Gateway Cities
Park-and-Ride Assessment
Final Draft

Date: September 27, 2013

Prepared for: Gateway Cities Council of Governments
Los Angeles County Metropolitan Transportation Authority

Prepared by: CAMBRIDGE SYSTEMATICS
445 S. Figueroa Street, Suite 2700
Los Angeles, CA 90071
# Table of Contents

Executive Summary .................................................................................................. ES-1
   Results .................................................................................................................. ES-3
   Summary ............................................................................................................. ES-5

1.0 Purpose and Approach ....................................................................................... 1-1
   1.1 Parking Capacity.......................................................................................... 1-2
   1.2 Parking Demand......................................................................................... 1-2
   1.3 Automobile VMT Reduction ...................................................................... 1-3

2.0 Content .................................................................................................................. 2-1
   2.1 Existing Park-and-Ride Lots ..................................................................... 2-1
   2.2 New Lots and Planned Expansions ......................................................... 2-3
   2.3 The Park-and-Ride Database .................................................................... 2-5

3.0 Data Sources ........................................................................................................ 3-1

4.0 Database Summary ............................................................................................. 4-1

5.0 Findings ................................................................................................................ 5-1
   5.1 Existing Conditions .................................................................................... 5-1
   5.2 Year 2035 No Build .................................................................................. 5-2
   5.3 Year 2035 Build ........................................................................................ 5-3
   5.4 Year 2035 Unconstrained ......................................................................... 5-5
   5.5 Summary ...................................................................................................... 5-5

A. Park-and-Ride Database ...................................................................................... A-1
   A.1 Lot Description........................................................................................... A-1
   A.2 Existing Facilities ....................................................................................... A-1
   A.3 Unconstrained Parking Demand ............................................................ A-1
   A.4 2035 No Build and 2035 Build ............................................................. A-2

B. Station-Specific Parking Utilization and VMT Reduction Charts ........... B-1
List of Tables

Table ES.1  2035 Build Park-and-Ride Lots Over or Near Capacity .......... ES-3
Table 1.1  Automobile VMT Reduction Assumptions...........................................1-3
Table 3.1  Prior Studies Used to Develop the Park-and-Ride Assessment.....3-1
Table 3.2  Agencies Contacted to Confirm Park-and-Ride Information........3-2
Table 4.1  Park-and-Ride Facilities Overview (2013 Average Weekday) ......4-3
Table 5.1  Existing Park-and-Ride Lots and Capacity Constraints..............5-2
Table 5.2  2035 No Build Park-and-Ride Lots Near or Over Capacity ........5-3
Table 5.3  2035 Build Park-and-Rides Over and Nearing Capacity............5-4
Table A.1  Park-and-Ride Database ..............................................................A-3
List of Figures

Figure ES.1  Existing Park-and-Ride Lots .......................................................... 2
Figure ES.2  Annual Automobile VMT Reduction in 2035 Scenarios due to Gateway Cities Park-and-Ride Lots (High Transit) .................. 5
Figure 2.1  Existing Park-and-Ride Lots ......................................................... 2-2
Figure 2.2  Planned Park-and-Ride Projects and Expansions ....................... 2-4
Figure 5.1  Annual VMT Reduction in 2035 Scenarios (High Transit) .......... 5-5
Figure B.1  2035 No Build Parking Utilization ............................................. B-2
Figure B.2  2035 Build Parking Utilization ...................................................... B-3
Figure B.3  2035 No Build Average Weekday Auto VMT Reduced ............ B-4
Figure B.4  2035 Build Average Weekday Auto VMT Reduced ................. B-5
Executive Summary

The Gateway Cities Park-and-Ride Assessment provides an inventory of existing and planned park-and-ride lots, forecasts of future lot capacity impacts, and forecasts of the impact of proposed lot expansions on regional automobile travel.

There are currently 18 existing park-and-ride lots located in or directly adjacent to the Gateway Cities (See Figure ES.1). The report addresses these and five planned improvements to regional park-and-ride lots (operator in parentheses):

- A new Cal State Long Beach Transit Center lot (City of Long Beach);
- A new Third Street and South La Verne Avenue lot (Los Angeles County);
- Expansion of the Lakewood Boulevard Metro Station lot (Metro);
- Expansion of the Norwalk Metro Station lot (Metro); and
- Expansion of the Willow Metro Station lot (Metro).

These expansions will add at least 1,387 spaces to total capacity in the Gateway Cities.

The assessment offers planning-level forecasts of parking demand, capacity, and utilization at existing and proposed park-and-ride lots. The forecasts are based on readily available information, and on transit ridership forecasts developed in the Gateway Cities Transit Assessment, a separate report also prepared as part of the Gateway Cities Strategic Transportation Plan.

We analyzed three future park-and-ride lot scenarios to understand the interplay between park-and-ride improvements, demand, capacity and automobile vehicle miles traveled (VMT):

1. **2035 No Build.** A future scenario under which no improvements are made to park-and-ride lots in the Gateway Cities;

2. **2035 Build.** A future scenario under which all planned and proposed park-and-ride improvements in the Gateway Cities are constructed but parking at park-and-ride lots is constrained by planned vehicle capacity; and

3. **2035 Unconstrained.** A future scenario under which all planned and proposed park-and-ride improvements in the Gateway Cities are constructed and parking demand can be accommodated at park-and-ride lots regardless of planned vehicle capacity.
Figure ES.1 Existing Park-and-Ride Lots
We forecasted year 2035 parking demand as the product of current parking demand and projected transit ridership growth for routes connecting to each park-and-ride lot. Year 2035 transit ridership increases are based on planning-level forecasts developed in the Gateway Cities Transit Assessment using its own 2035 No Build and 2035 Build transit scenarios, which we refer to as “low transit” and “high transit,” respectively. We contacted Metro, Metrolink, and city staff to verify existing and planned park-and-ride data.

RESULTS

Parking Capacity and Utilization

Table ES.1 presents the park-and-ride lots that are over or nearing capacity by 2035 Build conditions. The table details the transit connections to each of the park-and-ride lots, the number of parking stalls, the forecasted utilization rate based on parking demand, and the additional potential daily automobile VMT reduction if the parking demand in excess of 100 percent utilization can be accommodated.

Table ES.1 2035 Build Park-and-Ride Lots Over or Near Capacity

<table>
<thead>
<tr>
<th>Lot Name</th>
<th>Transit Connections</th>
<th>Parking Stalls</th>
<th>Utilization Rate (Low-High)</th>
<th>Additional Potential Daily VMT Reduction (Low-High)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Over capacity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Del Amo</td>
<td>Metro Blue Line, Bus 202</td>
<td>367</td>
<td>103-108%</td>
<td>334-797</td>
</tr>
<tr>
<td>Florence</td>
<td>Metro Blue Line, Buses 1021,110, 611,111/311</td>
<td>115</td>
<td>105-109%</td>
<td>139-285</td>
</tr>
<tr>
<td>Montebello/Commerce</td>
<td>Metrolink Riverside, Buses 18, 66</td>
<td>255</td>
<td>102-232%</td>
<td>107-9,032</td>
</tr>
<tr>
<td>Norwalk</td>
<td>Metro Green Line, Buses 115, 125, 270, 460, 111/311</td>
<td>2,050</td>
<td>118-123%</td>
<td>9,724-12,664</td>
</tr>
<tr>
<td>Norwalk/Santa Fe Springs</td>
<td>Metrolink 91, Metro Orange Line</td>
<td>844</td>
<td>79-180%</td>
<td>0-18,117</td>
</tr>
<tr>
<td>Wardlow</td>
<td>Metro Blue Line</td>
<td>115</td>
<td>100-105%</td>
<td>3-143</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>10,308-41,037</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Nearing Capacity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Artesia</td>
<td>Metro Blue Line, 60, 130, 205, 260, 762</td>
<td>287</td>
<td>91%-98%</td>
<td></td>
</tr>
</tbody>
</table>

Source: Metro Parking Utilization and Site Assessment: Metro Rail, Orange Line, and Silver Line Stations, 2012; Gateway Cities Transit Assessment, 2013; other project-specific sources.

