

## MEMORANDUM

To: Justin Poulos, Streetworks Development (SWD)

From: Adam Gibson, P.E.  
Lisa Juan, P.E. (MA)

Date: February 3, 2023  
*Updated February 23, 2023*

Subject: Revised Preliminary Traffic Engineering Assessment  
One Westfield Place Transit Oriented Development (TOD)  
Town of Westfield  
Union County, New Jersey

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## EXECUTIVE SUMMARY

This revised preliminary traffic study will be submitted for review to the Authorities Having Jurisdiction and may be subject to change based on comments from the same.

One Westfield Place is a proposed Transit Oriented Development (TOD) that will consist of a mix of retail/restaurant, residential, and office uses spread across three (3) general areas (“zones”) in the vicinity of the Westfield Train Station. The zones are made up of the former Lord & Taylor property, along with parcels that the Town of Westfield (Town) determined would be beneficial to have redeveloped in June 2020. This proposed redevelopment, including elements of a new mobility hub within the North Zone and South Zone (immediately adjacent to the train station), will provide balanced transportation options and support a diverse, mixed-use downtown neighborhood. The three (3) zones are described below with the associated land use types (the “Project”).

The One Westfield Place West Zone is comprised of multiple lots located along the north and south sides of North Avenue/CR 610, bounded to the east by Broad Street, to the west by Charles Street, and to the south by the railroad tracks. The West Zone will consist of approximately 13,300 square feet of commercial retail, 170 residential dwelling units (mix of townhomes, multi-family, and age restricted 55+), 40,000 square feet of general office space, 60,000 square feet of medical office space, and associated parking for each land use. The existing Lord & Taylor building will be repurposed (for the office and medical office uses) as part of the proposed development.

The North Zone is located along the south side of North Avenue/Route 28, bounded to the east by Central Avenue, to the west by Elm Street, and to the south by the railroad tracks, and where it is proposed to redevelop the Town's existing surface parking lots (Lot 2 and Lot 8). The existing commercial buildings and employee/customer parking will remain. The proposed redevelopment will include creating public open space (Town Square) opposite Elm Street on the south side of North Avenue. The North Zone will include a +/-352 space parking garage (317 public parking spaces and 35 private residential parking spaces) located adjacent to the proposed loft residential building (which

will contain 35 multi-family dwelling units and 2,110 square feet of commercial retail) and approximately 93 public surface lot parking spaces.

The South Zone is located along the north side of South Avenue/CR 610, bounded to the east by Central Avenue, to the west by Summit Avenue, and to the north by the railroad tracks, and where it is proposed to redevelop the Town's existing surface parking lots (Lot 3). The proposed redevelopment will include creating public open space (Town Green) opposite the intersection of Summit Avenue with South Avenue, and general office buildings (210,000 square feet) with retail (12,000 square feet) and associated garage parking. The South Zone will also include a +/-208 space public parking garage and up to 109 public surface lot parking spaces. The parking garages associated with the office/retail buildings will provide public parking on nights, weekends, and holidays.

Based on local and industry data, the proposed development, which will eliminate the as-of-right permitted retail use of the Lord & Taylor building, will generate a net increase of 282 vehicles during the busiest hour, PM peak hour<sup>1</sup>. These additional new trips, which will be divided between the three zones, West Zone, North Zone, and South Zone, will not be added all at one location but will be dispersed throughout the study area roadways and intersections. Significant traffic control, safety, pedestrian, and bicycle improvements are proposed to offset the addition of this traffic to the surrounding roadways. The results of the detailed intersection analyses conducted for this study indicate that, with the proposed improvements and the additional Project traffic, the study intersections will generally operate at overall LOS D or better during both the weekday AM and PM peak hours and the Saturday Midday peak hour.

The unsignalized site access points to the West Zone, North Zone, and South Zone are expected to have adequate capacity to accommodate entering and exiting project traffic without interfering with passing traffic. The site access and internal circulation via the signalized intersections at the North Zone and South Zone will continue to be evaluated and refined, in coordination with the Applicant, Town, and other AHJs to provide efficient vehicular flows and sufficient space for all modes of transportation.

