GRAND AVENUE

MARICOPA ASSOCIATION of GOVERNMENTS

COMMUTER RAIL CORRIDOR DEVELOPMENT PLAN

PRT Meeting 9.22.09

URS

Agenda

- Introductions
- Overall Project Progress
- Ridership Forecasting
- Preliminary Cost Estimate Information
- Vehicle Options and Recommendations
- Maintenance Facility Options and Recommendations
- Next Steps

Project Progress since June PRT Meeting

- Completed two rounds of ridership forecast modeling
- Completed preliminary work on cost estimates
- Assessed vehicle technology and maintenance facility options

- **Now**: Finalizing cost estimates, conducting final round of modeling, and refining operations plan

Overview of Ridership Forecasting Process

Preliminary Model Runs –

Maximum Service Tests

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Base Model Runs –

System Study Base and Interlined Scenarios

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Sensitivity Test Model Runs

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Systems Analysis and Corridor Prioritization

Peer City Comparisons: Recent Commuter Rail Systems

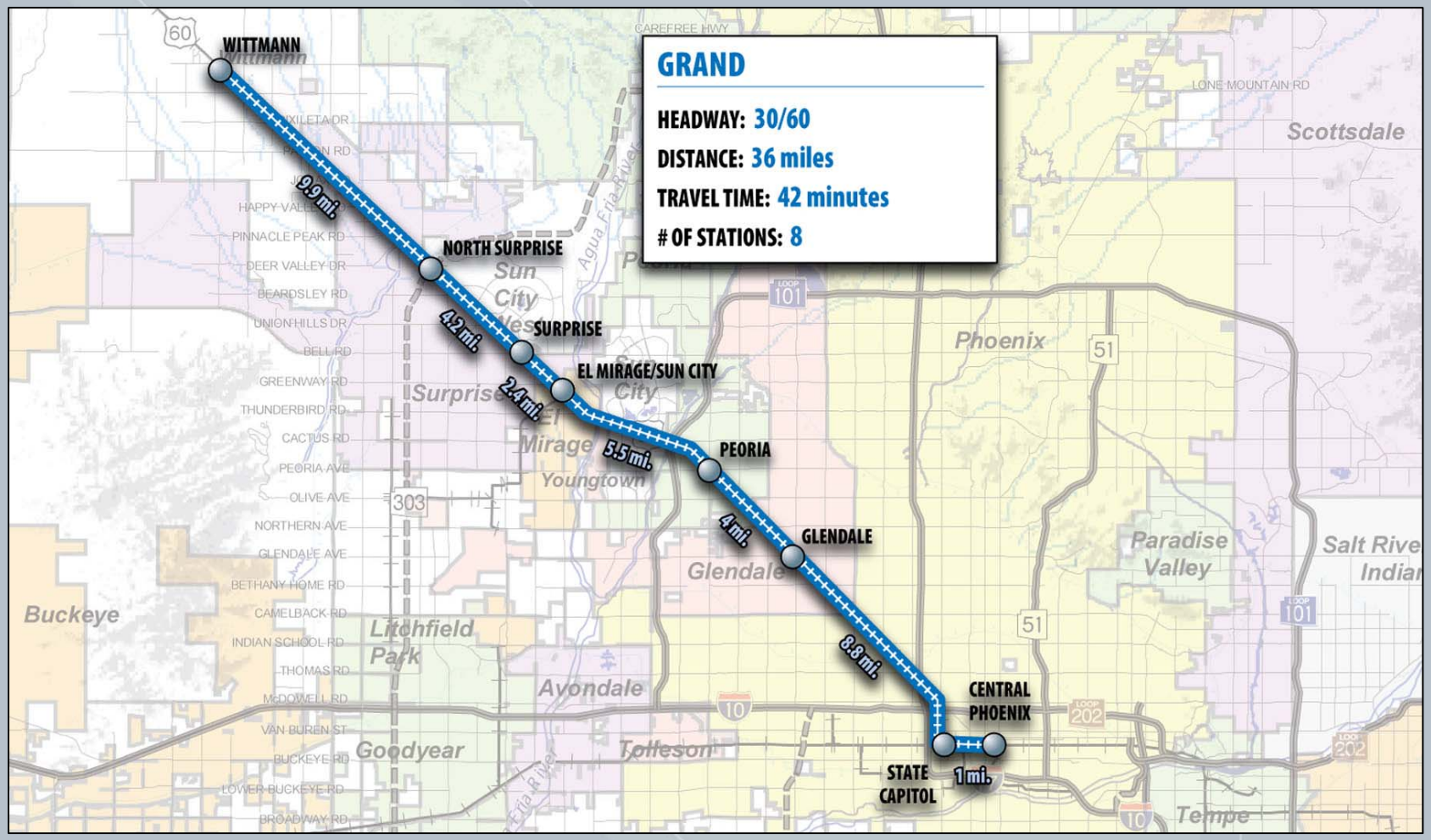
System	Start Year	Length (in miles)	Daily Ridership
Sounder (WA), Seattle to Tacoma	2000	47	11,000
Sounder (WA), Seattle to Everett	2000	35	1,500
Trinity Railway Express (TX)	1996	34	9,800
RailRunner (NM)	2006	93	4,500
Coaster (CA)	1995	41	6,000
Front Runner (UT)	2008	43	4,100
Altamont Commuter Express (CA)	1998	86	3,700