Our analysis shows that by 2035, six of the 20 regional park-and-ride lots may have utilization rates in excess of 100 percent by the year 2035. These lots
represent the highest priority locations to evaluate and plan for greater capacity. Only the Norwalk/Santa Fe Springs lot has plans to expand at the time of this assessment. The Artesia park-and-ride lot approaches capacity by 2035, indicating another potential area for expansion.

**Automobile VMT Reduction**

In the Gateway Cities, park-and-ride lots are located primarily at Metro light rail and Metrolink commuter rail stations. Drivers in Los Angeles County experience significantly longer average commute distances (18 miles) and greater freeway congestion compared to the national average. As a result, vehicles that use Gateway Cities park-and-ride lot can have a greater impact on reducing area auto travel compared to other regions.

While park-and-ride lots do not reduce automobile trips, they do reduce automobile vehicle miles traveled (VMT) and resulting vehicle congestion, because every vehicle parked at a park-and-ride lot represents a driving trip that would otherwise travel the full commute distance on Gateway Cities roadways.

Figure ES.2 summarizes VMT reduction for the three parking scenarios using high ridership demand forecasts. Key results include:

- Under existing conditions, park-and-ride lots reduce annual auto VMT by 46.1 million miles in the Gateway Cities;
- Under 2035 No Build conditions, increased demand at park-and-ride lots due to forecasted socioeconomic growth is projected to reduce auto VMT by an additional 3.4 million, to 49.5 million miles of travel annually;
- Under 2035 Build conditions, increased demand at park-and-ride lots due to socioeconomic growth and transit expansion is projected to reduce auto VMT by an additional 3.0 million, to 52.5 million annual miles of travel; and
- Accommodating all forecasted demand at park-and-ride lots would reduce an auto VMT by an additional 12.3 million, resulting in a total 64.8 million annual automobile VMT reduced due to park-and-ride lot access.
SUMMARY

Park-and-ride lots provide an attractive alternative to many commuters who wish to avoid traffic congestion but do not live adjacent to a convenient transit access point. The combination of planned transit expansions and forecasted traffic growth on the Gateway Cities’ already congested roadways will likely make transit a more attractive commute option to those who would otherwise use freeways or arterial highways to travel to and from work during the week.

Based on extrapolation of past trends and existing conditions, we estimate six of the 20 park-and-ride lots within the Gateway Cities will be over capacity by 2035. These lots represent potential targets for expansion. In addition, proposed light rail enhancements such as the Gold Line extension and ECO Rapid Transit may represent additional opportunities for future park-and-ride lot projects.

Our analysis indicates that park-and-ride lots currently help reduce about 46.1 million annual automobile VMT in the Gateway Cities. Given anticipated growth in regional transit demand, this figure could approach 64.8 million by 2035 if all parking demand is met, an increase of about 41 percent. To put this in regional perspective, these reductions amount to about a half-percent of existing annual VMT within the Gateway Cities, which has been estimated at upwards of 11 billion.
Note that while increased demand for park-and-ride lots will contribute to congestion reduction on area freeways and highways, individual park-and-ride lot areas may experience higher levels of localized congestion. Such impacts may be successfully mitigated through targeted station area planning efforts.

**Opportunities for Further Study**

This assessment illustrates potential park-and-ride lot demand and capacity issues using a planning-level approach and readily available data, with the expectation that further study is needed to refine and prioritize new investments. Such studies may include:

- **Multi-resolution modeling.** As part of the Gateway Cities Strategic Transportation Plan, Metro and the Gateway Cities Council of Governments are overseeing the development of a new state-of-the-art multi-resolution model to evaluate local transportation conditions and improvements in the subregion. Once operational, the model will allow more rigorous analysis of the interplay between transit and other travel modes, including demand for park-and-ride services. This analysis could offer more insights into the types of auto trips impacted by park-and-ride lots, for instance, which trips are removed from freeways or arterial highways, and impacts on regional congestion. Note that the data generated by more rigorous methods is likely to differ, in some cases significantly, from figures generated in this planning-level analysis.

- **Station area planning and design.** Efficient expansion of park-and-ride lots requires a detailed understanding of the station site, surrounding areas, and residents’ methods of access. Local communities and transit agencies should coordinate in the analysis of individual lots in order to prioritize planned park-and-ride enhancements and expansions. This includes identifying site-specific needs and solutions for meeting parking demand, ensuring efficient local traffic circulation, mitigating conflicts between access modes, and prioritizing user safety and security.
1.0 Purpose and Approach

Park-and-ride facilities in the Gateway Cities are operated by Metro, Metrolink, Caltrans and municipal governments. This report provides an inventory of the 18 existing park-and-ride facilities and two proposed facilities in or near the Gateway Cities. The Park-and-Ride Assessment has two main purposes:

1. Develop a comprehensive inventory of existing and planned park-and-ride facilities in the Gateway Cities; and

2. Understand the relationship between forecasted transit demand and existing and planned park-and-ride facilities, including potential areas for improvement and impacts on regional automobile travel.

Our analysis presents planning-level forecasts of parking demand, capacity, and utilization at existing and proposed park-and-ride lots, as well as estimates of impacts on regional automobile vehicle miles traveled (VMT). A three-step approach was used to gather all necessary data and factors underlying the analysis:

1. Gather information from existing documents and data sources, including planning-level forecasts of transit ridership from the Gateway Cities Transit Assessment;

2. Interview staff at Los Angeles County Metropolitan Transportation Authority (Metro), Metrolink, other transit agencies, and municipalities responsible for park-and-ride facilities; and

3. Estimate remaining information as needed using trends and widely-accepted analysis factors.

The analysis considered three future park-and-ride scenarios:

1. 2035 No Build – A future scenario under which socioeconomic growth occurs but no improvements are made to park-and-ride lots in the Gateway Cities;

2. 2035 Build – A future scenario under which all planned and proposed park-and-ride improvements in the Gateway Cities are constructed; and

3. 2035 Unconstrained – A future scenario under which all parking demand can be accommodated at park-and-ride lots, regardless of existing or planned vehicle capacity.

The following sections describe the methodology and key data sources used in the analysis.
1.1 PARKING CAPACITY

We collected existing parking demand estimates primarily from the 2012 Metro report *Metro Parking Utilization and Site Assessment: Metro Rail, Orange Line, and Silver Line Stations*, supplemented by interviews with Metrolink staff (for more information, see Section 3.0 Data Sources).

For each scenario we identified park-and-ride lots that were near capacity (90 – 100 percent utilization) or over capacity (over 100 percent utilization).

1.2 PARKING DEMAND

We collected existing parking demand estimates primarily from the 2012 Metro report *Metro Parking Utilization and Site Assessment: Metro Rail, Orange Line, and Silver Line Stations*, supplemented by interviews with Metrolink staff.1

We forecasted year 2035 parking demand as the product of current parking demand and projected transit ridership growth for routes connecting to each park-and-ride lot. The year 2035 transit ridership increases are based on planning-level forecasts developed in the *Gateway Cities Transit Assessment* using its 2035 No Build and 2035 Build transit scenarios. For the purposes of this report, the transit scenario ridership forecasts are referred to as “low transit” and “high transit,” respectively, to provide a range of potential demand.

The Transit Assessment accounts for planned improvements to regional and local transit service. Most notably, the Transit Assessment includes changes expected due to the implementation of the California High Speed Rail (HSR), Phase 1 Blended scenario2. While plans do not include an HSR station in the Gateway Cities, they do account for increased Metrolink service providing transit connections to HSR stations near the Gateway Cities. To reflect blended HSR service in this report, we assumed Metrolink ridership would increase a rate consistent with that of interregional transit services.

Based on the Transit Assessment low transit scenario, we assume that the average park-and-ride lot will serve:

- 40 percent more users in 2035 than today if served by Metrolink rail service;
- 10 percent more if served by a Metro rail line (Blue, Green, or Gold); and
- 10 percent more if served by any other bus services.

---

1 In the absence of data on the Taylor Ranch lot (City of Montebello), we assumed an average weekday utilization rate of 75 percent (30 of 40 spaces occupied).