Signal timing modifications at several study intersections will generally improve the operating conditions but will not resolve all the operational issues. Additional capacity would be beneficial at select intersections to improve traffic flows through the area; however, the right-of-way is limited and the Town's desire to create a more pedestrian/bicycle-friendly downtown may make these types of improvements infeasible. Where physical improvements to an intersection may not be feasible, alternative analysis was performed with priority given to improving the pedestrian and bicycle infrastructure/safety.

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<sup>1</sup> Area traffic volumes are greatest during the afternoon peak hour, resulting in the longest traffic delays during this hour, when the Project is expected to add 282 new trips to the surrounding roadway network. The Project is expected to add 310 new trips to the surrounding roadways during the weekday AM peak hour and to result in a net reduction of 82 trips during the Saturday Midday peak hour (when area traffic volumes are lower).

A summary of the recommended mitigations is provided below. Coordination with other stakeholders will be necessary to discuss the operating conditions of intersections that are maintained by either Union County or New Jersey Department of Transportation (NJDOT).

- Expanded Multi-Use Trail along Route 28
  - Proposed multi-use trail expansion from 8.0 feet to 14.0 feet.
  - Evaluate the need for additional pedestrian-friendly lighting beneath the overpass.
  - Provide connection from existing multi-use trail to future bicycle/pedestrian infrastructure along North Avenue and South Avenue.
  - Provide signing, marking, and intersection control at the connections to the existing multi-use trail.
- Intersection ID #1. Crossway Place/Scotch Plains Avenue & South Avenue
  - Modify signal timings.
- Intersection ID #4. Summit Avenue & South Avenue
  - Replace the existing traffic signal with a new signal.
  - Reconfigure the intersection to a standard, 4-way intersection.
  - Modify signal phase for an exclusive eastbound and westbound left-turn phase. Convert the eastbound approach to consist of an exclusive eastbound left-turn lane and shared eastbound through/right-turn lane. Install an exclusive westbound left-turn lane. Remove the northbound and southbound split-phase operation.
  - Road diet along South Avenue from Westfield Avenue/roundabout to Central Avenue, which would reduce the number of westbound lanes from two (2) to one (1).
  - Implement a leading pedestrian interval (LPI), which gives pedestrians the opportunity to enter the crosswalk before vehicles.
- Intersection ID #5. South Avenue & Boulevard
  - Road diet along South Avenue from traffic circle/roundabout to Central Avenue.
  - Reduce the number of traffic lanes and distance to be negotiated by pedestrians crossing South Avenue at this location.
- Intersection ID #6. South Avenue & Eastern Site Driveway
  - Install a new traffic signal.
  - Implement an LPI.
  - This intersection will include signal coordination with Intersection ID #4. South Avenue & Summit Avenue and Intersection ID #7 Ross Place & Central Avenue & South Avenue.
  - As part of the road diet, reduce the westbound through travel lanes from two to one, with the outside most travel lane used as a right-turn lane into the site.
- Intersection ID #7. Ross Place & Central Avenue & South Avenue
  - Modify signal timings.
  - Restrict westbound right-turn on red movement.
  - Add ergonomic crosswalks on the southbound and westbound approaches.
  - Construct curb extension at the corner of South Avenue & Ross Place to shorten the pedestrian crossing distance.
  - Adjust the pedestrian signal phasing so pedestrians cross Ross Place when South Avenue has a green light.
- Intersection ID #8. Crossway Place/Edgewood Avenue & North Avenue
  - Modify signal timings.

