QUEEN CREEK PARK-AND-RIDE STUDY

Transit Service Concepts and Park-and-Ride Requirements

FEBRUARY 2021
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1.0 INTRODUCTION

Valley Metro, in partnership with the Town of Queen Creek (Queen Creek), is conducting Queen Creek Park-and-Ride Study. The purpose of the study is to assess the need for a park-and-ride and recommend a park-and-ride site in Queen Creek. To identify the requirements of a future park-and-ride, express bus or vanpool service concepts will be developed with considerations of the existing and future travel markets in Queen Creek and San Tan Valley.

This memo has two main sections. The first section presents several transit service concepts that originate in Queen Creek and provide service to identified employment destinations. The goal in presenting these concepts is primarily to begin understanding the required elements for the park-and-ride. A more robust service planning and transit implementation study would be needed to fully develop transit service concepts for Queen Creek.

The second section summarizes required elements of the park-and-ride. These elements will help frame the understanding of what is required in candidate park-and-ride sites.
2.0 TRANSIT SERVICE CONCEPTS

Task 2 of Queen Creek Park-and-Ride study required an assessment of express bus and vanpool service demand to Queen Creek. This task analyzed travel markets and existing transit usage to inform and develop transit service concepts that originate in Queen Creek and provide service to the identified travel markets featured in Figure 1.

FIGURE 1: KEY DESTINATIONS FOR WORK TRIPS FROM QUEEN CREEK AND SAN TAN VALLEY

Based on the findings from the demand and needs analysis several transit concepts were developed including extending existing express routes, extending local routes, and exploring new express routes. These different concepts are provided to demonstrate the varying resources and costs needed to implement the route concepts. Table 1 illustrates these high-level cost assumptions. Note, additional services can also include circulator routes (Appendix B).
### TABLE 1: HIGH-LEVEL COST ASSUMPTIONS

<table>
<thead>
<tr>
<th>Route Concept</th>
<th>Range of Existing Cost/ Route</th>
<th>Range of Additional Cost/ Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extension of Existing Express Routes</td>
<td>$322 k/year to $433 k/year</td>
<td>$114 k/year to $131 k/year 1 to 2 vehicles</td>
</tr>
<tr>
<td></td>
<td>4 to 5 vehicles</td>
<td></td>
</tr>
<tr>
<td>New Express Routes</td>
<td>N/A</td>
<td>$165 k/year to $256 k/year 4 vehicles</td>
</tr>
<tr>
<td>Extension of Local Routes</td>
<td>$1.9 M/year to $3.1 M/year 5 to 6 vehicles</td>
<td>$300 k/year to $1.6 M/year 2 to 3 vehicles</td>
</tr>
</tbody>
</table>

#### 2.1. EXTEND EXISTING EXPRESS ROUTES

This section explores extended express route concepts. Existing express routes that could be extended to provide service from Queen Creek to key employment destination are illustrated.

Route 533 currently runs from the Superstition Springs Park-and-Ride, travels northwest and ends at the State Capitol in Phoenix. The extension concept (featured in Figure 2) would continue service from Superstition Springs Park-and-Ride originating in Queen Creek. The route operates 4 trips to Phoenix in the morning and 4 trips back to the East Valley in the afternoon every weekday.

**FIGURE 2: MAP OF ROUTE 533 EXTENDED**
Route 542 currently runs from the Chandler Park-and-Ride in Chandler, travels west, and ends at the State Capitol in Phoenix. The extension concept (featured in Figure 3) would continue service from Chandler Park-and-Ride originating in Queen Creek. The route operates 4 trips to Phoenix in the morning and 4 trips back to the East Valley in the afternoon every weekday.

FIGURE 3: MAP OF ROUTE 542 EXTENDED
2.2. NEW EXPRESS ROUTES

Potential express route concepts that optimize service between identified employment districts and Queen Creek and San Tan Village were evaluated.

The districts with the highest demand were established and the new express routes were generated to analyze cost and potential demand. This section explores new express route concepts.

Express Option 1 (featured in Figure 4) begins in Queen Creek, travels northwest, ending in Downtown Tempe. The route could operate 4 trips to Tempe in the morning and 4 trips back to Queen Creek in the afternoon every weekday.

FIGURE 4: MAP OF OPTION 1 EXPRESS TO TEMPE
Express Option 2 (featured in Figure 5) begins in Queen Creek, travels northwest, ending in Downtown Mesa. The route could operate 4 trips to Mesa in the morning and 4 trips back to Queen Creek in the afternoon every weekday.

FIGURE 5: MAP OF OPTION 2 EXPRESS TO MESA (DOWNTOWN)
Express Option 3 (featured in Figure 6) begins in Queen Creek, travels north, ending at Falcon Field Airport in Mesa. The route operates 4 trips to Mesa in the morning and 4 trips back to Queen Creek in the afternoon every weekday.