2 Based on service descriptions in the California High Speed Rail Authority 2012 Revised Business Plan, and the 2013 California State Rail Plan.
Based on the Transit Assessment high transit scenario, we assume that the average park-and-ride lot will serve:

- 220 percent more users in 2035 than today if served by Metrolink;
- 15 percent more if served by a Metro rail line;
- 18 percent if served by the proposed Atlantic Bus Rapid Transit route; and
- 10 percent if served by any other bus service.

Where multiple transit types connect to the lot (e.g., light rail and bus services), we assumed the highest service-specific ridership increase would affect parking demand, rather than cumulative increases by mode.

**1.3 AUTOMOBILE VMT REDUCTION**

While park-and-ride lots do not reduce automobile trips, they do reduce automobile vehicle miles traveled (VMT) and resulting vehicle congestion, because every vehicle parked at a park-and-ride lot represents a driving trip that would otherwise travel the full commute distance on Gateway Cities roadways. To forecast park-and-ride lot expansion effects on automobile travel, we begin by estimating average commute trip lengths, then subtract the estimated distance traveled by transit for each parked vehicle. Table 1.1 presents the assumptions and data sources used to calculate automobile VMT reduction. We assumed an average one-way commute distance of 18.4 miles and an average one-way access/egress to park-and-ride lots of 5 miles. Each parked vehicle therefore represents an average weekday reduction of 26.8 in auto vehicle miles.

**Table 1.1  Automobile VMT Reduction Assumptions**

<table>
<thead>
<tr>
<th>Measure</th>
<th>One Way Miles</th>
<th>Round Trip Miles</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Commute Distance, Los Angeles County</td>
<td>18.4</td>
<td>36.8</td>
<td>a</td>
</tr>
<tr>
<td>Average Lot Access Distance</td>
<td>5</td>
<td>10</td>
<td>b</td>
</tr>
<tr>
<td>Net Automobile VMT Reduction per Vehicle</td>
<td>13.4</td>
<td>26.8</td>
<td></td>
</tr>
</tbody>
</table>

Sources:


2.0 Content

All data and sources used in the development of this report are contained in a separate spreadsheet database. This section describes the content of the existing and proposed services evaluated in the database, which includes all existing and planned facilities located both in or immediately adjacent to the Gateway Cities. Excerpts of the database can be found in Table 4.1 and Appendix A of this report.

2.1 Existing Park-and-Ride Lots

Figure 2.1 indicates the 18 existing park-and-ride lots located in or near the Gateway Cities (lot operator indicated in parentheses):

- 103rd Street Metro Station (Metro);
- Artesia Metro Station (Metro);
- Atlantic Metrolink Station (Metro);
- Commerce Metrolink Station (Metrolink);
- Del Amo Metro Station (Metro);
- Florence Metro Station (Metro);
- Indiana Metrolink Station (Metro);
- Lakewood Boulevard Metro Station (Metro);
- Long Beach Boulevard Metro Station (Metro);
- MLK Jr. Transit Center (City of Compton);
- Montebello/Commerce Metrolink Station (Metrolink);
- Norwalk Metro Station (Metro);
- Norwalk/Santa Fe Springs Metro Station (Metrolink);
- Taylor Ranch (Montebello)
- Third Street and South La Verne Avenue (Los Angeles County);
- Wardlow Metro Station (Metro);
- Willow Metro Station (Metro); and
- Willowbrook Metro Station (Metro).
Figure 2.1 Existing Park-and-Ride Lots

Gateway Cities Strategic Transportation Plan
Existing Park-and-Ride Facilities

Parking Spaces

- 10
- 50
- 100
- 500
- 1,000

Surfliner
Metrolink
Blue Line
Green Line
Gold Line
Gold Line Extension SR-60 alternative
Gold Line Extension Washington Blvd alternative
2.2 **NEW LOTS AND PLANNED EXPANSIONS**

Figure 2.2 illustrates the geographic location of new park-and-ride lots and existing lots with planned expansions. It also illustrates the additional parking capacity expected as a result of planned improvements. Further park-and-ride lot details can be found in Table 4.1 and Appendix A.

**New Facilities**

Two new park-and-ride facilities are proposed in the Gateway Cities:

- Cal State Long Beach Transit Center (City of Long Beach); and
- Third Street and South La Verne Avenue (Los Angeles County).

The Third Street lot will have 87 parking spaces, while the number of spaces at Cal State Long Beach has not yet been determined.

**Planned Expansions**

Three park-and-ride lots are expected to be expanded by the year 2035:

1. Lakewood Boulevard Metro Station (Metro);
2. Norwalk Metro Station (Metro); and
3. Willow Metro Station (Metro).

These expansions will add at least 1,300 spaces to total capacity in the Gateway Cities.
Figure 2.2 Planned Park-and-Ride Projects and Expansions

Gateway Cities Strategic Transportation Plan
Planned Park-and-Ride Projects and Expansions

<table>
<thead>
<tr>
<th>Existing Spacing</th>
<th>Future Total Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>87</td>
</tr>
<tr>
<td>414</td>
<td>644</td>
</tr>
<tr>
<td>694</td>
<td>844</td>
</tr>
<tr>
<td>899</td>
<td>1010</td>
</tr>
</tbody>
</table>

Surfliner
Metrolink
Blue Line
Green Line
Gold Line
Gold Line Extension SR-60 alternative
Gold Line Extension Washington Blvd alternative

Undetermined size for new facility

Legend

0.5 1 2 3 4 5
Miles

Gateway Cities
2.3 **THE PARK-AND-RIDE DATABASE**

This technical memorandum summarizes results from a spreadsheet-based database of existing and proposed park-and-ride facilities in the Gateway Cities. The database is organized in five sections and each section includes several data fields. The sections and data definitions are provided below. Summaries of the database contents are presented as Table 4.1 and Appendix A.

**Lot Description**

- **Name.** The title of the park-and-ride lot;
- **Improvement Type.** Denotes whether a lot will be new construction or an improvement/expansion of an existing lot;
- **City.** The municipality in which the parking lot is located, as indicated in project documents or approximated using data provided as part of the project;
- **Location.** A specific description of a station area or intersection where the parking lot is located;
- **Transit Connections.** A list of light rail and bus services that serve the park-and-ride lot;
- **Roadway Connections.** A list of freeways, highways, and major arterials that provide automobile and bus access to the park-and-ride lot.
- **Owner/Operator.** The agency responsible for operating and maintaining the park-and-ride lot;
- **Existing Lot.** A yes/no field for users to quickly identify if a lot is proposed or currently in service;
- **Project or Improvement Status.** Denotes if a proposed project is under construction, in environmental study phases, or in a proposed plan;
- **Project Description.** A narrative of the types of capital investments planned for the park-and-ride lot;
- **Project New Parking Stalls.** The number of additional parking spaces planned at the lot;
- **Project Lead.** The agency responsible for managing the construction of the park-and-ride lot improvements;
- **Project Capital Cost** in year of expenditure dollars; and
- **Project Funding Source.**
Existing Facilities

- **Existing Parking Stalls.** The number of automobiles the lot is designed to accommodate;

- **Existing Parking Spaces Utilized.** The number of parking spaces occupied by vehicles on an average weekday; and

- **Existing Parking Percent Utilized.** The share of existing parking stalls occupied by vehicles on an average weekday.

Unconstrained Parking Demand

- **Ridership Increase –Low and High.** The projected transit ridership growth rate at this park-and-ride lot for the 2035 No Build and 2035 Build scenarios from the Transit Assessment. The park-and-ride analysis is based on ridership demand forecasts shown in the Gateway Cities Transit Assessment.

- **2035 Parking Demand –Low and High.** The projected parking demand at the lot under both scenarios from the Transit Assessment.

- **2035 Potential Auto VMT reduction –Low and High.** The additional annual VMT reduction that is miles the parked vehicles would otherwise travel if users were not using transit.

2035 No Build and 2035 Build

The 2035 No Build and 2035 Build scenarios comprise two separate sections in the database, which both use the following data fields:

- **Available Parking.** The number of vehicles the parking lot is designed to accommodate.

