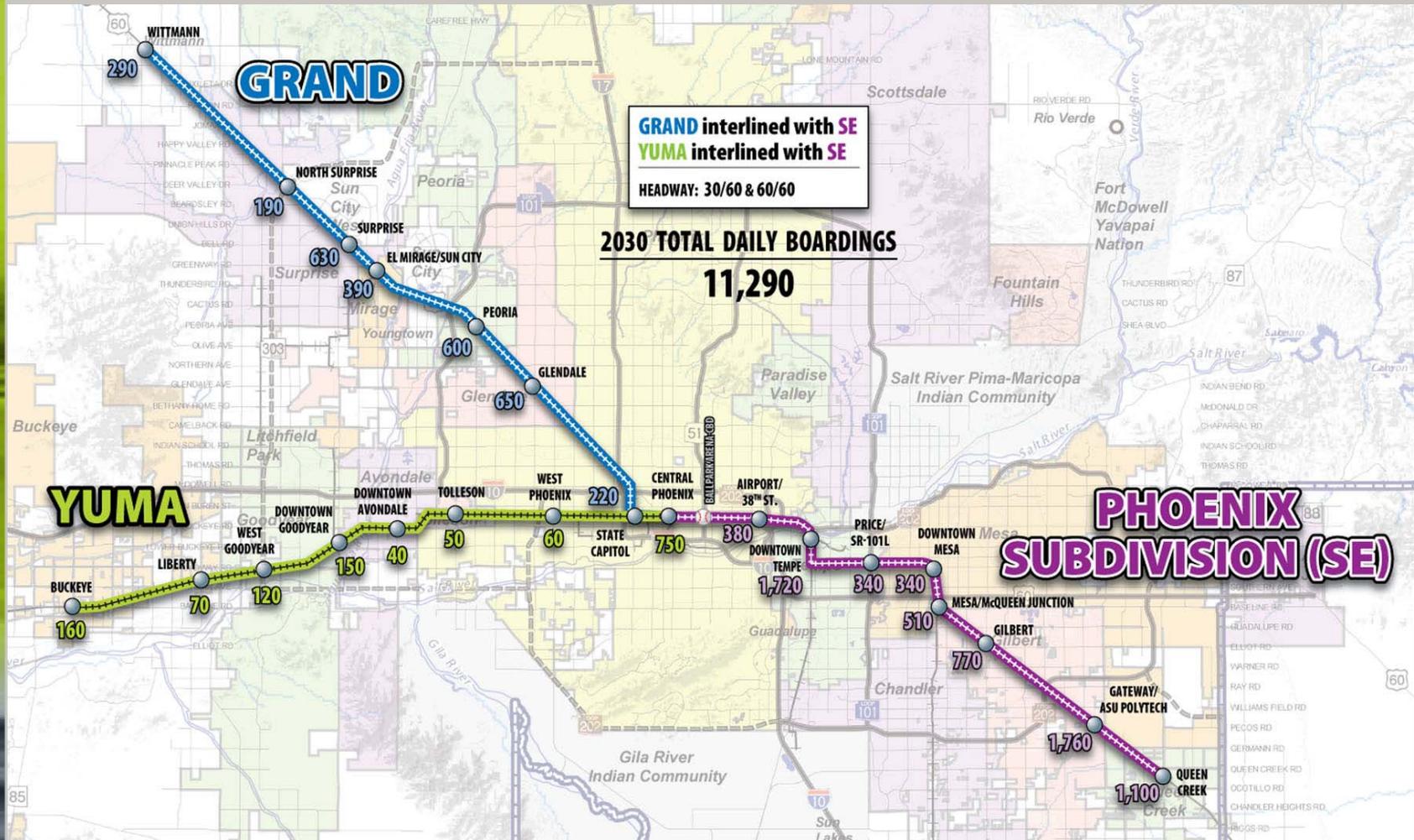
2030 Daily CRT Boardings by Station



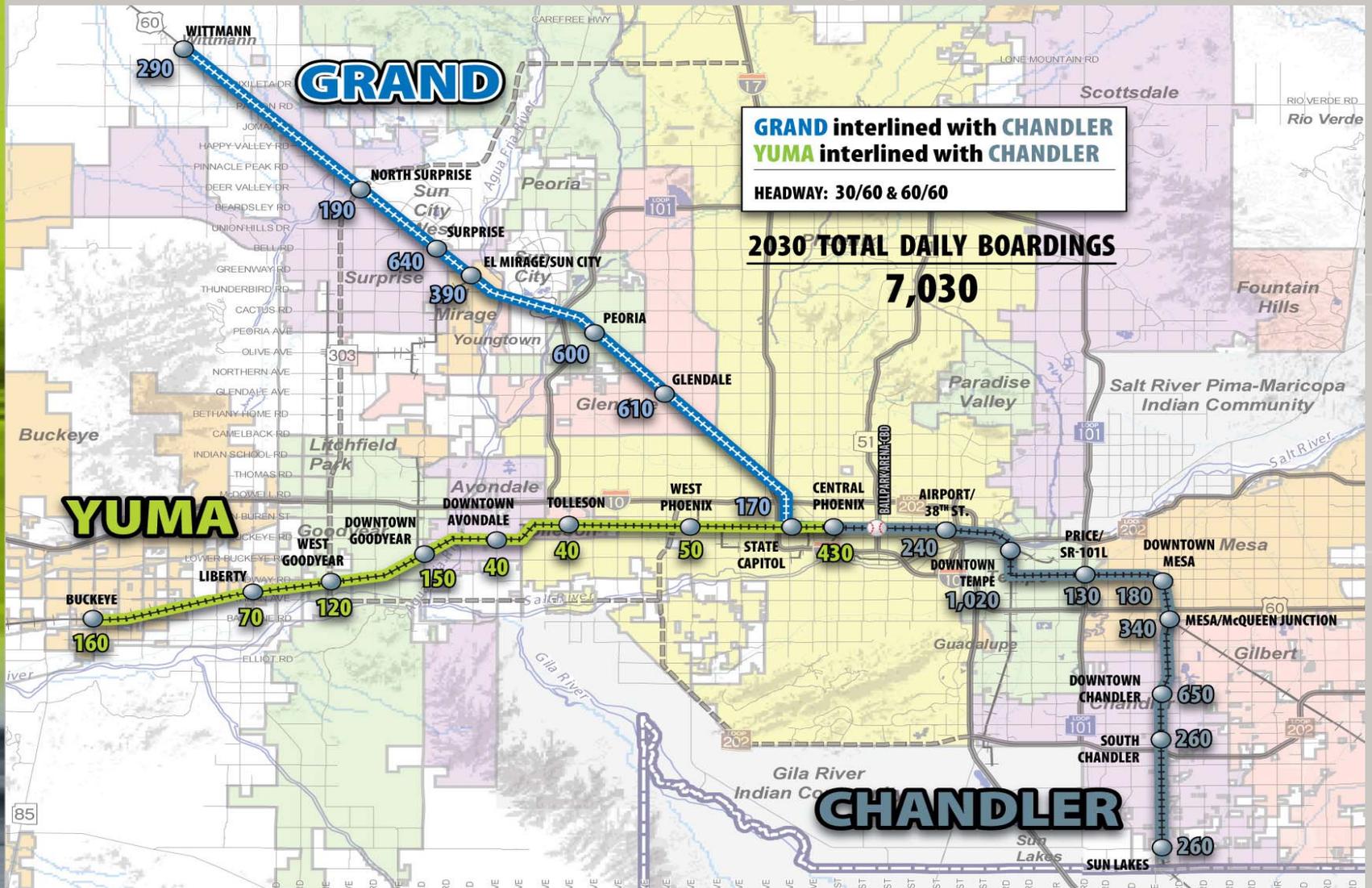
2030 Daily CRT Boardings by Station



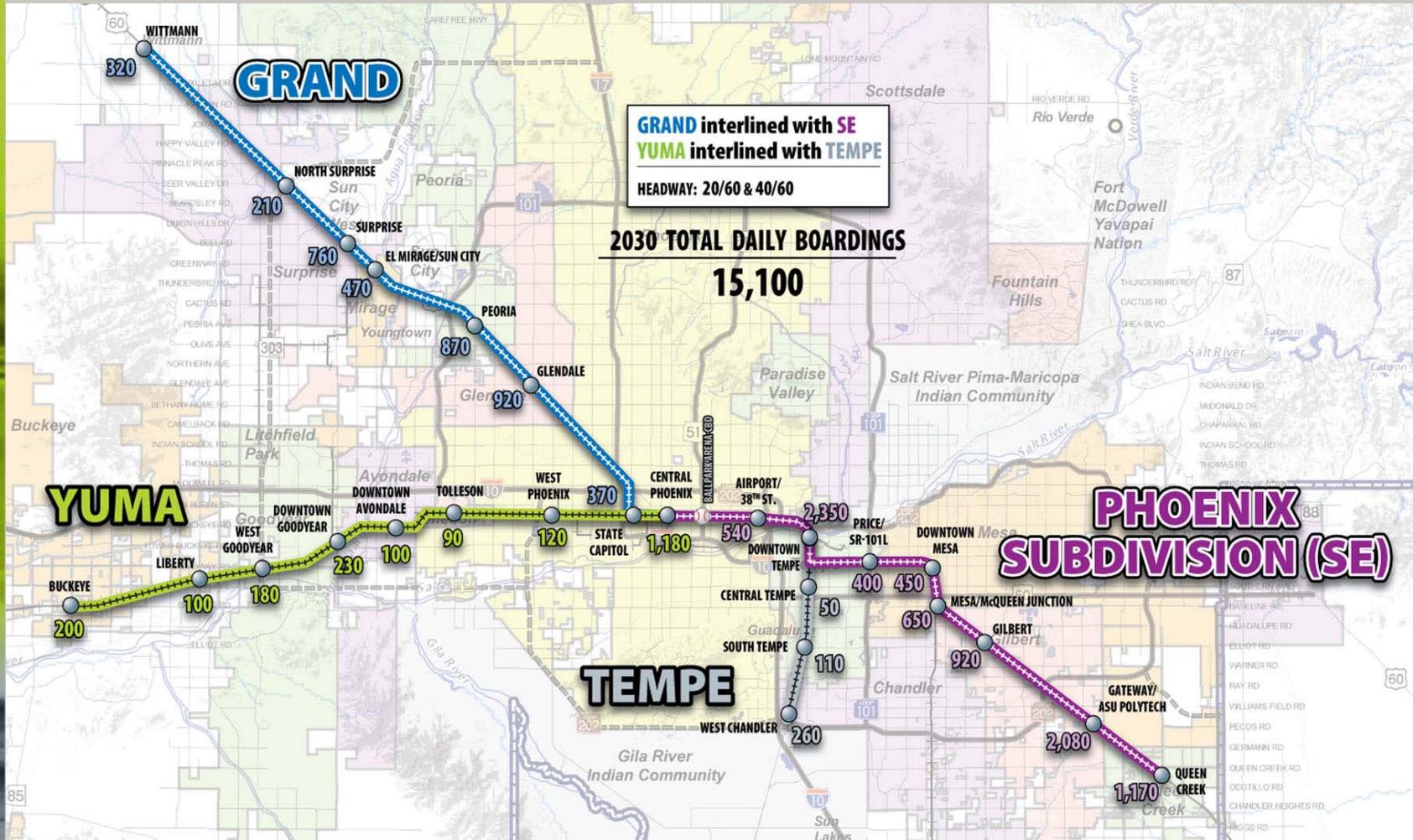