**Figure 6: Map of Option 3 Express to Mesa (Falcon Field)**
Express Option 4 (featured in Figure 7) begins in Queen Creek, travels west, ending at Chandler Fashion Square mall. The route operates 4 trips to Chandler in the morning and 4 trips back to Queen Creek in the afternoon every weekday.

**FIGURE 7: MAP OF OPTION 4 EXPRESS TO CHANDLER**
2.3. EXTEND LOCAL ROUTES

For the purposes of exhausting transit concept options capable of serving Queen Creek, local route options were analyzed. Analysis of potential cost and demand indicates that extending existing local routes to serve Queen Creek and San Tan Valley would be less practical than express route options. The districts with the highest demand were identified and local route extensions were conceptualized. This section explores the extended route concepts.

Route 156 currently runs from the Phoenix-Mesa Gateway Airport in Mesa, travels west, and makes various stops along Chandler Blvd including Chandler Fashion Center and Downtown Chandler, terminating at 48th Street and Chandler Blvd. The extension concept (featured in Figure 8) would continue service from Phoenix-Mesa Gateway Airport originating in Queen Creek.

FIGURE 8: MAP OF ROUTE 156 CHANDLER BLVD EXTENDED
Route 184 currently runs from Phoenix-Mesa Gateway Airport, travels north, stops at ASU Polytechnic Campus, and Superstition Springs Center then makes various stops along Power Road and ends at Power Road Park-and-Ride in Mesa. The extension concept (featured in Figure 9) would begin in Queen Creek, extend to Phoenix-Mesa Gateway Airport and continue along the current route to the Power Road Park-and-Ride.

FIGURE 9: MAP OF ROUTE 184 POWER RD EXTENDED.
2.4. ADDITIONAL TRANSIT SERVICE CONCEPTS

In addition to express and local service concepts that originated in Queen Creek, vanpool and carpool services were evaluated as potential options to provide service to regional destinations.

Vanpool

Vanpool service has the capacity to accommodate 6 to 15 people who commute to work together in a Valley Metro van. The van is driven by one or more of the vanpool members. Riders share the cost of operating the van by paying a monthly fare. Currently there are 18 vanpools operating from Queen Creek and San Tan Valley. Assuming an assumption of eight riders per vanpool, there are approximately 140 vanpool riders from Queen Creek and San Tan Valley daily.

Carpool

Carpool service is a casual arrangement for two or more people to drive in privately owned vehicles. Valley Metro provides ride matching services for commuters to find and match carpoolers based on proximity, destination, travel route, schedules and preferences.

2.5. POTENTIAL RIDER DEMAND

The potential rider demand for these service concepts can help inform the size, number of stalls and other elements that would be required of the park-and-ride site. Table 2 summarizes potential rider demand for each of the service concepts. Generally, potential rider demand was calculated by assuming three percent of the persons making future work trips to the key employment districts would use transit.

**TABLE 2: POTENTIAL RIDER DEMAND FOR SERVICE CONCEPTS**

<table>
<thead>
<tr>
<th>Route Concept</th>
<th>Potential Daily Riders</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Express Route 533 extension to downtown Phoenix</td>
<td>12</td>
<td>3% of the 400 worker demand from QC/STV to downtown Phoenix</td>
</tr>
<tr>
<td>Express Route 542 extension to downtown Phoenix</td>
<td>12</td>
<td>3% of the 400 worker demand from QC/STV to downtown Phoenix</td>
</tr>
<tr>
<td>Option 1: Tempe Express express service to downtown Tempe</td>
<td>48</td>
<td>3% of the 1,600 worker demand from QC/STV to downtown Tempe</td>
</tr>
<tr>
<td>Option 2: Mesa Express express service to downtown Mesa</td>
<td>12</td>
<td>3% of the 400 worker demand from QC/STV to downtown Mesa</td>
</tr>
<tr>
<td>Option 3: Mesa Express (Falcon Field) express service to Falcon Field Airport</td>
<td>30</td>
<td>3% of the 1,000 worker demand from QC/STV to Falcon Field Airport</td>
</tr>
</tbody>
</table>
3.0 PARK-AND-RIDE REQUIREMENTS

Valley Metro and Queen Creek worked collaboratively to identify the park-and-ride requirements most suitable for a facility in Queen Creek. Note some requirements are based on Valley Metro’s Transit Standards and Performance Measures (Appendix A). Table 2 summarizes the required elements for candidate park-and-ride sites in Queen Creek.