Preliminary Model Runs

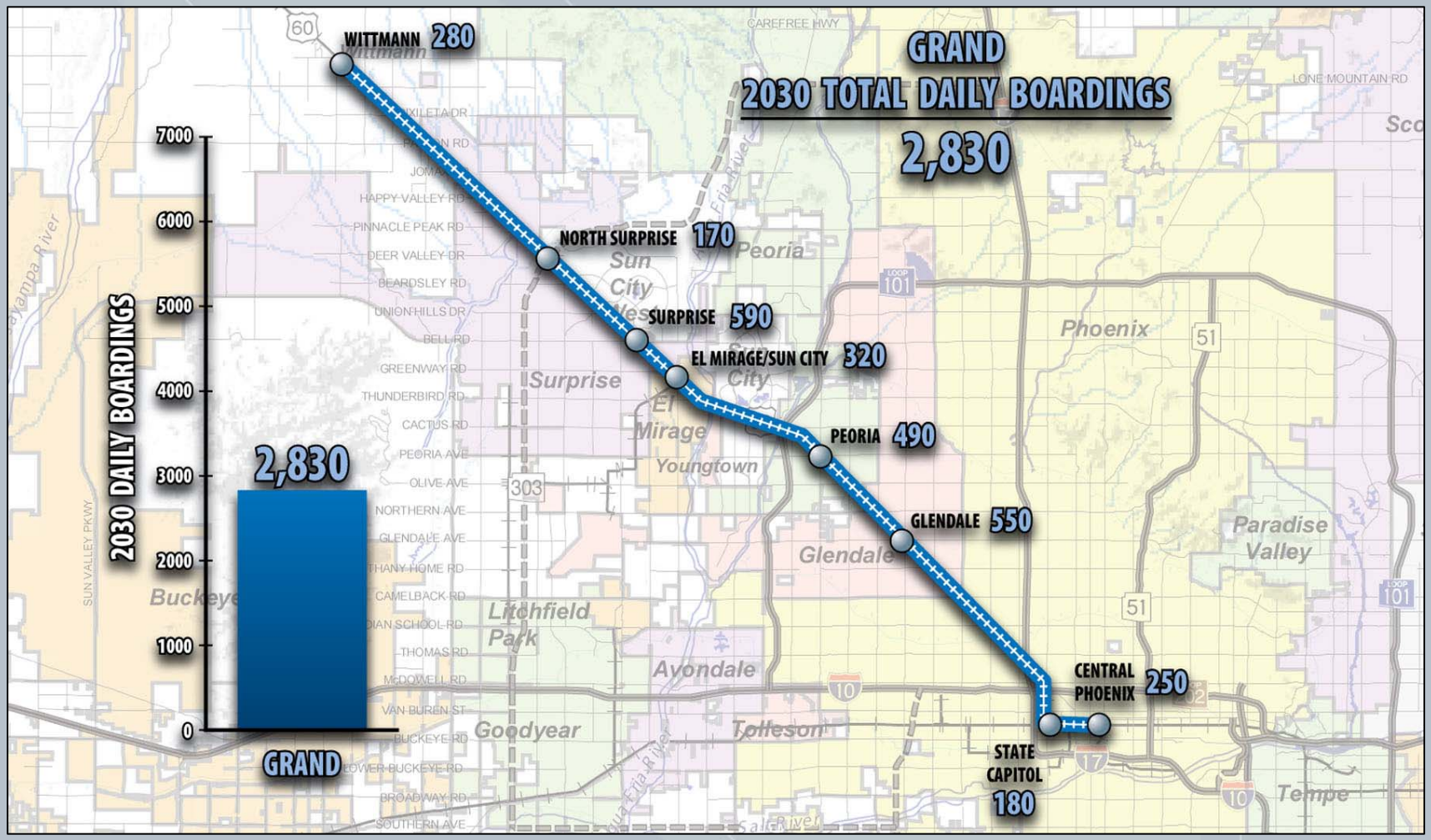
- Preliminary model results indicated:
  - West Wickenburg and Downtown Wickenburg stations were low-performing stations (fewer than 100 daily boardings).

- Results of preliminary model runs:
  - Grand Avenue Base Scenario was shortened to Wittmann.