- **Percent (Pct.) Utilization –Low and High.** The percent of parking spaces used in the 2035 Build scenario with unconstrained parking demand. Some values may exceed 100 percent (e.g., parking in aisles, on shoulders, etc.);

- **Capped Parking –Low and High.** The number of parking spaces used, assuming parking utilization cannot exceed 100 percent;

- **Over Capacity –Low and High.** The number of automobiles that cannot be accommodated assuming a 100 percent parking utilization cap; and

- **Auto VMT Reduction –Low and High.** The miles the parked vehicles would otherwise travel if users were not using transit.
3.0 Data Sources

We reviewed available plans, reports and studies related to park-and-ride lots. Table 3.1 lists documents referenced in this analysis. In all cases, the most recent document was considered the most accurate. Many of these documents were reviewed in conjunction with the Transit Assessment. The most relevant document was the 2012 Metro Parking Utilization and Site Assessment, as noted in Section 1.1.

Table 3.1 Prior Studies Used to Develop the Park-and-Ride Assessment

<table>
<thead>
<tr>
<th>I-710 Major Corridor Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-710 EIR/EIS (Various Studies):</td>
</tr>
<tr>
<td>• 2008 SCAG RTP Traffic Model</td>
</tr>
<tr>
<td>• Railroad Goods Movement Study</td>
</tr>
<tr>
<td>• Alternative Goods Movement Technology Study</td>
</tr>
<tr>
<td>• Multimodal Review</td>
</tr>
<tr>
<td>• I-710 Geometric Studies at the SR 91 Freeway</td>
</tr>
<tr>
<td>I-605/SR 91/1-405 Hot Spots Feasibility Study</td>
</tr>
<tr>
<td>• Gateway Cities Strategic Transportation Plan – Phase I (prepared by Infraconsult, 2012)</td>
</tr>
<tr>
<td>• SR 91/I-605/I-405 Project– Final Multimodal Analysis Report</td>
</tr>
<tr>
<td>• Freeway Congestion Analysis Report</td>
</tr>
<tr>
<td>• Arterial Intersection Congestion Analysis Report</td>
</tr>
<tr>
<td>• Feasibility Report</td>
</tr>
<tr>
<td>I-5 EIR/EIS (SR 91 to I-605) – Carminita Road, Alondra Boulevard, Imperial Highway, Rosecrans Avenue, Valley View Avenue, and Florence Avenue</td>
</tr>
<tr>
<td>I-5 EIR/EIS (I-605 to I-710)</td>
</tr>
<tr>
<td>Eastside Transit Corridor Phase 2</td>
</tr>
<tr>
<td>Comprehensive Regional Goods Movement Plan and Implementation Strategy</td>
</tr>
<tr>
<td>Multiple Orangeline Studies</td>
</tr>
<tr>
<td>SCAG 2012-2035 Regional Transportation Plan (RTP)</td>
</tr>
<tr>
<td>SCAG 2013 Federal Transportation Improvement Program (FTIP)</td>
</tr>
</tbody>
</table>
We contacted owners, operators, and project sponsors of the park-and-ride lots to verify our sources and information. Table 3.2 lists the agencies we contacted in July 2013.

**Table 3.2  Agencies Contacted to Confirm Park-and-Ride Information**

<table>
<thead>
<tr>
<th>Agency</th>
<th>Relevant Lot</th>
<th>Staff Contact</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metro</td>
<td>• All Metro park-and-ride lots</td>
<td>Lucy Olmos, Chris Joe</td>
<td>Detailed information for all park-and-ride lots.</td>
</tr>
<tr>
<td>Metrolink</td>
<td>• Commerce</td>
<td>Luis Zarza</td>
<td>Detailed information for relevant park-and-ride lots.</td>
</tr>
<tr>
<td></td>
<td>• Montebello/Commerce</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Santa Fe Springs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>City of Compton</td>
<td>• MLK Jr. Transit Center</td>
<td>N/A</td>
<td>No response; limited information available from Metro.</td>
</tr>
<tr>
<td>City of Montebello</td>
<td>• Taylor Ranch</td>
<td>N/A</td>
<td>No response; limited information available from Metro.</td>
</tr>
</tbody>
</table>
4.0 Database Summary

All data used in the preparation of this analysis is contained in a spreadsheet database, which is available as a companion piece to this report. Table 4.1 summarizes relevant database content, including each park-and-ride lot’s name, location, description of planned projects, existing and future parking demand, existing and future parking utilization, and average weekday automobile VMT reduction. Definitions of the data fields are provided in Section 2.3. Some fields included in the full database are not presented in Table 4.1, but can be found in the spreadsheet tool.

Additional detail from the park-and-ride database, including utilization forecasts, are presented in Appendix A.
### Table 4.1  Park-and-Ride Facilities Overview (2013 Average Weekday)