2030 Daily CRT Boardings by Station



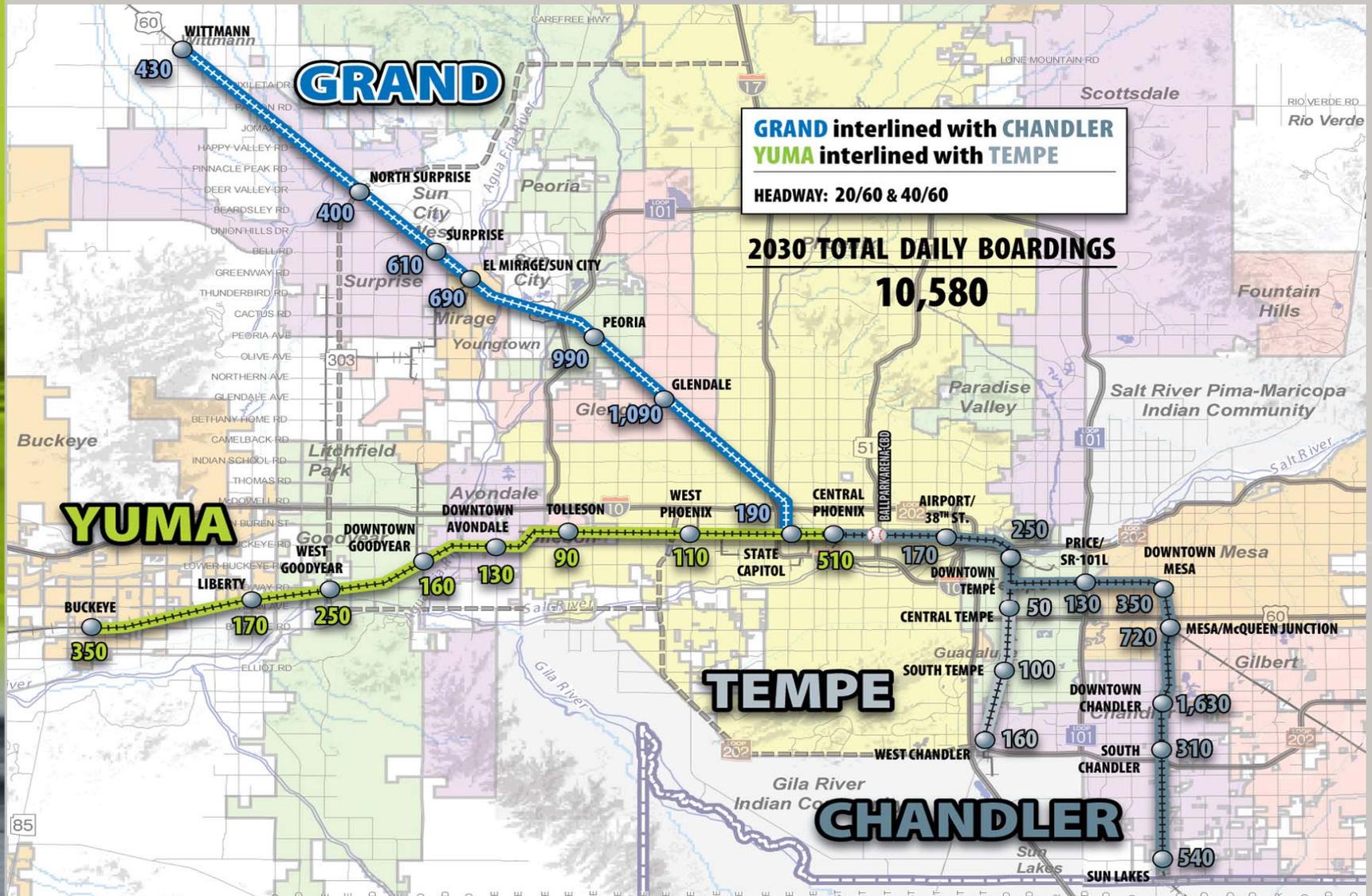
2030 Daily CRT Boardings by Station



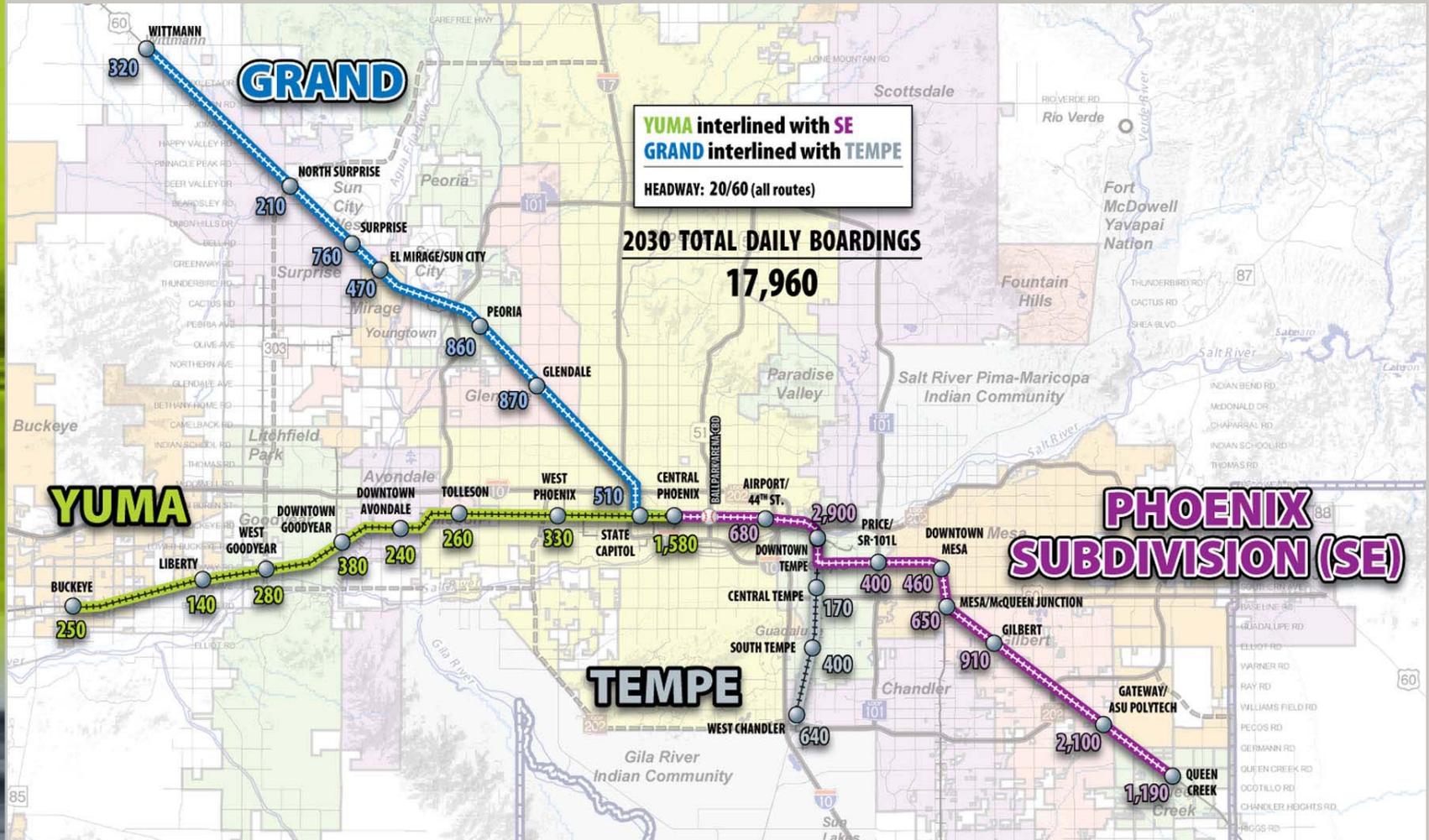
2030 Daily CRT Boardings by Station