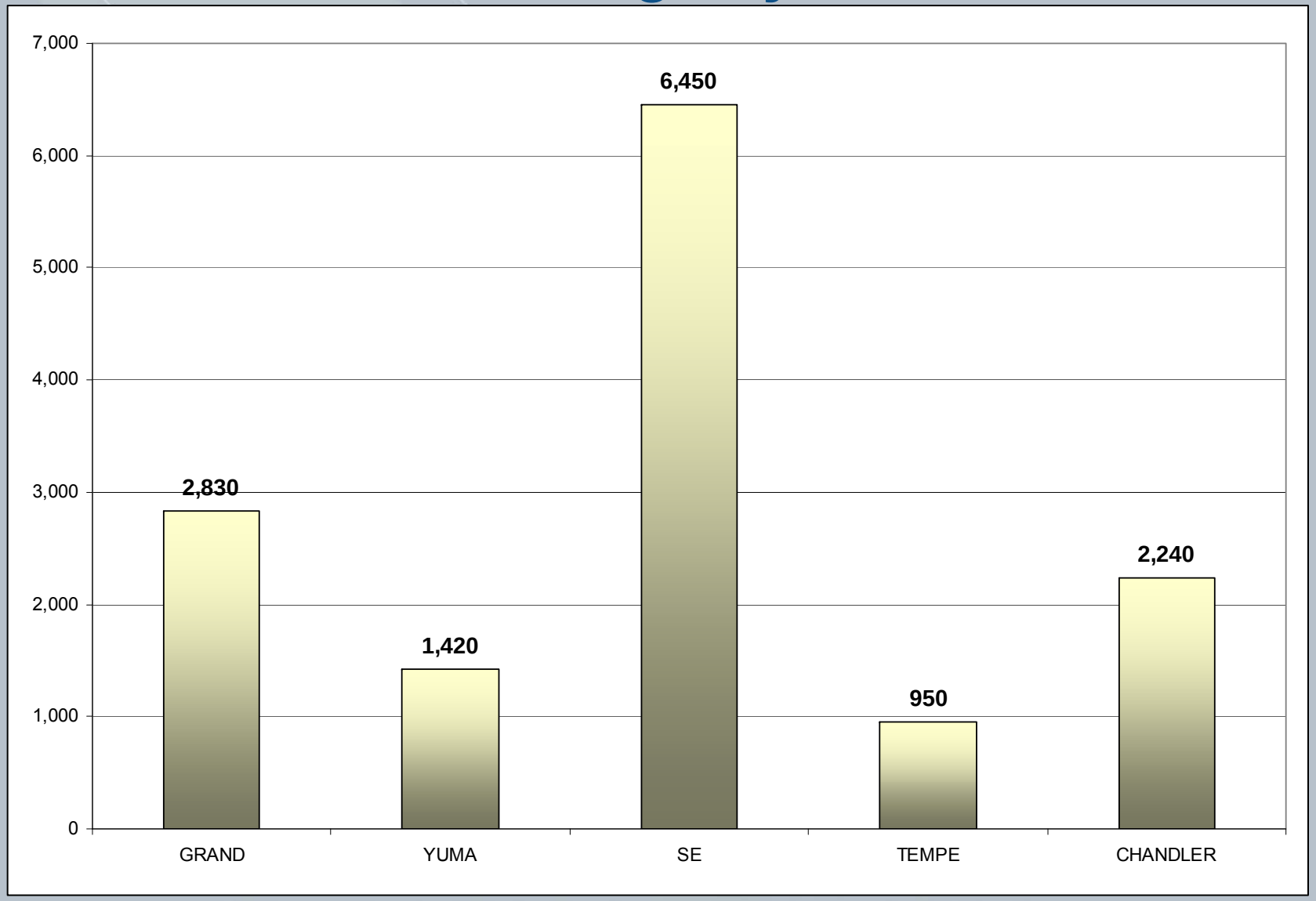
Inputs and Assumptions



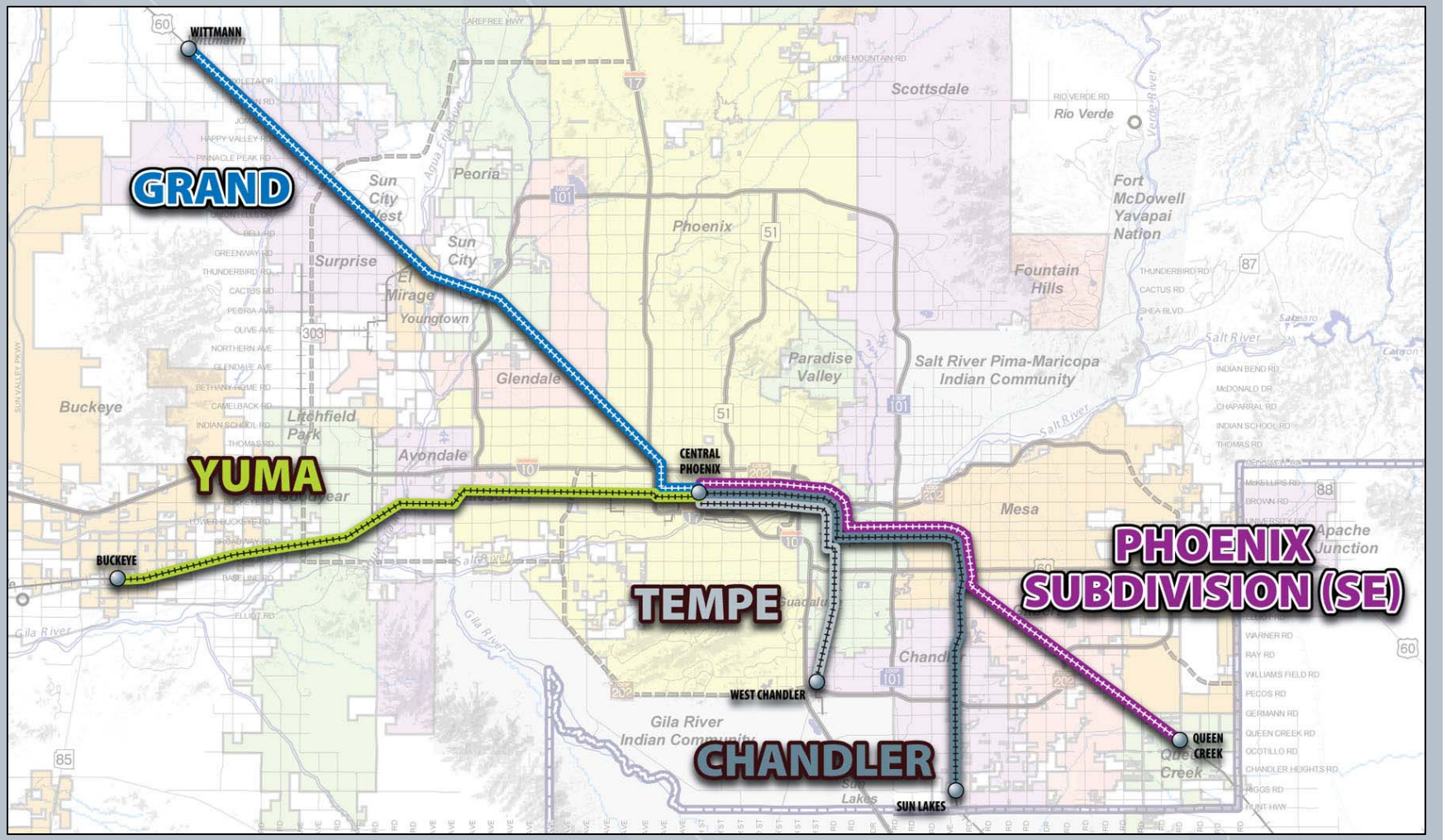