<table>
<thead>
<tr>
<th>Route Concept</th>
<th>Potential Daily Riders</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 4: Chandler Express</td>
<td>138</td>
<td>3% of the 4,600 worker demand from QC/STV to Chandler</td>
</tr>
<tr>
<td>express service to Chandler Fashion Center</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Route 156</td>
<td>70</td>
<td>Based on assumption of existing Route 156 ridership</td>
</tr>
<tr>
<td>extension to Queen Creek</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Route 184</td>
<td>69</td>
<td>Based on assumption of existing Route 184 ridership</td>
</tr>
<tr>
<td>extension to Queen Creek</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vanpool</td>
<td>140</td>
<td>Based on existing vanpool utilization from QC/STV</td>
</tr>
</tbody>
</table>

### TABLE 3: PARK-AND-RIDE REQUIREMENTS

<table>
<thead>
<tr>
<th>Element</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parking Spaces</td>
<td>200-300 spaces max</td>
</tr>
<tr>
<td>Parcel Size</td>
<td>2-3 Acres (assumes 100 spaces per acre)</td>
</tr>
<tr>
<td>Shade Structures</td>
<td>Required</td>
</tr>
<tr>
<td>Security Features</td>
<td>CCTVs</td>
</tr>
<tr>
<td>Site Access</td>
<td>On arterials</td>
</tr>
<tr>
<td>Bus Stop Placement</td>
<td>Off street/ Internal</td>
</tr>
<tr>
<td>Current Parcel</td>
<td>Vacant</td>
</tr>
<tr>
<td>Multi-modal Features</td>
<td></td>
</tr>
<tr>
<td>Bicycle Parking</td>
<td>Required</td>
</tr>
<tr>
<td>Vanpool</td>
<td>Required</td>
</tr>
<tr>
<td>Drop-offs (including ride hailing apps)</td>
<td>Required</td>
</tr>
</tbody>
</table>
4.0 NEXT STEPS

Potential site locations in the catchment area (study area) will be identified and a preferred site location will be selected based on a two-tier evaluation process. Initial site locations and the evaluation criteria and methodology will be agreed upon by Valley Metro and Queen Creek based on the identified park-and-ride requirements.

Initial Site Locations

Valley Metro will identify up to ten site locations, both public and private, within the study area. Queen Creek will provide input on potential sites that are available and suitable for a park-and-ride based on the needs of the town.

Tier 1 Evaluation

Up to eight site locations will be screened in the Tier 1 Evaluation as part of the initial evaluation. The Tier 1 Evaluation criteria will include a fatal flaw analysis, and the Tier 1 Evaluation criteria will be agreed upon by Valley Metro and Queen Creek.

Tier 2 Evaluation

Up to four site locations will be advanced to Tier 2 for more detailed evaluation. Preliminary park-and-ride layouts will be developed for each site to inform this evaluation. The Tier 2 Evaluation criteria will be agreed upon by Valley Metro and Queen Creek. A preferred site location for Queen Creek Park-and-Ride will be recommended at the end of the Tier 2 Evaluation.
APPENDIX A: TRANSIT STANDARDS AND PERFORMANCE MEASURES – PARK-AND-RIDES
<table>
<thead>
<tr>
<th>Service Type</th>
<th>Publicly Owned</th>
<th>Shared-Use Facility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Urban Core</td>
<td>Outer Urban</td>
</tr>
<tr>
<td>Commuter Express</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Bus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commuter Express /</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Bus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commuter Express /</td>
<td></td>
<td></td>
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<tr>
<td>Local Bus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commuter Express</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Bus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commuter Express</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Bus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bike/Ped Facilities</td>
<td>Fully Accessible</td>
<td>Fully Accessible</td>
</tr>
<tr>
<td></td>
<td>Off-street docking, serves as end of line (Express), designated bus entry</td>
<td>Off-street docking, serves as end of line (Express), designated bus entry</td>
</tr>
<tr>
<td></td>
<td>Fully Accessible</td>
<td>Fully Accessible</td>
</tr>
<tr>
<td></td>
<td>On-street docking</td>
<td>On-street docking</td>
</tr>
<tr>
<td>Freeway Proximity</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deviation from Route</td>
<td>On alignment</td>
<td>On alignment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBD Direction of</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Travel Movement (for)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
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<tr>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>HOV Access Preferred</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Local Bus LOS</td>
<td>10-30 minutes</td>
<td>30 minutes or better</td>
</tr>
<tr>
<td>Commuter Express LOS</td>
<td>6+ AM Trips</td>
<td>4+ AM Trips</td>
</tr>
<tr>
<td>(Peak Trips)</td>
<td>6+ PM Trips</td>
<td>4+ PM Trips</td>
</tr>
<tr>
<td></td>
<td>4+ AM Trips</td>
<td>4+ PM Trips</td>
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<td>4+ AM Trips</td>
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<tr>
<td>Number of Transit</td>
<td>5+ serves light rail and / or express</td>
<td>3+ serves light rail and / or express</td>
</tr>
<tr>
<td>Connections</td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Ticket Vending</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Machines</td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kiss &amp; Ride</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

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Queen Creek Park-and-Ride Study
APPENDIX B: PROPOSED CIRCULATOR SERVICES (2014)
Community Connector (Circulator) Route Options Considered: Queen Creek Transit Study (2014)