To: Robert Forrest, METRO
From: Alec More, HDR
Date: November 13, 2012
Re: Gilbert Road Extension: Park-and-Ride Facility Size Recommendations

1. Introduction

As a component of the Gilbert Road Extension (GRE) project, Valley Metro and the City of Mesa will be developing a park-and-ride facility adjacent to the proposed Gilbert Road Station at Main Street and Gilbert Road. At the same time, a park-and-ride facility at the future Mesa Drive Station has been programmed as a component of the Central Mesa Extension (CME) project (currently under construction). The CME project is scheduled for completion in 2016, with the GRE project scheduled for completion in late 2017. The two stations are separated by a distance of approximately 2 miles.

Valley Metro and the City of Mesa determined the need for the Gilbert Road station park-and-ride facility based on strong demand of existing LRT line riders who use the Sycamore Station park-and-ride lot to access LRT at Sycamore. License plate survey's conducted periodically continue to demonstrate park-and-rider demand at the Sycamore LRT Station originate from zip codes in central and east Mesa, and the East Valley region collectively. The development of park-and-ride facilities at both the Mesa Drive and Gilbert Road stations will allow surrounding neighborhood residents and persons traveling from points east to access the LRT more proximate.

This memorandum discusses the short- and long-term parking needs within the corridor and specifically at the Mesa Drive and Gilbert Road stations. Supplementing previous memorandums detailing park-and-ride facility sizing, design, and joint development potential, this memorandum specifies the minimum number of parking stalls required for each facility to satisfy projected demand. It is important to recognize that the estimates of parking capacity recommended in this memorandum are based on travel demand forecasts, and it is therefore possible that actual parking demand may be more or less than the estimates provided herein.

2. Park-and-Ride Facility Locations Considered

According to current travel forecasts of drive access and parking demand, both the Mesa Drive and Gilbert Road stations are anticipated to attract park-and-riders from points in central and east Mesa, including drivers as far away as Apache Junction. Results of travel demand model runs already suggest that the demand for parking at stations will increase in the future as the region's light rail system extends further east beyond Gilbert Road. However, as parking supply is provided at future stations further east of existing parking facilities, it is anticipated that park-and-ride travelers will seek to connect with rail transit at the closest location approximate to their origin point. Current travel forecasts and license plate survey data suggest that as future park-and-ride facilities are implemented east of the Sycamore Station, the heavy demand for access to rail transit and parking facilities – especially from points in the East Valley region – will shift to stations that provide parking further east of the Sycamore Station.
The Mesa Drive Station park-and-ride facility will be located on the northeast corner of Main Street and Mesa Drive, adjacent to the Mesa Drive Station. Property acquisition for this facility has already begun, with construction expected to begin in 2016.

Two park-and-ride locations were considered for the proposed Gilbert Road Station, both at the intersection of Main Street and Gilbert Road. Each location is described as follows:

- North Option: On the northwest quadrant of the intersection, the North Option is comprised of 7 parcels (approximately 10.2 acres), a land area currently occupied by an existing parking lot serving a mixture of retail commercial businesses.

- South Option: On the southwest quadrant of the intersection, the South Option is comprised of 3 parcels (approximately 7.0 acres), used by a recreational vehicle sales and service business and an automobile resale dealership.

To date, the number of parking stalls needed at the proposed Gilbert Road Station has been estimated at between 500 and 700 spaces. This memorandum seeks to refine these parking space estimates.

3. Analysis Methods

This analysis was conducted using regional travel demand forecast model run results completed for the CME project in 2009 using the MAG regional travel demand model. Model year 2015 was used for this analysis as it was the closest model year available to the potential CME and GRE project opening dates. During the CME project, a series of model runs were completed to determine park-and-ride trips and parking demand within the Main Street corridor. Model runs were conducted separately for park-and-rides located at Mesa Drive and Gilbert Road, which allowed project planners to evaluate park-and-ride demand at both stations. However, each model run conducted assumed that a park-and-ride facility would be available at the Mesa Drive Station. Therefore, the question as to what the parking demand would be at the Gilbert Road Station without a Mesa Drive Station cannot be answered with available data.

4. Analysis Results

The analysis yielded the following findings:

- In 2015, park-and-ride demand at the Mesa Drive Station is anticipated to be 584 vehicles without a park-and-ride at the Gilbert Road Station.
- In 2015, park-and-ride demand at the Mesa Drive Station drops by 247 vehicles (a 42% difference) with the addition of a park-and-ride at the Gilbert Road Station. This results in an anticipated total park-and-ride demand at the Mesa Drive Station of 337 vehicles.
- Total park-and-ride demand at the Gilbert Road Station is anticipated to be 556 vehicles in 2015.
- In 2015, the total corridor park-and-ride vehicle demand is approximately 1,000 (between the Sycamore and Mesa Drive stations), and 1,350 (between the Sycamore and Gilbert Road stations). The data suggest there is demand for parking between Mesa Drive and Sycamore however these riders could be accommodated at the Sycamore Station park-and-ride facility as total estimated demand at Sycamore with these additional riders would be approximately 450 vehicles.
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- Between 2015 and 2031, park-and-ride demand in the corridor is expected to increase by 60%, from 1,350 vehicles to 2,150 vehicles. Park-and-ride demand at the Gilbert Road Station is anticipated to increase by 87%, and park-and-ride demand at the Mesa Drive Station is estimated to increase by 56%, assuming the Gilbert Road Station is the end-of-line station.