<table>
<thead>
<tr>
<th>Lot Name</th>
<th>Type</th>
<th>Roadway Connections</th>
<th>Transit Connections</th>
<th>Existing Parking</th>
<th>Existing Utilization</th>
<th>2035 Parking Demand – Low</th>
<th>2035 Parking Demand – High</th>
<th>2035 NB VMT Reduction – Low</th>
<th>2035 NB VMT Reduction – High</th>
<th>2035 Build VMT Reduction – Low</th>
<th>2035 Build VMT Reduction – High</th>
<th>Uncorr. VMT Reduction – Low</th>
<th>Uncorr. VMT Reduction – High</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>103rd Streeta</td>
<td>Existing</td>
<td>I-105, I-110, S Alameda St</td>
<td>Metro: Blue; 117, 254, 305, 612, 52/66S</td>
<td>63</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>63</td>
<td>0</td>
<td>63</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Artesia</td>
<td>Existing</td>
<td>CA-91, I-710, S Alameda St</td>
<td>Metro: Blue; 60, 130, 205, 260, 762</td>
<td>287</td>
<td>238</td>
<td>262</td>
<td>281</td>
<td>287</td>
<td>7,022</td>
<td>7,533</td>
<td>267</td>
<td>7,022</td>
<td>7,533</td>
<td></td>
</tr>
<tr>
<td>Atlantic</td>
<td>Existing</td>
<td>CA-60, I-710 Pomona Blvd, S Atlantic Blvd, E Beverly Blvd</td>
<td>Metro: Gold; 68, 260, 762</td>
<td>262</td>
<td>139</td>
<td>153</td>
<td>164</td>
<td>262</td>
<td>4,094</td>
<td>4,391</td>
<td>262</td>
<td>4,094</td>
<td>4,391</td>
<td></td>
</tr>
<tr>
<td>Cal State Long Beach Trainsta</td>
<td>New</td>
<td>CA-1, I-405, Bellflower Blvd</td>
<td>To be determined (TBD)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commerce</td>
<td>Existing</td>
<td>I-5, E Washington Blvd, S Garfield Ave</td>
<td>Metrolink 91 and DCC</td>
<td>135</td>
<td>22</td>
<td>31</td>
<td>70</td>
<td>135</td>
<td>825</td>
<td>1,897</td>
<td>135</td>
<td>825</td>
<td>1,897</td>
<td></td>
</tr>
<tr>
<td>Del Amo</td>
<td>Existing</td>
<td>I-710, CA-91, Del Amo Blvd, I-405</td>
<td>Metro: Blue; 202</td>
<td>367</td>
<td>345</td>
<td>379</td>
<td>367</td>
<td>367</td>
<td>9,836</td>
<td>9,836</td>
<td>367</td>
<td>9,836</td>
<td>9,836</td>
<td>10,170</td>
</tr>
<tr>
<td>Florence</td>
<td>Existing</td>
<td>E Florence Ave, Compton Ave, S Alameda St</td>
<td>Metro: Blue; 102, 110, 611, 11/L31</td>
<td>115</td>
<td>109</td>
<td>120</td>
<td>128</td>
<td>115</td>
<td>3,092</td>
<td>3,092</td>
<td>115</td>
<td>3,092</td>
<td>3,221</td>
<td>3,367</td>
</tr>
<tr>
<td>Indiana</td>
<td>Existing</td>
<td>CA-60, I-5, N Indiana St</td>
<td>Metro: Gold; 30, 68, 265, 600, 665</td>
<td>42</td>
<td>19</td>
<td>21</td>
<td>22</td>
<td>42</td>
<td>557</td>
<td>557</td>
<td>42</td>
<td>557</td>
<td>557</td>
<td>562</td>
</tr>
<tr>
<td>Lakewood Blvd</td>
<td>Expansion</td>
<td>I-105, Lakewood Blvd, Imperial Hwy</td>
<td>Metro: Green; 117, 266, 266</td>
<td>414</td>
<td>447</td>
<td>492</td>
<td>514</td>
<td>414</td>
<td>11,005</td>
<td>11,005</td>
<td>644</td>
<td>13,181</td>
<td>13,181</td>
<td>13,780</td>
</tr>
<tr>
<td>Lakewood West</td>
<td>Existing</td>
<td>I-5, I-405, Lakewood Blvd</td>
<td>Metro: Green; 62, 266 (indirect connection)</td>
<td>83</td>
<td>53</td>
<td>58</td>
<td>58</td>
<td>83</td>
<td>1,564</td>
<td>1,594</td>
<td>83</td>
<td>1,594</td>
<td>1,564</td>
<td></td>
</tr>
<tr>
<td>Long Beach Blvd</td>
<td>Existing</td>
<td>I-105, Long Beach Blvd</td>
<td>Metro: Gold; 63, 251, 763</td>
<td>646</td>
<td>239</td>
<td>263</td>
<td>275</td>
<td>646</td>
<td>7,046</td>
<td>7,367</td>
<td>646</td>
<td>7,046</td>
<td>7,367</td>
<td></td>
</tr>
<tr>
<td>MLK Jr. Transit Center (Compton Station)</td>
<td>Existing</td>
<td>S Alameda St, Rosecrans Ave, Compton Blvd</td>
<td>Metro: Blue; 51/52/652, 60, 125, 127, 123, 222</td>
<td>330</td>
<td>195</td>
<td>192</td>
<td>220</td>
<td>330</td>
<td>4,904</td>
<td>5,065</td>
<td>330</td>
<td>4,904</td>
<td>5,065</td>
<td></td>
</tr>
<tr>
<td>Montclair/Commerce</td>
<td>Existing</td>
<td>I-5, S Garfield Ave, Whittier Blvd</td>
<td>Metrolink: Riverside, Metro: 18, 96</td>
<td>255</td>
<td>195</td>
<td>259</td>
<td>532</td>
<td>255</td>
<td>6,834</td>
<td>6,834</td>
<td>255</td>
<td>6,834</td>
<td>6,834</td>
<td>546</td>
</tr>
<tr>
<td>Norwalk</td>
<td>Existing</td>
<td>I-105, Imperial Hwy</td>
<td>Metro: Green; 115, 125, 270, 490, 11/31</td>
<td>2,050</td>
<td>2,075</td>
<td>2,134</td>
<td>2,050</td>
<td>2,050</td>
<td>54,940</td>
<td>54,940</td>
<td>2,050</td>
<td>54,940</td>
<td>54,940</td>
<td>67,064</td>
</tr>
<tr>
<td>Norwalk/Santa Fe Springs 1 and 2</td>
<td>Existing</td>
<td>Imperial Hwy, Bloomfield Ave, I-5</td>
<td>Metrolink: 91, Metro: Orange</td>
<td>694</td>
<td>475</td>
<td>685</td>
<td>1,525</td>
<td>694</td>
<td>17,822</td>
<td>18,559</td>
<td>884</td>
<td>17,822</td>
<td>17,822</td>
<td>40,736</td>
</tr>
<tr>
<td>Taylor Ranch</td>
<td>Existing</td>
<td>I-40</td>
<td>Metrolink: Express 341</td>
<td>40</td>
<td>30</td>
<td>33</td>
<td>35</td>
<td>40</td>
<td>894</td>
<td>925</td>
<td>40</td>
<td>894</td>
<td>925</td>
<td>925</td>
</tr>
<tr>
<td>Third Street and South Lat Meto Aa</td>
<td>New</td>
<td>CA-60, E 3rd St, S Atlantic Blvd, S Mammoth Ave</td>
<td>Metro: 68; 258, 260, 762</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Willow</td>
<td>Existing</td>
<td>I-405, I-710, N Pacific Pk, W Wardlow Rd</td>
<td>Metro: Blue; 115</td>
<td>115</td>
<td>106</td>
<td>115</td>
<td>120</td>
<td>115</td>
<td>3,092</td>
<td>3,092</td>
<td>115</td>
<td>3,092</td>
<td>3,092</td>
<td>3,225</td>
</tr>
<tr>
<td>Willowbrook</td>
<td>Expansion</td>
<td>Long Beach Blvd, E Willow St, I-405</td>
<td>Metro: Blue; 60</td>
<td>850</td>
<td>836</td>
<td>820</td>
<td>901</td>
<td>850</td>
<td>24,003</td>
<td>24,003</td>
<td>1,819</td>
<td>24,047</td>
<td>25,788</td>
<td>25,788</td>
</tr>
<tr>
<td>Willowbrook</td>
<td>Existing</td>
<td>I-105, S Whittier Ave, Imperial Hwy</td>
<td>Metro: Blue; 60, 120, 202, 205, 305, 612, 55/355</td>
<td>335</td>
<td>147</td>
<td>162</td>
<td>170</td>
<td>335</td>
<td>4,345</td>
<td>4,543</td>
<td>335</td>
<td>4,345</td>
<td>4,543</td>
<td>4,543</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>7,132</td>
<td>5,748</td>
<td>6,578</td>
<td>8,071</td>
<td>7,132</td>
<td>161,986</td>
<td>165,438</td>
<td>8,513</td>
<td>165,986</td>
<td>175,275</td>
<td>176,294</td>
</tr>
</tbody>
</table>

*a* Metro estimated 0 percent utilization at this lot in 2012, which we assumed would not change in future scenarios.

*b* Detailed information on this proposed station not available at the time of this report.

*c* Denotes the route with highest ridership growth by year 2035, based on the Gateway Cities Transit Assessment.
5.0 Findings

This section summarizes the park-and-ride analysis results for existing conditions and three future year scenarios. Details can be found in the summary data in Table 4.1, and the supplementary data table in Appendix A.

5.1 EXISTING CONDITIONS

Park-and-ride facilities in and adjacent to the Gateway Cities provide daily parking capacity for about 7,130 vehicles, of which an average of 5,750 is used each weekday. These lots range in size from 42 spaces (Indiana Metro station) to 2,050 (Norwalk Metro station).

Capacity and Utilization

Table 5.1 indicates all park-and-ride lots over or near capacity in existing conditions. Two park-and-ride facilities currently operate over-capacity:

- Lakewood Blvd – 108 percent utilization; and
- Norwalk – 107 percent.

Both stations have planned expansion and improvement projects that will alleviate some parking congestion by the year 2035.

Four stations are approaching capacity under existing conditions:

- Florence – 95 percent utilization;
- Del Amo – 94 percent;
- Willow – 93 percent; and
- Wardlow – 91 percent.

Of these, only the Willow Metro station has planned improvements to alleviate these capacity concerns under the 2035 Build scenario.

The lowest utilization rate is reported at the 103rd Street Metro Blue Line station.

Automobile VMT Reduction

Existing park-and-ride lots help reduce automobile travel in the Gateway Cities by an estimated 154,000 vehicle miles each weekday, or 46.0 million annually.
## Table 5.1 Existing Park-and-Ride Lots and Capacity Constraints

<table>
<thead>
<tr>
<th>Lot Name</th>
<th>Transit Connections</th>
<th>Parking Stalls</th>
<th>Utilization Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Over Capacity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lakewood Boulevard</td>
<td>Green Line; Buses 117, 265, 266</td>
<td>414</td>
<td>108%</td>
</tr>
<tr>
<td>Norwalk</td>
<td>Green Line, Buses 115, 125, 270, 460, 111/311</td>
<td>2,050</td>
<td>107%</td>
</tr>
<tr>
<td><strong>Nearing Capacity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Del Amo</td>
<td>Blue Line, Bus 202</td>
<td>367</td>
<td>94%</td>
</tr>
<tr>
<td>Florence</td>
<td>Blue Line; Buses 102, 110, 611, 111/311</td>
<td>115</td>
<td>95%</td>
</tr>
<tr>
<td>Wardlow</td>
<td>Blue Line</td>
<td>115</td>
<td>91%</td>
</tr>
<tr>
<td>Willow</td>
<td>Blue Line, Bus 60</td>
<td>899</td>
<td>93%</td>
</tr>
</tbody>
</table>


### 5.2 Year 2035 No Build

The 2035 No Build scenario is characterized by transit ridership increases due to forecasted socioeconomic growth, but no expansion of existing park-and-ride lots. Future year results are presented in a range, with low values indicating forecasts if transit services continue into the future, and high values indicating forecasts if all planned and proposed transit expansions are completed.