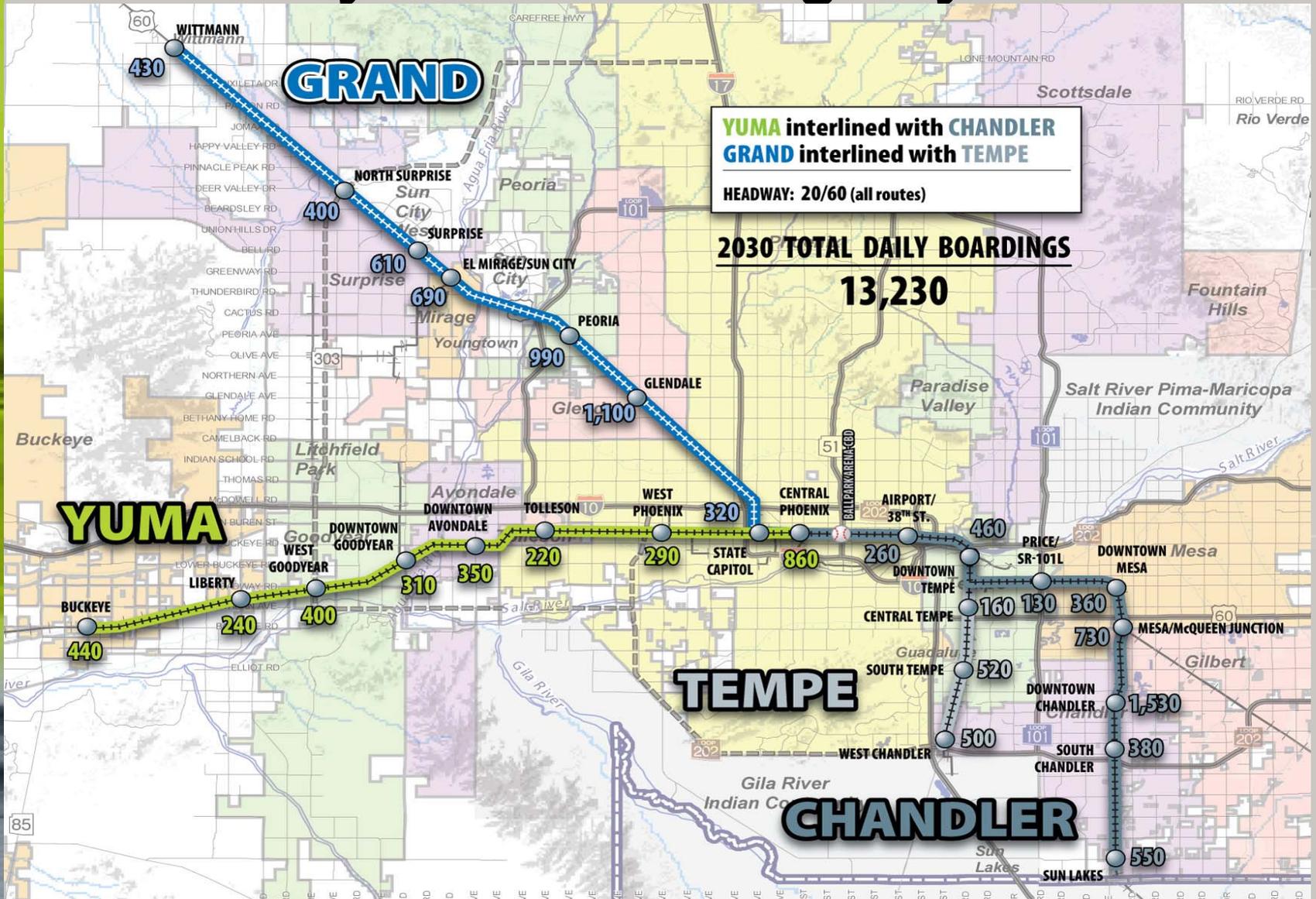
2030 Daily CRT Boardings by Station



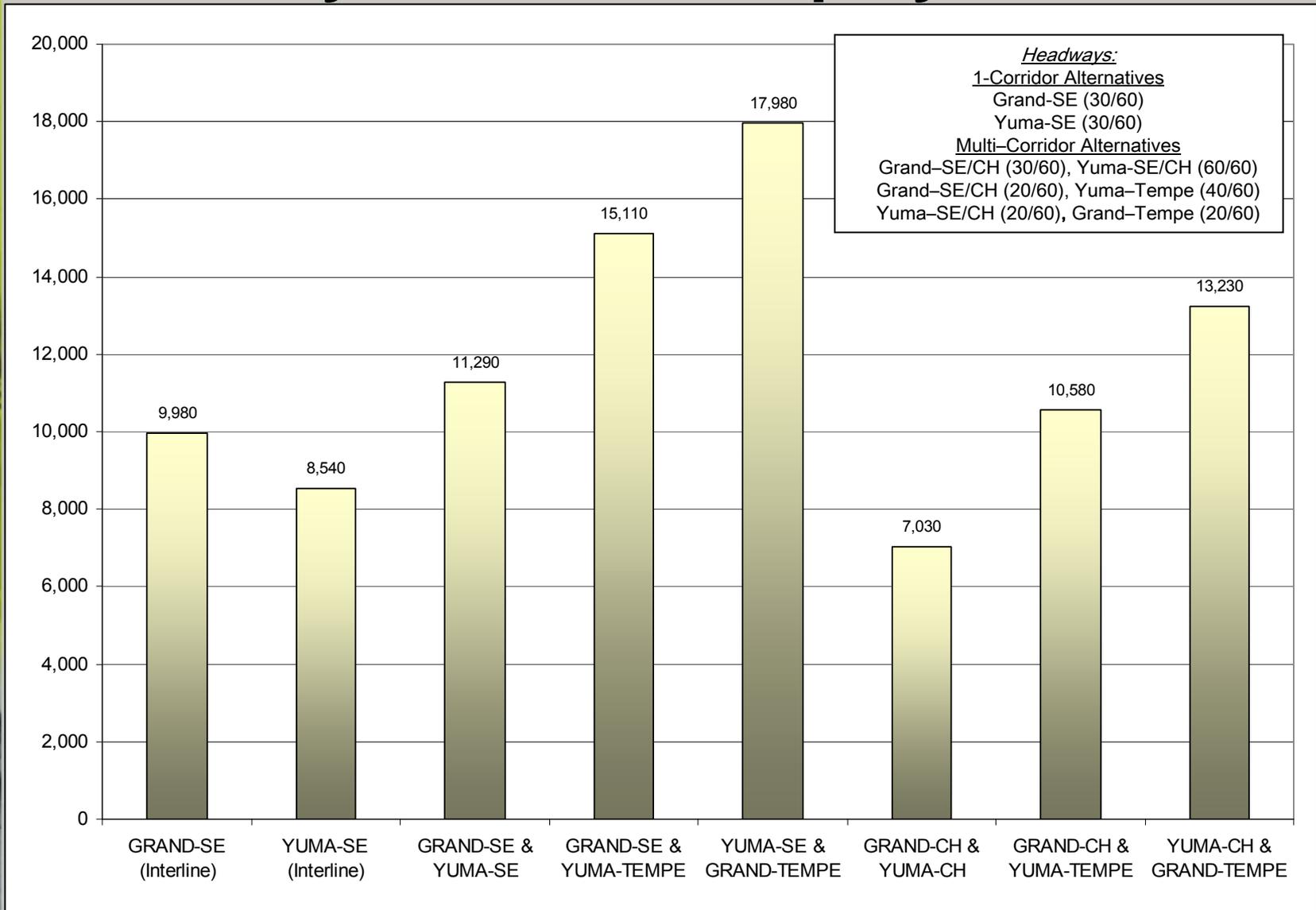
2030 Daily CRT Boardings by Station



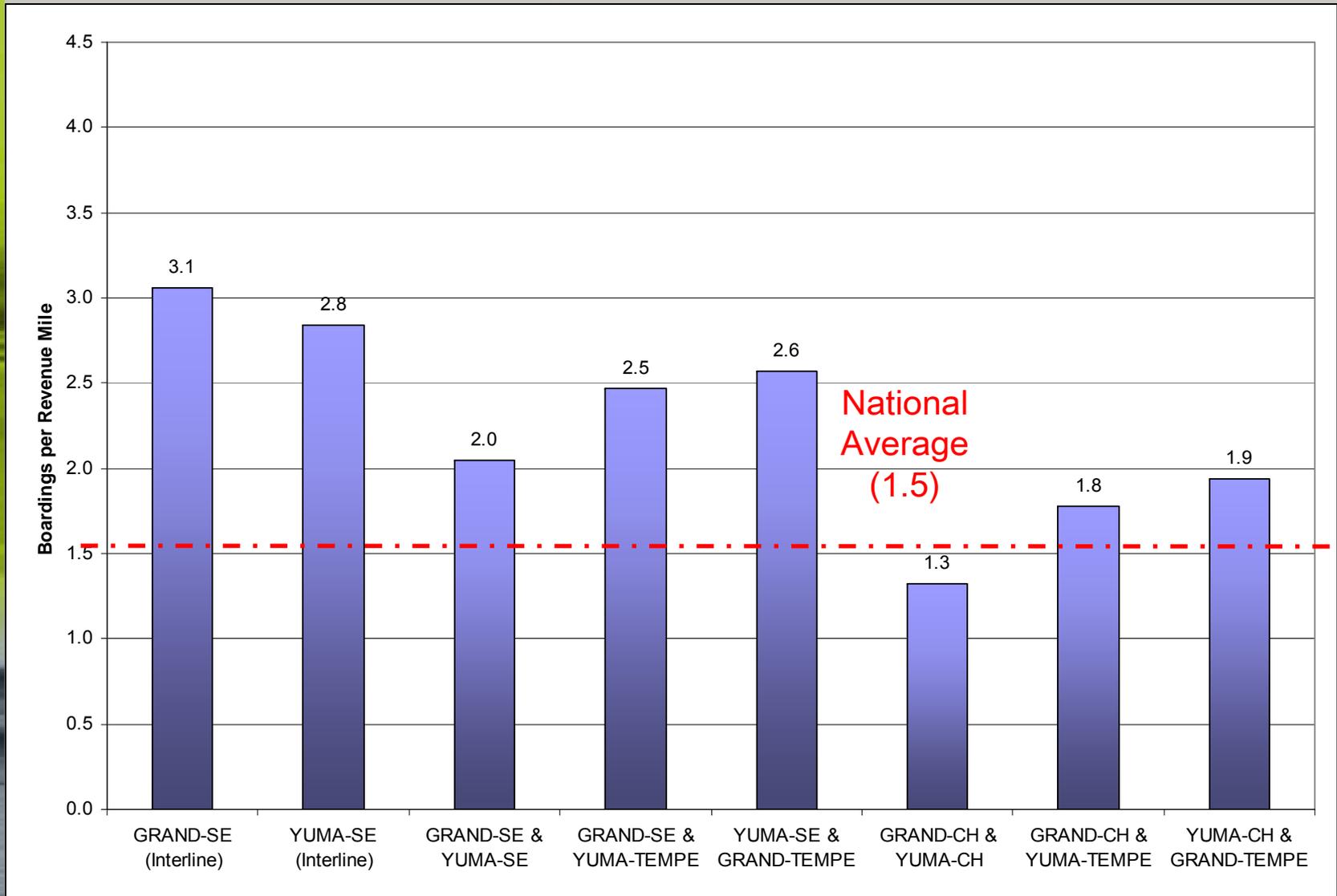