2030 Daily CRT Ridership and Station Boardings



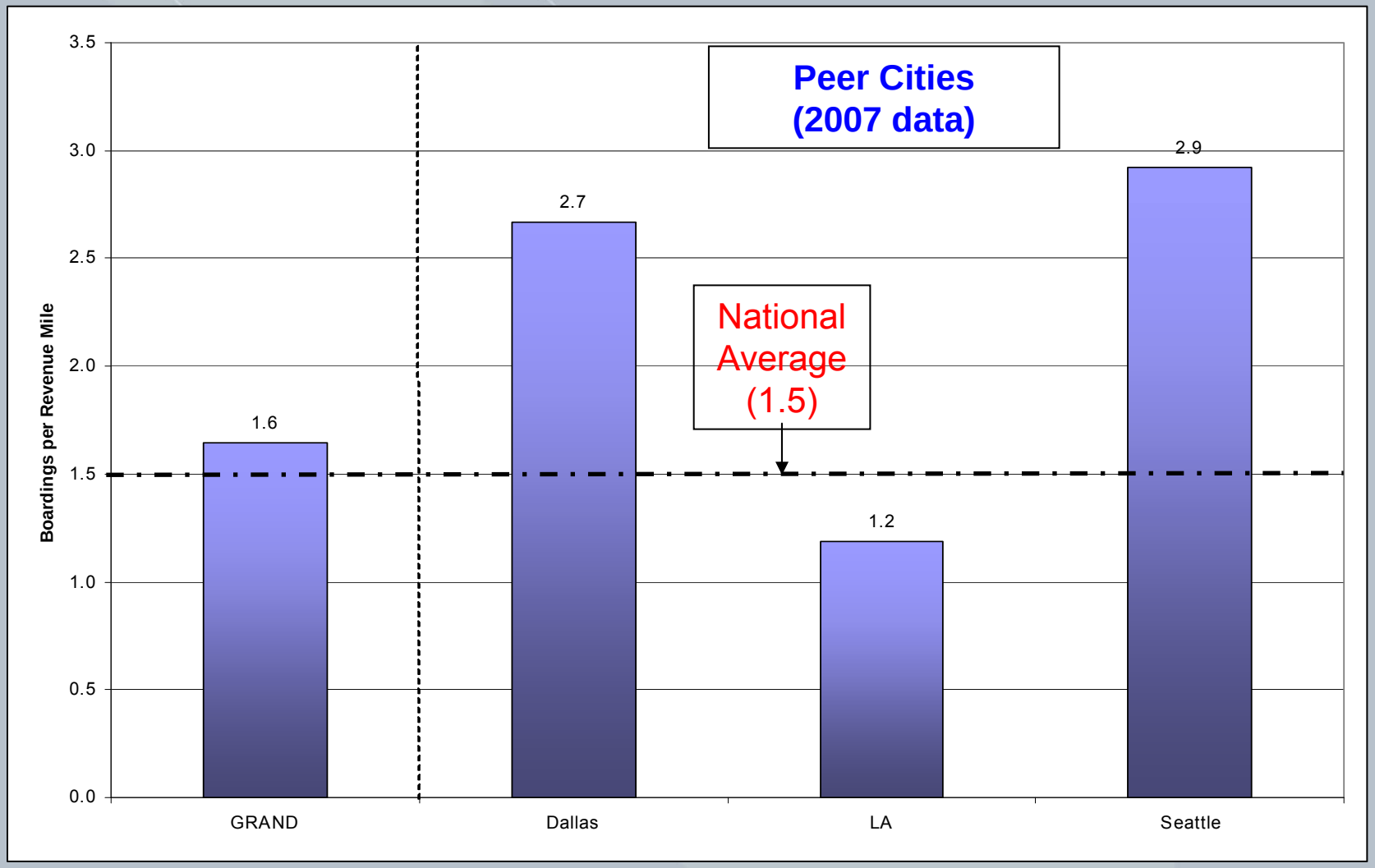
All Corridors – 2030 Daily CRT Boardings by Line