In the 2035 No Build scenario, total weekday demand for park-and-ride lots in the Gateway Cities is forecasted at 6,580 to 8,070 vehicles, an increase of 15 to 41 percent over existing conditions.

#### Capacity and Utilization

Assuming usage at park-and-ride lots is capped at 100 percent, actual park-and-ride lot utilization would range between 6,040 and 6,170 vehicles under 2035 No Build conditions, an increase of 5 to 7 percent over existing conditions.

Table 5.2 shows the eight parking lots that have projected utilization rates in excess of 100 percent under No Build conditions. Between 410 and 2,370 vehicles would not be accommodated in these eight lots.

#### Automobile VMT Reduction

Under 2035 No Build conditions, daily auto travel reduction forecasts range from 162,000 to 165,400 miles of travel (48.6 million to 49.6 million VMT annually). If this additional park-and-ride demand could be accommodated, an additional 14,300 to 50,900 VMT might be removed from Gateway Cities roadways each weekday (4.3 million to 15.3 million annually).
For graphics illustrating park-and-ride lot utilization and VMT reduction forecasts, see Appendix B.

### Table 5.2 2035 No Build Park-and-Ride Lots Near or Over Capacity

<table>
<thead>
<tr>
<th>Lot Name</th>
<th>Transit Connections</th>
<th>2035 No Build Parking Stalls</th>
<th>2035 No Build Utilization Rate (Low-High)</th>
<th>Additional Potential Daily VMT Reduction (Low-High)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Over capacity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Del Amo</td>
<td>Metro Blue a, Bus 202</td>
<td>367</td>
<td>103-108%</td>
<td>330-800</td>
</tr>
<tr>
<td>Florence</td>
<td>Metro Blue a, Buses 1021,110, 611,111/311</td>
<td>115</td>
<td>105-109%</td>
<td>140-290</td>
</tr>
<tr>
<td>Lakewood Boulevard</td>
<td>Metro Green a, Buses 117, 265, 266</td>
<td>414</td>
<td>119-124%</td>
<td>2,100-2,700</td>
</tr>
<tr>
<td>Montebello/Commerce</td>
<td>Metrolink Riverside a, Metro Buses 18, 66</td>
<td>255</td>
<td>102-232%</td>
<td>100-9,030</td>
</tr>
<tr>
<td>Norwalk</td>
<td>Metro Green a, Buses 115, 125, 270, 460, 111/311</td>
<td>2,050</td>
<td>118-123%</td>
<td>9,700-12,700</td>
</tr>
<tr>
<td>Norwalk/Santa Fe Springs</td>
<td>Metrolink 91 a, Orange Line</td>
<td>694</td>
<td>96-219%</td>
<td>0-22,100</td>
</tr>
<tr>
<td>Wardlow</td>
<td>Metro Blue a</td>
<td>115</td>
<td>100-105%</td>
<td>3-140</td>
</tr>
<tr>
<td>Willow</td>
<td>Metro Blue a, 60</td>
<td>899</td>
<td>102-107%</td>
<td>550-1,700</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>14,300-50,900</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Nearing capacity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Artesia</td>
<td>Metro Blue a, 60, 130, 205, 260, 762</td>
<td>287</td>
<td>91-98%</td>
<td></td>
</tr>
</tbody>
</table>


*a Denotes the route with highest ridership growth by year 2035, based on the Gateway Cities Transit Assessment.

### 5.3 YEAR 2035 BUILD

Two new park-and-ride lots and three expansions are expected to add at least 1,387 parking stalls by the year 2035, increasing park-and-ride capacity to about 8,520 vehicles in the Gateway Cities. The largest planned project is the Willow Metro station, where an additional 920 spaces are planned.

#### Capacity and Utilization

As in the 2035 No Build scenario, forecasted daily park-and-ride demand from 6,580 to 8,070 vehicles, depending on the amount of additional regional transit service provided. Assuming all planned park-and-ride lot improvements are
constructed and parking is capped at 100 percent utilization at all stations, actual utilization in the Gateway Cities would range between 6,190 and 6,540 daily, an increase of 3-6 percent over 2035 No Build conditions.

Table 5.3 shows the six parking lots in the 2035 Build scenario that have projected utilization rates in excess of 100 percent. This insufficient capacity results in 100 to 1,870 vehicles being turned away due to insufficient capacity.

Table 5.3 2035 Build Park-and-Rides Over and Nearing Capacity

<table>
<thead>
<tr>
<th>Lot Name</th>
<th>Transit Connections</th>
<th>2035 No Build Parking Stalls</th>
<th>2035 No Build Utilization Rate (Low-High)</th>
<th>Additional Potential Daily VMT Reduction (Low-High)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over Capacity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Del Amo</td>
<td>Metro Blue*, Bus 202</td>
<td>367</td>
<td>103-108%</td>
<td>330-800</td>
</tr>
<tr>
<td>Florence</td>
<td>Metro Blue*, Buses 1021,110, 611,111/311</td>
<td>115</td>
<td>105-109%</td>
<td>140-290</td>
</tr>
<tr>
<td>Montebello/Commerce</td>
<td>Metrolink Riverside*, Buses 18, 66</td>
<td>255</td>
<td>102-232%</td>
<td>110-9,030</td>
</tr>
<tr>
<td>Norwalk</td>
<td>Metro Green*, Buses 115, 125, 270, 460, 111/311</td>
<td>2,050</td>
<td>118-123%</td>
<td>9,700-12,700</td>
</tr>
<tr>
<td>Norwalk/Santa Fe Springs</td>
<td>Metrolink 91*, Metro Orange Line</td>
<td>844</td>
<td>79-180%</td>
<td>0-18,100</td>
</tr>
<tr>
<td>Wardlow</td>
<td>Metro Blue*</td>
<td>115</td>
<td>100-105%</td>
<td>3-140</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>10,300-41,000</td>
</tr>
<tr>
<td>Nearing Capacity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Artesia</td>
<td>Metro Blue*, 60, 130, 205, 260, 762</td>
<td>287</td>
<td>91%-98%</td>
<td></td>
</tr>
</tbody>
</table>


* Denotes the route with highest ridership growth by year 2035, based on the Gateway Cities Transit Assessment.

Automobile VMT Reduction

Due to planned park-and-ride improvements in the 2035 Build scenario, daily VMT reduction increases to 166,000 to 175,300 miles daily (49.8 million to 52.6 million annually), an improvement of 2 to 6 percent versus 2035 No Build conditions. If additional park-and-ride demand could be accommodated at regional lots, approximately 10,300 to 41,000 additional daily VMT might be removed from Gateway Cities roadways (3.1 million to 12.3 million annually).

For graphics illustrating park-and-ride lot utilization and VMT reduction forecasts, see Appendix B.
5.4 **YEAR 2035 UNCONSTRAINED**

As seen in the 2035 No Build and 2035 Build scenarios, limited capacity at certain park-and-ride lots can turn many would-be transit users back onto congested roadways. In the 2035 Unconstrained scenario, we assume that all parking demand is accommodated at each station.

Under this assumption, park-and-ride lot capacity in the Gateway Cities would range between 6,550 and 8,040 vehicles. The resulting reduction in daily miles of auto travel would range from 175,400 to 215,400 daily (52.6 million to 64.6 million annually). This would represent an 8- to 24-percent increase over 2035 No Build and 6 to 19 percent increase over 2035 Build conditions.

Figure 5.1 illustrates the annual VMT reduction for all three 2035 scenarios, assuming all planned and proposed transit facilities are implemented by 2035.