2030 Daily CRT Boardings by Station



2030 Daily CRT Ridership by Model Run



2030 Daily CRT Boardings per Revenue Mile by Model Run



Interlined Model Run Observations

- ◀ Interlining improves ridership and boardings per revenue mile over individual corridors
 - When Grand or Yuma are interlined with SE, ridership increase is under 10%
 - Boardings per revenue mile are improved the most on Yuma corridor when interlined with SE
- ◀ Of the multi-line corridors, the Yuma-SE/Grand-Tempe model run performed the best in terms of daily ridership (18k) and boardings per revenue mile (2.6)
 - Performance is influenced by 20/60 headway

Interlined Model Run Observations

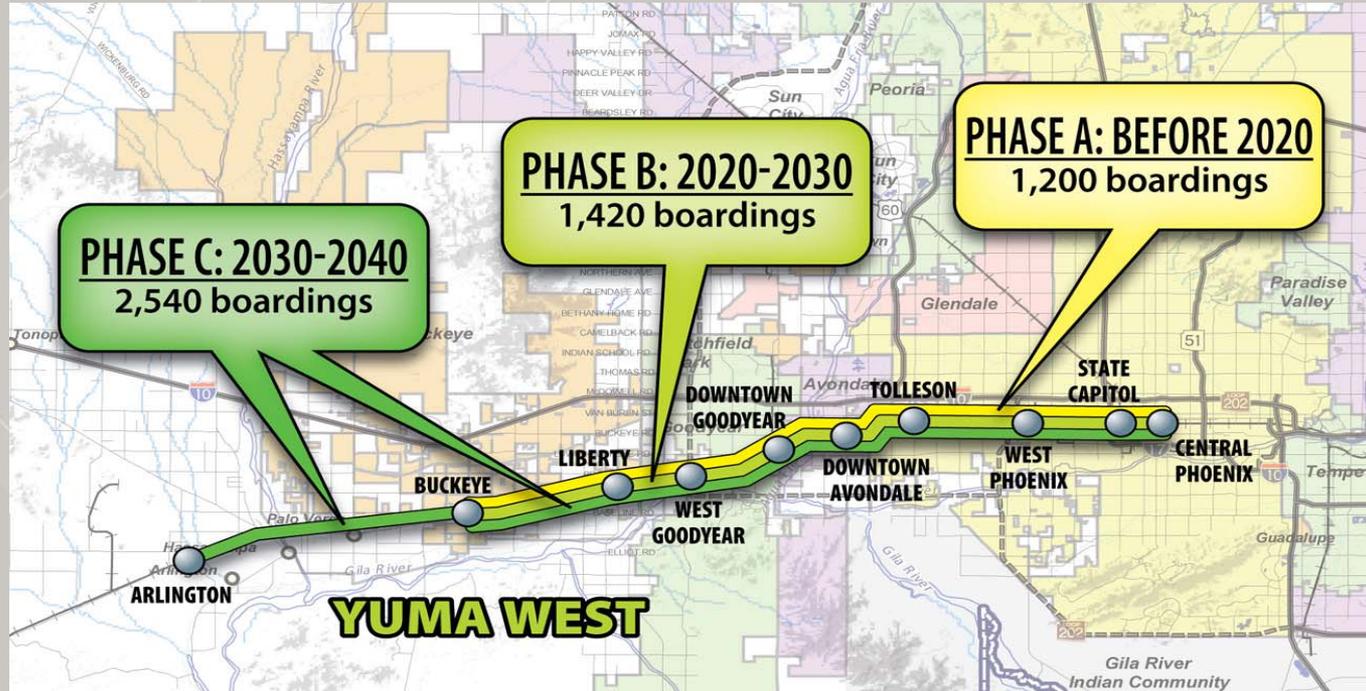
◁As expected, Southeast interlined combinations perform better than Chandler interlined combinations