Estimates of parking demand and park-and-ride trips derived from the regional travel demand model did not determine the number parking spaces required for each lot. The estimates provided are for total vehicles. The number of parking spaces required should be less than total estimated vehicle demand to account for shared parking or parking space turn over in a 24-hour timeframe.

To identify the number of parking spaces necessary at each facility planned, a parking factor was developed based on the estimated number of vehicle trips made to each station. Because the travel demand model outputs represent the total number of vehicles, this does not equate to the number of spaces that may or may not be necessary. Typically, the travel demand model assumes one person in each vehicle; however, there may be multiple persons in one vehicle that are all considered park-and-riders. A vehicle occupancy factor was applied to account for both single occupant and multi-occupant vehicles.

Additionally, vehicle turnover should also be accounted for. According to current Valley Metro statistics and travel survey information, a 25% turnover rate was assumed for both park-and-ride facilities. This turnover rate is based on the observed rate of turnover at existing park-and-rides and the travel patterns and trip characteristics of current LRT riders. Specifically, a relatively low proportion of trips currently made are for commuting purposes during normal weekday hours. According to current Valley Metro and MAG regional travel survey information, a significant number of rail transit trips that involve parking-and-riding are for entertainment purposes or traveling to school. A strong proportion of East Valley residents use light rail to access Arizona State University, or to attend concerts, sporting events, or local festivals in Tempe and central Phoenix. As a result, the short-term duration of these trips leads to a more frequent rate of turnover at park-and-ride facilities.

Applying Valley Metro’s current parking factors for a variety of trip-making purposes, the total number of vehicle trips made to both the Mesa Drive and Gilbert Road stations in 2015 was divided by a shared parking factor of 1.25 to determine the approximate number of spaces needed. The estimated number of parking spaces was rounded to the nearest hundred spaces. For the Mesa Drive station, this equates to approximately 500 spaces in 2015 without a park-and-ride at Gilbert Road. However, assuming that parking demand shifts to the Gilbert Road Station park-and-ride (once operational), applying this same factor to the new demand estimated at the Mesa Drive Station suggests that approximately 300 spaces are necessary in 2015 at the Mesa Drive Station. With the parking demand projected to increases at the Gilbert Road Station, it is anticipated that 500 spaces at the Gilbert Road Station are necessary in 2015.

Recognizing that parking demand at each station is anticipated to increase by 2031 (56% at Mesa Drive and 87% at Gilbert Road), the project team sought to estimate planning horizon year parking supply needs for 2031. It was assumed that both stations would be open and operational in 2031. Applying the parking demand growth percentages to the total number of vehicles in 2015, it is estimated that 525 vehicles would seek parking at the Mesa Drive park-and-ride. Dividing this number by the shared parking factor of 1.25, it is estimated that 425 spaces would be necessary at Mesa Drive Station. Comparatively, a growth in parking demand at Gilbert Road of 87% above the
current forecast of 556 vehicles suggests that over 1,000 vehicles would seek parking at the Gilbert Road Station. Applying the shared parking ratio of 1.25 suggest that approximately 850 spaces would be necessary at the Gilbert Road Station in year 2031.

Table 1 displays the results of the parking space requirement analysis conducted and outlined in this memorandum.

<table>
<thead>
<tr>
<th>Station</th>
<th>Estimated Parking Spaces (2015)</th>
<th>Estimated Parking Spaces (2031)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mesa Drive (w/out Gilbert Road)</td>
<td>500</td>
<td>N/A</td>
</tr>
<tr>
<td>Mesa Drive (w/Gilbert Road)</td>
<td>300</td>
<td>425</td>
</tr>
<tr>
<td>Gilbert Road</td>
<td>500</td>
<td>850</td>
</tr>
</tbody>
</table>

Source: HDR, Inc. 2012

*The estimate of parking spaces in 2031 assumes both the Mesa Drive and Gilbert Road stations are operational and include parking capacity.
N/A – Not Applicable

5. Recommendations

Based upon anticipated park-and-ride utilization, the findings of this analysis suggest that a park-and-ride facility at Mesa Drive should be sized to accommodate 300 vehicles in year 2015. Comparatively, a park-and-ride facility at Gilbert Road should be sized to accommodate 500 vehicles in year 2015. However, assuming that parking demand will increase at both stations by 2031 (56% for Mesa Drive and 87% for Gilbert Road), it is assumed that the Mesa Drive park-and-ride should be sized to accommodate up to 425 vehicles, while the Gilbert Road park-and-ride be capable of serving up to 850 vehicles. It is important to note that the 850 parking spaces required at the Gilbert Road Station park-and-ride by 2031 assumes that the Gilbert Road Station is the end-of-line station for LRT, without extensions further east. If LRT is extended further east by 2031, and future stations include parking, then park-and-ride demand at the Gilbert Road Station will decrease accordingly.

It is important to remember that these estimates of facility size are based on travel demand forecasts that are also predicated on a number of planning assumptions. Increases in transit service frequencies, population and/or employment densities, or other changes to corridor characteristics that could affect transit ridership or the demand for trips to the east side of downtown Mesa will undoubtedly influence parking demand.

Since the Mesa Drive Station will be a temporary end-of-line station until the Gilbert Road Extension project is completed (approximately 1 year), parking demand at Mesa Drive could be satisfied through the negotiation of a temporary shared use agreement.