**Figure 5.1  Annual VMT Reduction in 2035 Scenarios (High Transit)**

![Bar chart showing annual VMT reduction]

Source: Gateway Cities Transit Assessment (2013), and Metro Parking Utilization and Site Assessment: Metro Rail, Orange Line, and Silver Line Stations (2012).

5.5 **SUMMARY**

Park-and-ride lots provide an attractive alternative to many commuters who wish to avoid traffic congestion but do not live adjacent to a convenient transit access point. The combination of planned transit expansions and forecasted traffic growth on the Gateway Cities’ already congested roadways will likely make transit a more attractive commute option to those who would otherwise use freeways or arterial highways to travel to and from work during the week.
Based on extrapolation of past trends and existing conditions, we estimate six of the 20 park-and-ride lots within the Gateway Cities will be over capacity by 2035. These lots represent potential targets for expansion. In addition, proposed light rail enhancements such as the Gold Line extension and ECO Rapid Transit may represent additional opportunities for future park-and-ride lot projects.

Our analysis indicates that park-and-ride lots currently help reduce about 46.1 million annual automobile VMT in the Gateway Cities. Given anticipated growth in regional transit demand, this figure could approach 64.8 million by 2035 if all parking demand is met, an increase of about 41 percent. To put this in regional perspective, these reductions amount to about a half-percent of existing annual VMT within the Gateway Cities, which has been estimated at upwards of 11 billion.

Note that while increased demand for park-and-ride lots will contribute to congestion reduction on area freeways and highways, individual park-and-ride lot areas may experience higher levels of localized congestion. Such impacts may be successfully mitigated through targeted station area planning efforts.

Opportunities for Further Study

This assessment illustrates potential park-and-ride lot demand and capacity issues using a planning-level approach and readily available data, with the expectation that further study is needed to refine and prioritize new investments. Such studies may include:

- **Multi-resolution modeling.** As part of the Gateway Cities Strategic Transportation Plan, Metro and the Gateway Cities Council of Governments are overseeing the development of a new state-of-the-art multi-resolution model to evaluate local transportation conditions and improvements in the subregion. Once operational, the model will allow more rigorous analysis of the interplay between transit and other travel modes, including demand for park-and-ride services. This analysis could offer more insights into the types of auto trips impacted by park-and-ride lots, for instance, which trips are removed from freeways or arterial highways, and impacts on regional congestion. Note that the data generated by more rigorous methods is likely to differ, in some cases significantly, from figures generated in this planning-level analysis.

- **Station area planning and design.** Efficient expansion of park-and-ride lots requires a detailed understanding of the station site, surrounding areas, and residents’ methods of access. Local communities and transit agencies should coordinate in the analysis of individual lots in order to prioritize planned park-and-ride enhancements and expansions. This includes identifying site-specific needs and solutions for meeting parking demand, ensuring efficient local traffic circulation, mitigating conflicts between access modes, and prioritizing user safety and security.
A. Park-and-Ride Database

This appendix includes a supplementary summary of the park-and-ride database. The database is summarized in Table A.1, featuring five sections: lot description; existing facilities; unconstrained parking demand; 2035 No Build; 2035 Build; and 2035 Unconstrained. Each section has several data fields described below.

For an explanation of the development of low and high estimates, see Section 1.2.

A.1 LOT DESCRIPTION

- **Name.** The title of the park-and-ride lot;
- **Location.** A specific description of a station area or intersection where the parking lot is located;
- **Transit Connections.** Public transportation serving the park-and-ride lot;
- **Roadway Connections.** A list of freeways, highways, and major arterials that provide automobile and bus access to the park-and-ride lot.

A.2 EXISTING FACILITIES

- **Parking Spaces.** The number of automobiles the lot is designed for;
- **Parking Spaces Utilized.** The number of parking spaces occupied by vehicles on an average weekday; and
- **Parking Percent Utilized.** The share of existing parking stalls occupied by vehicles on an average weekday. Bold text indicates utilization rates that are near capacity (90 to 100 percent) or over capacity.

A.3 UNCONSTRAINED PARKING DEMAND

- **Ridership Increase – Low and High.** The projected transit ridership growth rate at this park-and-ride lot for the 2035 No Build and 2035 Build scenarios from the Transit Assessment. The park-and-ride analysis is based on ridership demand forecasts shown in the Gateway Cities Transit Assessment.
- **2035 Parking Demand – Low and High.** The projected parking demand at the lot under both scenarios from the Transit Assessment.
• **2035 Potential Automobile VMT reduction – Low and High.** The additional annual VMT reduction that is miles the parked vehicles would otherwise travel if users were not using transit.

## A.4 2035 NO BUILD AND 2035 BUILD

The 2035 No Build and 2035 Build scenarios comprise two separate sections in the database, which both use the following data fields:

- **Parking Spaces.** The number of vehicles the parking lot is designed for.
- **Percent Utilization –Low and High.** The average percent of parking spaces occupied in the 2035 scenario with unconstrained parking demand. Bold text indicates utilization rates that are approaching or over capacity (90+ percent).
- **Capped Parking –Low and High.** The number of parking spaces used, assuming a maximum 100 percent parking utilization;
- **Over Capacity –Low and High.** The number of automobiles that cannot be accommodated assuming a maximum 100 percent parking utilization; and
- **Automobile VMT Reduction –Low and High.** The miles the parked vehicles would otherwise travel if users were not using transit.
## Table A.1 Park-and-Ride Database

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Transit Connections</th>
<th>Roadway Connections</th>
<th>Parking Spaces</th>
<th>Parking Percent Utilized</th>
<th>Parking VMT Avoided</th>
<th>2035 Parking Demand</th>
<th>2035 Potential Parking Utilization</th>
<th>Over Capacity Avoided Parking VMT</th>
<th>2035 Parking Demand</th>
<th>2035 Potential Parking Utilization</th>
<th>Over Capacity Avoided Parking VMT</th>
</tr>
</thead>
<tbody>
<tr>
<td>103rd Street</td>
<td>Gateway Cities Park-and-Ride</td>
<td></td>
<td></td>
<td></td>
<td>1,255</td>
<td>1,255</td>
<td>1,255</td>
<td>1,255</td>
<td>0</td>
<td>1,255</td>
<td>1,255</td>
<td>0</td>
</tr>
<tr>
<td>Artesia Metro Station</td>
<td>Gateway Cities Park-and-Ride</td>
<td></td>
<td></td>
<td></td>
<td>220</td>
<td>220</td>
<td>220</td>
<td>220</td>
<td>0</td>
<td>220</td>
<td>220</td>
<td>0</td>
</tr>
<tr>
<td>Atlantic Station</td>
<td>Gateway Cities Park-and-Ride</td>
<td></td>
<td></td>
<td></td>
<td>1,255</td>
<td>1,255</td>
<td>1,255</td>
<td>1,255</td>
<td>0</td>
<td>1,255</td>
<td>1,255</td>
<td>0</td>
</tr>
<tr>
<td>Cal State Long Beach</td>
<td>Gateway Cities Park-and-Ride</td>
<td></td>
<td></td>
<td></td>
<td>220</td>
<td>220</td>
<td>220</td>
<td>220</td>
<td>0</td>
<td>220</td>
<td>220</td>
<td>0</td>
</tr>
<tr>
<td>Commerce</td>
<td>Gateway Cities Park-and-Ride</td>
<td></td>
<td></td>
<td></td>
<td>1,255</td>
<td>1,255</td>
<td>1,255</td>
<td>1,255</td>
<td>0</td>
<td>1,255</td>
<td>1,255</td>
<td>0</td>
</tr>
<tr>
<td>Del Amo metro station</td>
<td>Gateway Cities Park-and-Ride</td>
<td></td>
<td></td>
<td></td>
<td>220</td>
<td>220</td>
<td>220</td>
<td>220</td>
<td>0</td>
<td>220</td>
<td>220</td>
<td>0</td>
</tr>
<tr>
<td>Florence</td>
<td>Gateway Cities Park-and-Ride</td>
<td></td>
<td></td>
<td></td>
<td>1,255</td>
<td>1,255</td>
<td>1,255</td>
<td>1,255</td>
<td>0</td>
<td>1,255</td>
<td>1,255</td>
<td>0</td>
</tr>
<tr>
<td>Indiana</td>
<td>Gateway Cities Park-and-Ride</td>
<td></td>
<td></td>
<td></td>
<td>220</td>
<td>220</td>
<td>220</td>
<td>220</td>
<td>0</td>
<td>220</td>
<td>220</td>
<td>0</td>
</tr>
<tr>
<td>Lakeside</td>
<td>Gateway Cities Park-and-Ride</td>
<td></td>
<td></td>
<td></td>
<td>1,255</td>
<td>1,255</td>
<td>1,255</td>
<td>1,255</td>
<td>0</td>
<td>1,255</td>
<td>1,255</td>
<td>0</td>
</tr>
<tr>
<td>Lakeside</td>
<td>Gateway Cities Park-and-Ride</td>
<td></td>
<td></td>
<td></td>
<td>220</td>
<td>220</td>
<td>220</td>
<td>220</td>
<td>0</td>
<td>220</td>
<td>220</td>
<td>0</td>
</tr>
<tr>
<td>Mira Loma Transit</td>
<td>Gateway Cities Park-and-Ride</td>
<td></td>
<td></td>
<td></td>
<td>1,255</td>
<td>1,255</td>
<td>1,255</td>
<td>1,255</td>
<td>0</td>
<td>1,255</td>
<td>1,255</td>
<td>0</td>
</tr>
<tr>
<td>Monteryella Commerce</td>
<td>Gateway Cities Park-and-Ride</td>
<td></td>
<td></td>
<td></td>
<td>1,255</td>
<td>1,255</td>
<td>1,255</td>
<td>1,255</td>
<td>0</td>
<td>1,255</td>
<td>1,255</td>
<td>0</td>
</tr>
</tbody>
</table>
### Table A.1 Park-and-Ride Lot Utilization and VMT Detail (continued)