- Intersection ID #9. North Avenue & Clark Street
  - Construct curb extensions with ADA-compliant ramps at the northeast and northwest corners at Clark Street. This treatment will shorten the pedestrian crossing distance.
  - Install a new traffic signal.
  - This intersection will include signal coordination with Intersection ID#11. Route 28/Broad Street & North Avenue.
  - Restrict the westbound right-turn on red movement.
  - Implement an LPI.
- Intersection ID #11. Route 28/Broad Street & North Avenue
  - Stripe the shoulders along the eastbound right-turn lane, slip ramp to narrow down the travel lane.
  - Use high visibility crosswalk markings.
  - Provide pedestrian crossing warning signs on both sides of the slip ramp. RRFBS could be provided to further enhance safety at the crossings.
  - Declutter and/or relocate existing signs as much as possible. For example, the yield sign at the southern end could be relocated further south such that it is placed adjacent to the yield markings.
  - Modify signal timings.
  - Install a no right turn for trucks sign at the northeast corner for westbound right-turn truck movements.
  - Additional bicycle and pedestrian improvements (wider sidewalk/multi-use trail, streetscape) will need to be further evaluated with the Town and NJDOT.
- Intersection ID #12. North Avenue & Elm Street
  - Replace the existing traffic signal with a new signal.
  - Reconfigure the intersection to a standard, 4-way intersection.
  - Maintain existing intersection lane geometry; however, convert to a typical four-legged intersection.
  - Modify signal timings.
  - Upgrade pedestrian crosswalk signals as part of traffic signal redesign.
  - Implement an LPI.
- Intersection ID #13. Central Avenue & North Avenue
  - Install a new traffic signal. Add ADA curb ramps and pedestrian signals
  - Add ergonomic crosswalks on all approaches
  - Modify signal timings.
- Intersection ID #14. Prospect Street & Broad Street
  - Install a new traffic signal.
  - Construct curb extensions on the east leg of the intersection (Prospect Street).
  - Implement an LPI.
- Intersection ID #16. Central Avenue & Broad Street
  - Install a flashing yellow arrow (FYA) for westbound left-turn movements (Broad Street to Central Avenue).
- Intersection ID #17. Broad Street & Mountain Avenue
  - Install a FYA for eastbound left-turn movements (Broad Street to Mountain Avenue).
- Intersection ID #23. North Avenue & Eastern North Zone Parking Site Driveway
  - New driveway for only right-turn in/right-turn out movements.

The Project is consistent with current State and County practices as indicated by New Jersey Future<sup>2</sup> in their January 30, 2023 press release where it is noted that compact, walkable, mixed-use centers produce a host of societal benefits. These include:

- Enabling people to take at least some of their trips on public transit, or by non-motorized means, shortening travel distances for those trips that are still taken by car;
- Reducing the state's greenhouse gas emissions;
- Reducing traffic congestion;
- Improving pedestrian and bicyclist safety;
- Reducing the expenses involved in owning a vehicle (especially important for lower-income households);
- Allowing people to spend less time in the car commuting and running errands;
- Improving public health as a result of more people using more active modes of transportation; and
- Reducing per-capita infrastructure needs and the public expenditures they engender.

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<sup>2</sup> A nonprofit, nonpartisan organization that promotes sensible and equitable growth, redevelopment, and infrastructure investment.

## INTRODUCTION

Kimley-Horn prepared this memorandum to detail the results of the Traffic Engineering Assessment for the proposed redevelopment (One Westfield Place) in the Town of Westfield (Town), Union County, New Jersey. One Westfield Place is a proposed Transit Oriented Development (TOD) that will consist of a mix of commercial, residential, and office uses spread across three (3) zones in the vicinity of the Westfield Train Station and the former Lord & Taylor department store building. The zones are made up of parcels that the Town of Westfield declared as an area in need of redevelopment in June 2020. This proposed redevelopment, including elements of a new mobility hub within the North Zone and South Zone, will provide balanced transportation options and support a diverse, mixed-use downtown neighborhood.

The scope of this *Revised Preliminary Traffic Engineering Assessment* was developed as part of on-going coordination with the Town of Westfield's Traffic Engineering Professional (WSP).

## PROJECT DESCRIPTION

The proposed redevelopment is a mix of commercial, residential, and office uses spread across three (3) zones in the vicinity of the Westfield Train Station and the former Lord & Taylor department store building. The three (3) zones are listed below with the associated land use types and shown in the concept plan in [Appendix A](#).

- West Zone – commercial retail (13.3 ksf), residential (170 dus), and office (40 ksf general and 60 ksf medical office)
- North Zone – residential (35 dus) and commercial retail (2.1 ksf)
- South Zone – commercial retail (12 ksf) and office (210 ksf general)

This proposed redevelopment is being planned to provide balanced transportation options, including elements of a new mobility hub within the North Zone and South Zone. Vehicle trips may shift to walking, cycling, or taking public transit especially because the downtown redevelopment key principles include the development of great streets and fostering a unique, organic, urban environment with an emphasis on green environments and state-of-the-art green technologies.