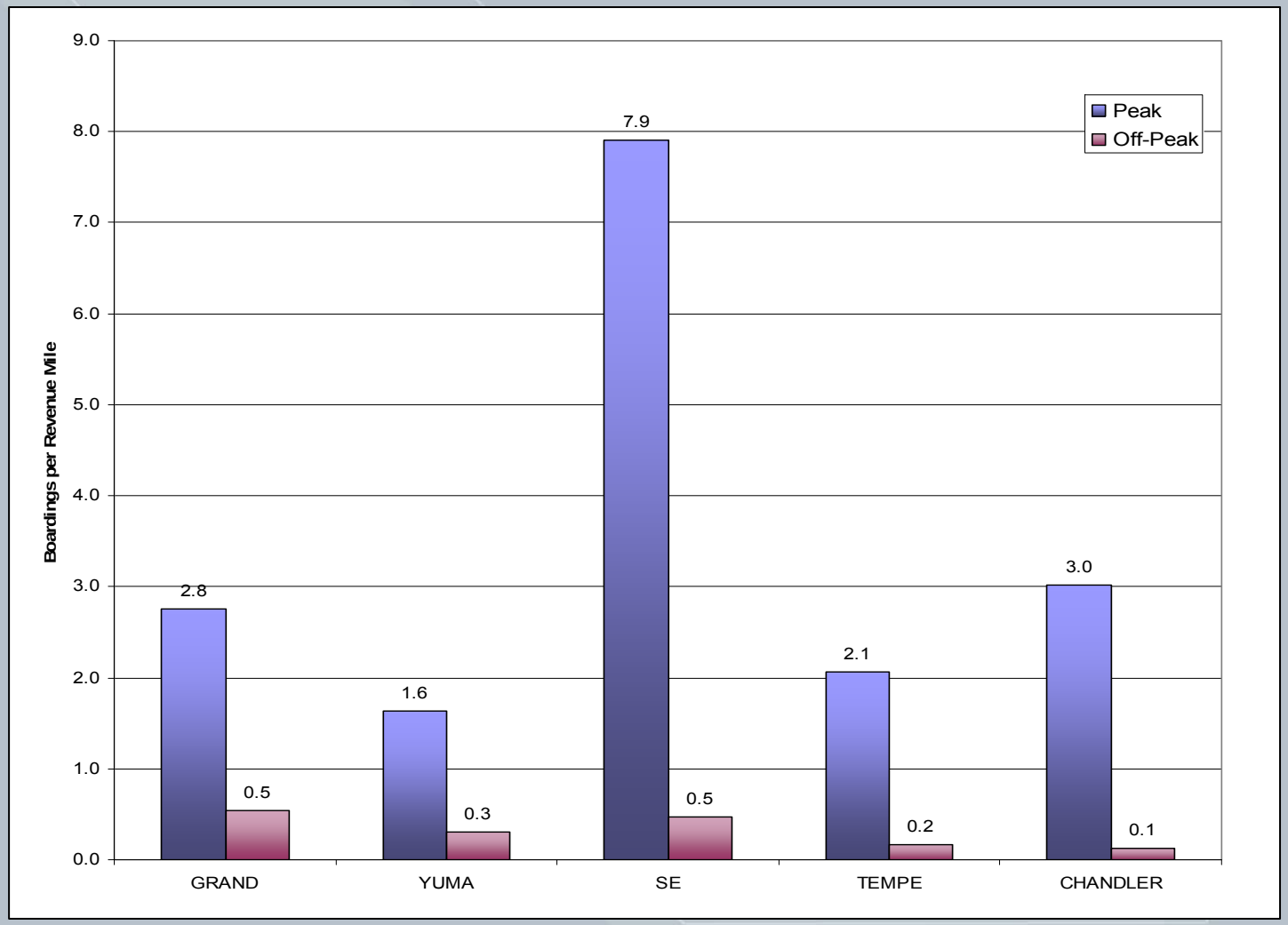
System Study Corridors



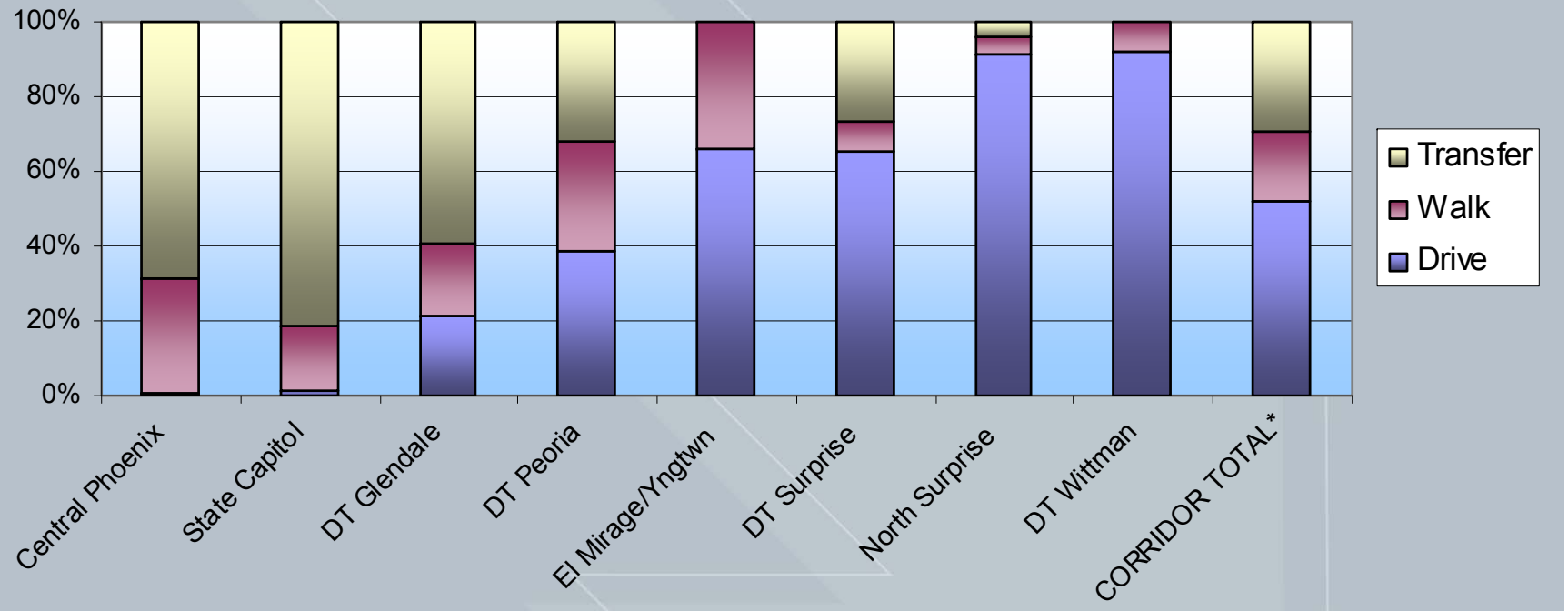
2030 Daily CRT Boardings per Revenue Mile



Peak/Off-peak Boardings per Revenue Mile



2030 CRT Peak Period Mode of Access



***Note: Corridor Total does not include Central Phoenix Station**

Base Model Run Observations

- Heavy peak use; low off-peak use
- Grand is benefiting from strong bus and LRT connections
- Overall good ridership
- Strong ridership throughout the middle of the corridor (Glendale to Downtown Surprise)
- Highest boardings at Downtown Glendale and Downtown Surprise

Grand Avenue Capital Cost Estimates

- Initial observations:
  - First mile is the hardest and most expensive – Just to initiate basic service requires substantial costs to address extensive railroad issues near downtown Phoenix
  - Adding additional service beyond start-up is significantly less expensive
  - Biggest cost items: Trackwork/railroad relocation and upgrades, vehicles, quiet zones, contingencies (using FTA standards)
  - Extra track cost from Wittmann to Wickenburg may not be cost-effective given extremely low ridership
  - Initial assessment: Grand Avenue in upper third of national average for commuter rail per-mile capital costs

Grand Avenue Capital Cost Estimates

- Next steps:
  - Continue to refine cost estimates (including refinement of contingencies)
  - Prepare cost estimates for other corridors for comparison purposes
  - Begin cost-effectiveness evaluations of this corridor and other corridors

Vehicle Technology Recommendation

- Locomotive Hauled Coaches (LHCs)
  - Powered by one diesel-electric locomotive engine.
  - Locomotive pulls train in one direction and pushes train in opposite direction. A cab car with operating controls is put on one end of the train and a locomotive at the other end.
  - 2-car to 12-car consists.
  - Seated capacity of each double-deck passenger car is approximately 140 passengers.