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Transit Connections</th>
<th>Roadway Connections</th>
<th>Parking Stalls</th>
<th>Number</th>
<th>Percent</th>
<th>VMT Avoided</th>
<th>2035 Parking Demand</th>
<th>2035 Potential Auto VMT Avoided</th>
<th>Avail Parking</th>
<th>Percent Utilization</th>
<th>Capped Parking</th>
<th>Over Capacity</th>
<th>Capped Percent Utilization</th>
<th>Auto VMT Avoided</th>
<th>Avail Parking</th>
<th>Percent Utilization</th>
<th>Capped Parking</th>
<th>Over Capacity</th>
<th>Capped Percent Utilization</th>
<th>Auto VMT Avoided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norwalk</td>
<td>Norwalk Metro Station</td>
<td>Metro Green, 115, 125, 270, 480, 111/311</td>
<td>Metro Green, 115, 125, 270, 480, 111/311</td>
<td>2050 2194 107%</td>
<td>58,788 10%</td>
<td>413</td>
<td>44,694 10%</td>
<td>54,664 10%</td>
<td>2,080 118%</td>
<td>123%</td>
<td>2,080 100%</td>
<td>100%</td>
<td>54,940 100%</td>
<td>54,940 100%</td>
<td>2,080 118%</td>
<td>123%</td>
<td>2,080 100%</td>
<td>100%</td>
<td>54,940 100%</td>
<td>54,940 100%</td>
<td></td>
</tr>
<tr>
<td>Norwalk/ Santa Fe Springs</td>
<td>Norwalk/ Santa Fe Springs Station</td>
<td>MetroLink 91, Metro Orange, 121, Norwalk Transit 3 and 4, City of SFS MetroExpress</td>
<td>MetroLink 91, Metro Orange, 121, Norwalk Transit 3 and 4, City of SFS MetroExpress</td>
<td>694 475 68%</td>
<td>12,730 40%</td>
<td>220%</td>
<td>665 152%</td>
<td>17,822 155%</td>
<td>864 75%</td>
<td>183%</td>
<td>665 100%</td>
<td>100%</td>
<td>17,822 100%</td>
<td>100%</td>
<td>864 75%</td>
<td>183%</td>
<td>665 100%</td>
<td>100%</td>
<td>17,822 100%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Taylor Ranch</td>
<td>Lincoln and Montebello</td>
<td>Montebello Express 341</td>
<td>Montebello Express 341</td>
<td>40 30 75%</td>
<td>804 10%</td>
<td>86%</td>
<td>33 35 0</td>
<td>925 10%</td>
<td>86%</td>
<td>33 34 0</td>
<td>925 10%</td>
<td>86%</td>
<td>33 34 0</td>
<td>925 10%</td>
<td>86%</td>
<td>33 34 0</td>
<td>925 10%</td>
<td>86%</td>
<td>33 34 0</td>
<td>925 10%</td>
<td></td>
</tr>
<tr>
<td>Third Street and South La Verne Ave</td>
<td>Metro Express 66, 200, 762</td>
<td>CA 46, S Thir St, S Atlantic Blvd, S Melrose Ave</td>
<td>CA 46, S Thir St, S Atlantic Blvd, S Melrose Ave</td>
<td>0 0 0</td>
<td>0 10%</td>
<td>18%</td>
<td>51 54 1</td>
<td>1,359 10%</td>
<td>14%</td>
<td>51 54 1</td>
<td>1,359 10%</td>
<td>14%</td>
<td>51 54 1</td>
<td>1,359 10%</td>
<td>14%</td>
<td>51 54 1</td>
<td>1,359 10%</td>
<td>14%</td>
<td>51 54 1</td>
<td>1,359 10%</td>
<td></td>
</tr>
<tr>
<td>Willow</td>
<td>Willow Metro Station</td>
<td>Metro Blue, 66</td>
<td>Metro Blue, 66</td>
<td>115 105 94%</td>
<td>2,803 10%</td>
<td>15%</td>
<td>115 120 3,065 10%</td>
<td>115 100%</td>
<td>105%</td>
<td>115 115 0 3,062 100%</td>
<td>100%</td>
<td>115 115 0 3,062 100%</td>
<td>100%</td>
<td>115 115 0 3,062 100%</td>
<td>100%</td>
<td>115 115 0 3,062 100%</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Willowbrook</td>
<td>Willowbrook Metro Station</td>
<td>Metro Blue, D, S, E, E, E, E</td>
<td>Metro Blue, D, S, E, E, E, E</td>
<td>325 147 44%</td>
<td>3,983 10%</td>
<td>15%</td>
<td>162 170 4,345 10%</td>
<td>325 48%</td>
<td>51%</td>
<td>162 170 0 4,345 45%</td>
<td>51%</td>
<td>162 170 0 4,345 45%</td>
<td>51%</td>
<td>162 170 0 4,345 45%</td>
<td>51%</td>
<td>162 170 0 4,345 45%</td>
<td>51%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


*Bold text* indicates utilization rates that are approaching or over capacity (90+ percent)

* Denotes the route with highest ridership growth by year 2035, based on the Gateway Cities Transit Assessment.
B. Station-Specific Parking Utilization and VMT Reduction Charts

This appendix includes supplementary charts illustrating forecasted park-and-ride lot utilization rates and annual automobile VMT reduction. The results are presented for both the 2035 No Build and 2035 Build scenarios. For an explanation of the low and high estimates, see Section 1.2. For more detail on underlying results, see Section 6.0.
Figure B.1 2035 No Build Parking Utilization

Sources: Metro Parking Utilization and Site Assessment: Metro Rail, Orange Line, and Silver Line Stations, 2012; Gateway Cities Strategic Transportation Plan Transit Assessment, 2013.
Figure B.2 2035 Build Parking Utilization

Sources: Metro Parking Utilization and Site Assessment: Metro Rail, Orange Line, and Silver Line Stations, 2012; Gateway Cities Strategic Transportation Plan Transit Assessment, 2013.
Figure B.3  2035 No Build Average Weekday Auto VMT Reduced

Sources: Metro Parking Utilization and Site Assessment: Metro Rail, Orange Line, and Silver Line Stations, 2012; Gateway Cities Strategic Transportation Plan Transit Assessment, 2013.
Figure B.4  2035 Build Average Weekday Auto VMT Reduced

Sources: Metro Parking Utilization and Site Assessment: Metro Rail, Orange Line, and Silver Line Stations, 2012; Gateway Cities Strategic Transportation Plan Transit Assessment, 2013.