The Project is consistent with current State and County practices as indicated by New Jersey Future<sup>3</sup> in their January 30, 2023 press release where it is noted that compact, walkable, mixed-use centers produce a host of societal benefits. These include:

- Enabling people to take at least some of their trips on public transit, or by non-motorized means, shortening travel distances for those trips that are still taken by car;
- Reducing the state's greenhouse gas emissions;
- Reducing traffic congestion;
- Improving pedestrian and bicyclist safety;

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<sup>3</sup> A nonprofit, nonpartisan organization that promotes sensible and equitable growth, redevelopment, and infrastructure investment.

- Reducing the expenses involved in owning a vehicle (especially important for lower-income households);
- Allowing people to spend less time in the car commuting and running errands;
- Improving public health as a result of more people using more active modes of transportation; and
- Reducing per-capita infrastructure needs and the public expenditures they engender.

## EXISTING CONDITIONS

### Study Area

The West Zone is comprised of multiple lots located along the north and south sides of North Avenue/CR 610, bounded to the east by Broad Street, to the west by Charles Street, and to the south by the railroad tracks. The West Zone will consist of approximately 13,300 square feet of commercial retail, 170 residential dwelling units (mix of townhomes, multi-family, and age restricted 55+), 40,000 square feet of general office space, 60,000 square feet of medical office space, and associated parking for each land use. Of the 170 residential dwelling units, 154 will be age restricted to 55+, and 27 will be affordable housing. The existing Lord & Taylor building will be repurposed (for the office and medical office uses) as part of the proposed development.

The North Zone is located along the south side of North Avenue/Route 28, bounded to the east by Central Avenue, to the west by Elm Street, and to the south by the railroad tracks and will redevelop the Town's existing surface parking lots (Lot 2 and Lot 8). The existing commercial buildings and employee/customer parking will remain. The proposed redevelopment will include creating public open space (Town Square) at the intersection with Elm Street. The loft residential (35 dwelling units), including six (6) affordable units, and retail are located at the southwest corner of North Avenue/Route 28 & Central Avenue. The North Zone will also include a +/-352 space parking garage (317 public parking spaces and 35 private residential parking spaces) located adjacent to the loft residential building and approximately 93 public surface lot parking spaces.

The South Zone is located along the north side of South Avenue/CR 610, bounded to the east by Central Avenue, to the west by Summit Avenue, and to the north by the railroad tracks, and where it is proposed to redevelop the Town's existing surface parking lots (Lot 3). The proposed redevelopment will include creating public open space (Town Green) opposite the intersection of Summit Avenue with South Avenue, and general office buildings (210,000 square feet) with retail (12,000 square feet) and associated garage parking. The South Zone will also include a +/-208 space public parking garage and up to 109 public surface lot parking spaces. The parking garages associated with the office/retail buildings will provide public parking on nights, weekends, and holidays.

The following 17 existing intersections were identified for study (existing intersection traffic control) based upon discussions and agreements with the Town:

- Intersection ID #1. Crossway Place/Scotch Plains Avenue & South Avenue (traffic signal)
- Intersection ID #2. Broad Street & South Avenue (traffic signal)
- Intersection ID #3. Route 28 & South Avenue (Yield control roundabout)



- Intersection ID #4. Summit Avenue & South Avenue (traffic signal)
- Intersection ID #5. South Avenue & Boulevard (STOP control)
- Intersection ID #6. South Avenue & Lot #3 East Driveway (STOP control)
- Intersection ID #7. Ross Place & Central Avenue & South Avenue (traffic signal)
- Intersection ID #8. Crossway Place/Edgewood Avenue & North Avenue (traffic signal)
- Intersection ID #9. North Avenue & Clark Street (STOP control)
- Intersection ID #10. Clark Street & Ferris Place (STOP control)
- Intersection ID #11. Route 28/Broad Street & North Avenue (traffic signal)
- Intersection ID #12. North Avenue & Elm Street (traffic signal)
- Intersection ID #13. Central Avenue & North Avenue (traffic signal)
- Intersection ID #14. Prospect Street & Broad Street (STOP control)
- Intersection ID #15. Elm Street & Broad Street (traffic signal)
- Intersection ID #16. Central Avenue & Broad Street (traffic signal)
- Intersection ID #17. Broad Street & Mountain Avenue (traffic signal)

Intersection capacity analyses were performed at study intersections for weekday AM and PM peak hours and Saturday Middy peak hour under existing, future no-build and future build-out conditions (the year 2027).