Vehicle Technology Recommendation

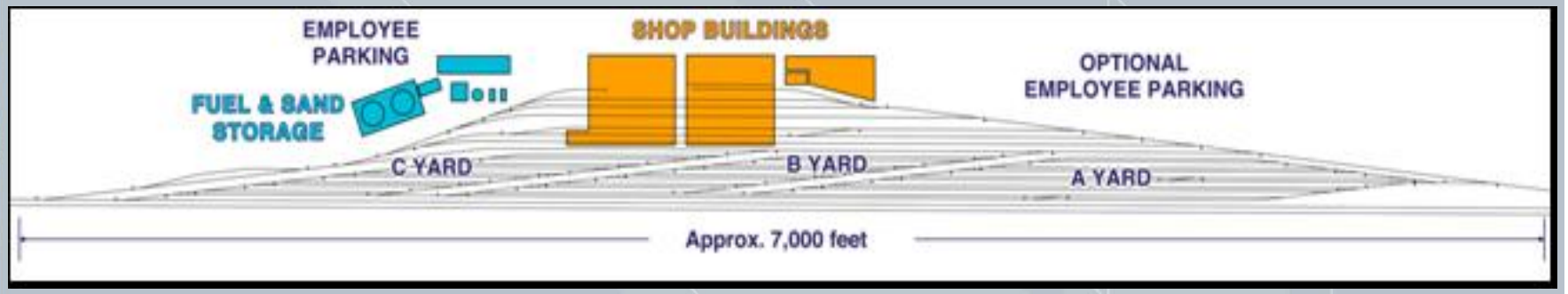
- LHC Vehicles
  - FRA-compliant - meet federal requirements for crashworthiness and can share tracks with freight trains and operate concurrently with freight traffic.
  - Used extensively in commuter rail systems across the U.S.
  - Off-the-shelf proven technology.

Vehicle Technology Recommendation

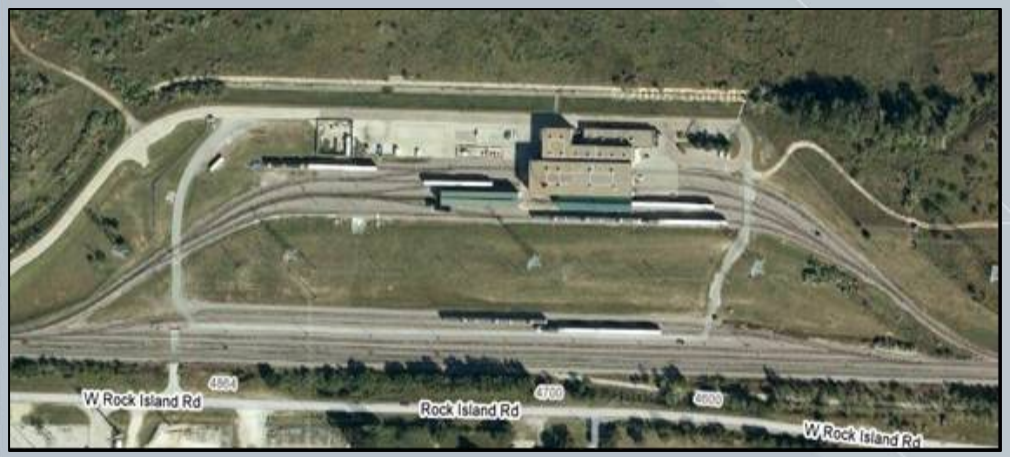
- LHC Clean Diesel Technology
  - New EPA Clean Diesel Standards.
  - Maryland Area Regional Commuter (MARC) Rail System introduced new fleets of “green” locomotives that can reduce emissions of:
    - nitrous oxide by 42%,
    - carbon monoxide by 70%;
    - and particulates, such as soot, by 67% over current fleet.
  - Use of alternative fuels is being tested in several commuter rail systems throughout the US.

Commuter Rail Maintenance Facilities (CRMFs)

Facility to repair, maintain, clean, fuel, and store commuter rail vehicles.



Typical CRMF Site Layout

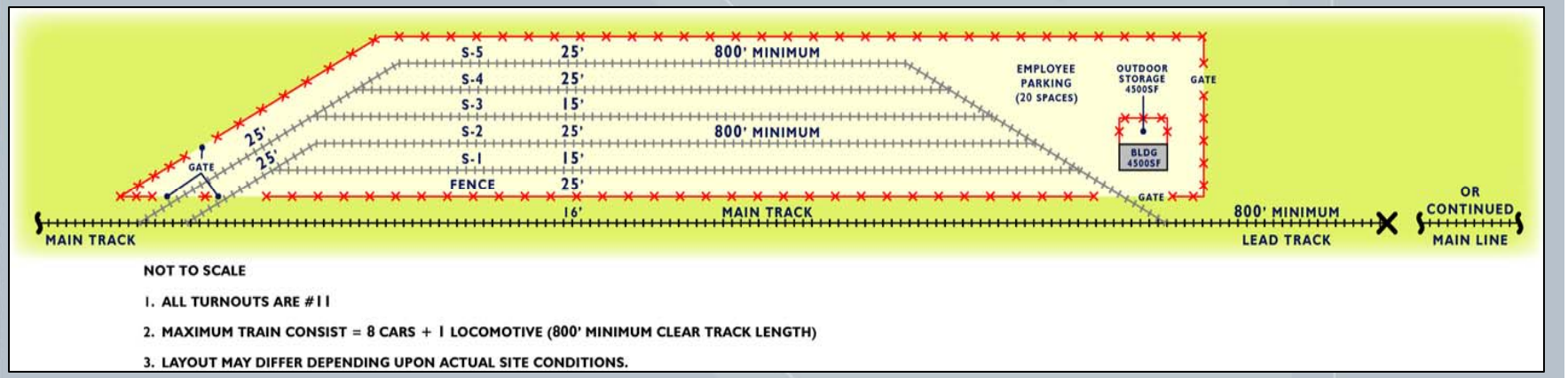


Dallas-Fort Worth TRE Equipment Maintenance Facility

Layover/Tail Track Facilities

Smaller facilities than a CRMF. Used for vehicle storage and minor vehicle cleaning and inspection.