Combination	Daily boardings with Southeast (SE) in the combination	Daily boardings with Chandler (CH) in the combination	Chander as a percentage of SE boardings
Grand+[SE or CH] / Yuma West+[SE or CH]	11,290	7,030	62%
Grand+[SE or CH] / Yuma West+Tempe	15,100	10,580	70%
Yuma West+[SE or CH] / Grand+Tempe	17,960	13,320	74%

Cost Estimating Methodology

- ▶ Includes both capital and annual operating and maintenance (O&M) costs
- ▶ Conceptual design level (1-2%)
- ▶ 2009 dollars
- ▶ Uses recent industry costs and costs from vendors where possible
- ▶ Structured to match FTA format where possible
- ▶ Estimates contingencies

Phased Cost Estimate Approach



Capital Costs

Commuter Rail Capital Cost Categories:

- ▶ Guideway and track (including structures)
- ▶ Stations
- ▶ Support facilities (maintenance, layover)
- ▶ Utilities
- ▶ Environmental mitigation (% of total cost)
- ▶ Auto/pedestrian/bicycle facilities
- ▶ Systems (including Positive Train Control)
- ▶ Right-of-way/property
- ▶ Vehicles
- ▶ Contingencies:
 - Professional services (design, management)
 - Unallocated contingencies

Peer City Comparison: Capital Cost per Mile

O&M Costs

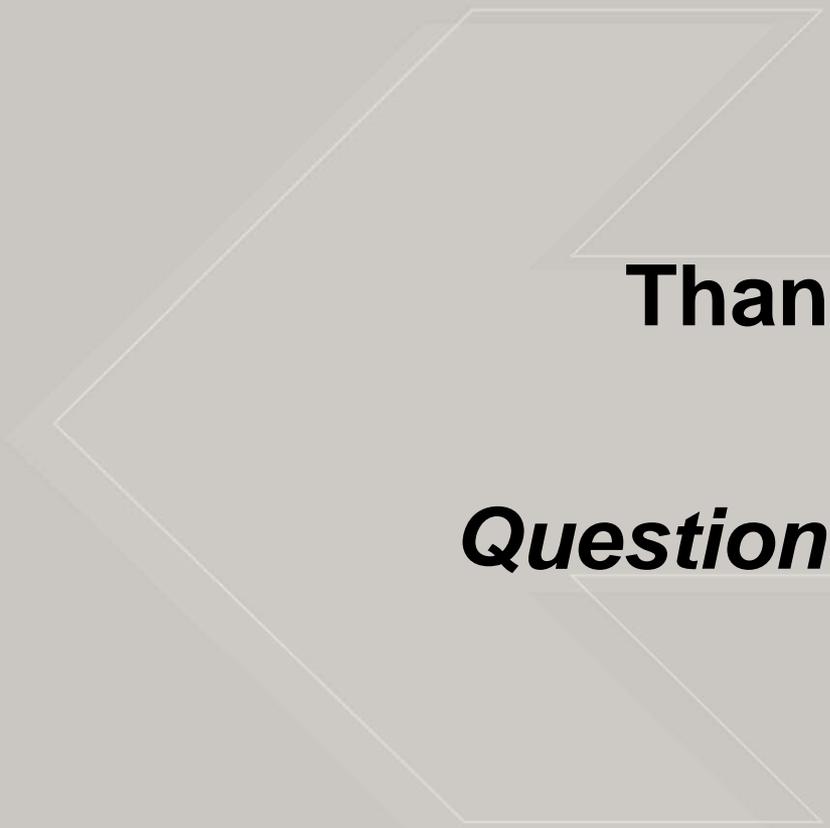
Commuter Rail O&M Cost Estimating:

- ▶ Based on operating plans and current costs of 9 other commuter rail systems (all locomotive-hauled equipment, from National Transit Database)
 - MetroLink (CA)
 - MARC (MD)
 - VRE (VA)
 - TRE (TX)
 - Tri-Rail (FL)
 - Coaster (CA)
 - Caltrain (CA)
 - Connecticut DOT
 - ACE (CA)

Peer City Comparison: Annual O&M Cost per Rider

Next Steps

- ◀ Finalize costs and implementation requirements
 - Refine cost estimates (including refinement of contingencies)
 - Finalize cost estimates for other corridors for comparison purposes
 - Finalize cost-effectiveness evaluations of this corridor and other corridors
- ◀ Finalize Corridor Development Plan – January
- ◀ Next PRT meeting: January 28th at 9:00 am



Thank you!

Questions/Answers