### Data Collection

Traffic volumes used in this study included a combination of data provided from StreetLight Data (StreetLight) and collected turning movement counts (TMCs). The existing conditions analyses were based on the existing traffic volumes, existing lane uses, and existing traffic controls at the study area intersections.

Historical automated traffic recorder (ATR) data from NJDOT's Traffic Count Stations were reviewed to understand the peak characteristics during the weekday AM and PM peak hours. The historical counts identified that the typical commuter peak periods were within 7:00 – 9:00 AM and 4:00 – 6:00 PM as shown in [Appendix B](#).

### Weekday

StreetLight is an online platform for transportation analytics and traffic counts based upon crowdsourced mobile device data. StreetLight samples from cell phone apps that use location-based services. Rather than collecting counts for a single day, StreetLight can aggregate and average data across several months. This analysis began during the COVID-19 pandemic. Therefore, StreetLight was queried for four (4) months in 2019 on a typical weekday (Tuesday, Wednesday, or Thursday) AM peak period (7:00– 8:00 AM and 8:00– 9:00 AM) and PM peak period (4:00– 5:00 PM and 5:00– 6:00 PM). Two (2) of the months queried were in the Spring (March and April) and the other two (2) months were in the Fall (September and October) while school was in session. Based upon the data queried, the network AM peak hour was identified as 7:00 – 8:00 AM and the PM peak hour was identified as 5:00 – 6:00 PM. Daily count data, such as 48-Hour Volume Counts from the NJDOT Traffic Count Stations and historical peak hour TMCs provided by the Town of Westfield in the study area were utilized as calibration data inputs in StreetLight. The daily count and historical peak hour TMC data was used by the StreetLight algorithm to calibrate volume estimates internally. After



obtaining the raw 2019 TMCs from StreetLight, post-processing outside of StreetLight was conducted to obtain (pre-COVID-19) 2021 TMCs. The following adjustments were made:

- The NJDOT Traffic Count Stations data provided sub-daily count data (provided in 1-hour bins for some or all locations); these hourly volumes were grown to the year 2021. These volumes were held fixed, if available for study area intersections, similarly to the historic TMCs.
- The remaining study area intersection volumes were derived by proportionally adjusting the 2019 StreetLight TMCs to balance with the fixed historic count data at all available locations. In this way, the StreetLight volumes were used as a “starting point” for traffic volumes but adjusted to align with known, historical volumes.
- If no historic TMC data was available, the StreetLight volumes were utilized at all intersections but balanced to be held fixed with the available midblock hourly data from NJDOT.

The traffic volume data at the following study intersections were based upon StreetLight.

- Intersection ID #1. Crossway Place/Scotch Plains Avenue & South Avenue (traffic signal)
- Intersection ID #2. Broad Street & South Avenue (traffic signal)
- Intersection ID #7. Ross Place & Central Avenue & South Avenue (traffic signal)
- Intersection ID #8. Crossway Place/Edgewood Avenue & North Avenue (traffic signal)
- Intersection ID #13. Central Avenue & North Avenue (traffic signal)
- Intersection ID #14. Prospect Street & Broad Street (STOP control)
- Intersection ID #15. Elm Street & Broad Street (traffic signal)
- Intersection ID #16. Central Avenue & Broad Street (traffic signal)
- Intersection ID #17. Broad Street & Mountain Avenue (traffic signal)

StreetLight provides hourly volume data thus, a peak-hour factor (PHF), which relies on a 15-minute breakdown of volumes, could not be calculated by StreetLight at the time this data was queried. Industry PHF defaults of 0.92 and 0.95 were used for the existing conditions and future conditions, respectively. StreetLight does not provide vehicle classifications; thus, heavy vehicle percentages (HV%) could not be calculated from the raw data. The HV% was calculated by averaging the HV% utilizing the existing traffic volumes based upon current TMCs – a 5 percent (5%) HV% was assumed for the AM peak hour and a 2 percent (2%) HV% was assumed for the PM peak hour.