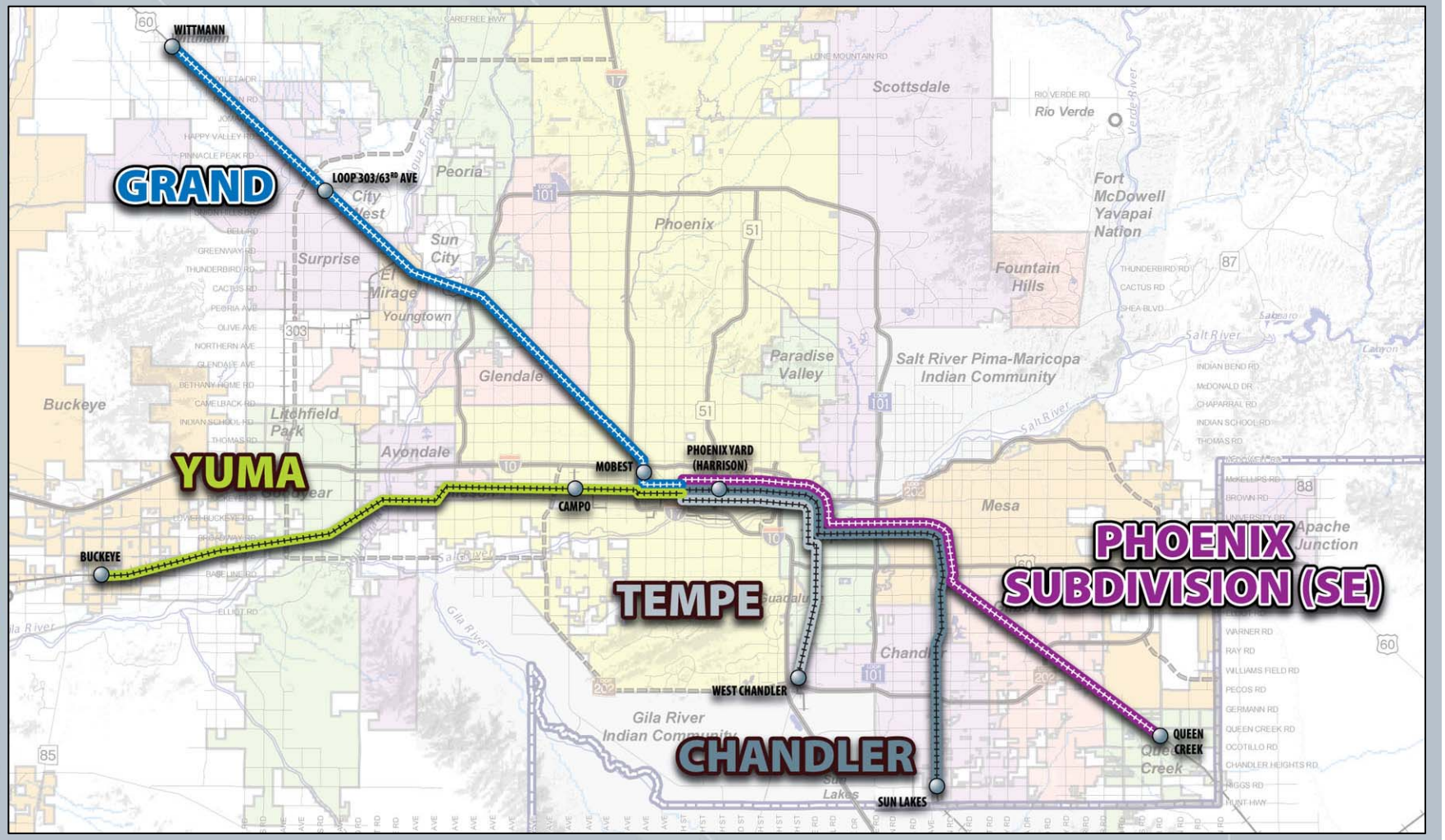
- Often 6-10 acres in size – but dependent on service line needs.
- Stores at most half the fleet of trains at end of line so they can be ready for the AM and PM start.



Criteria Used to Identify Facility Recommendations

- Consolidate and/or share space with existing facilities.
- End-of-line locations.
- Industrial zones.

Potential CRMF/Layover Facility Locations



Next Steps

- Complete next round of modeling – end of October
- Finalize costs and implementation requirements – end of October
- Prepare Corridor Development Plan – November/December
- Next PRT meeting: November 17 at 9:00 am

Thank you!

Questions/Answers