Manual TMCs were conducted on Wednesday, November 17, 2021, between 7:00 – 9:00 AM and 4:00 – 6:00 PM at the following study intersections. The PHF and HV% were based on existing counts.

- Intersection ID #3. Route 28 & South Avenue (Yield control roundabout)
- Intersection ID #11. Route 28/Broad Street & North Avenue (traffic signal)

Manual TMCs were conducted on Tuesday, April 5, 2022, between 6:00 – 10:00 AM and 3:00 – 7:00 PM at the following study intersections. The PHF and HV% were based on existing counts.

- Intersection ID #4. Summit Avenue & South Avenue (traffic signal)

- Intersection ID #5. South Avenue & Boulevard (STOP control)
- Intersection ID #6. South Avenue & Lot #3 East Driveway (STOP control)
- Intersection ID #12. North Avenue & Elm Street (traffic signal)

TMC data for the following intersections were based on the *Proposed Mixed-Use Development Traffic & Parking Assessment Report*, prepared by Stonefield Engineering (April 26, 2022). Traffic counts for these intersections were conducted on Thursday, October 21, 2021, from 7:00 – 9:00 AM and 4:00 – 7:00 PM.

- Intersection ID #9. North Avenue & Clark Street (STOP control)
- Intersection ID #10. Clark Street & Ferris Place (STOP control)

### Saturday

Manual TMCs were conducted on Saturday, June 18, 2022, between 11:00 AM – 2:00 PM at the following study intersections. The PHF and HV% were based on existing counts. The traffic counts are included in [Appendix B](#).

Additionally, the TMC data for one (1) intersection (North Avenue & Clark Street) was based upon data from the *Proposed Mixed-Use Development Traffic & Parking Assessment Report*, prepared by Stonefield Engineering (April 26, 2022). The traffic count for this intersection was conducted on Saturday, October 16, 2022, from 11:00 AM – 2:00 PM. [Figure 1](#) illustrates the study intersections.

- Intersection ID #1. Crossway Place/Scotch Plains Avenue & South Avenue (traffic signal)
- Intersection ID #2. Broad Street & South Avenue (traffic signal)
- Intersection ID #3. Route 28 & South Avenue (Yield control roundabout)
- Intersection ID #4. Summit Avenue & South Avenue (traffic signal)
- Intersection ID #5. South Avenue & Boulevard (STOP control)
- Intersection ID #6. South Avenue & Lot #3 East Driveway (STOP control)
- Intersection ID #7. Ross Place & Central Avenue & South Avenue (traffic signal)
- Intersection ID #8. Crossway Place/Edgewood Avenue & North Avenue (traffic signal)
- Intersection ID #9. North Avenue & Clark Street (STOP control) <sup>4</sup>
- Intersection ID #10. Clark Street & Ferris Place (STOP control)
- Intersection ID #11. Route 28/Broad Street & North Avenue (traffic signal)
- Intersection ID #12. North Avenue & Elm Street (traffic signal)
- Intersection ID #13. Central Avenue & North Avenue (traffic signal)
- Intersection ID #14. Prospect Street & Broad Street (STOP control)
- Intersection ID #15. Elm Street & Broad Street (traffic signal)
- Intersection ID #16. Central Avenue & Broad Street (traffic signal)
- Intersection ID #17. Broad Street & Mountain Avenue (traffic signal)

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<sup>4</sup> Per the *Proposed Mixed-Use Development Traffic & Parking Assessment Report*, prepared by Stonefield Engineering, dated April 26, 2022

Additional data was collected at existing site driveways to the parcels where the proposed development will occur. These volumes were used to estimate the amount of traffic generated by the existing parcels.

- North Avenue & L&T Parking Lot (west of Clark Street) (STOP control)
- North Avenue & L&T Parking Lot (east of Charles Street) (STOP control)
- North Avenue & Columbia Bank Driveway (STOP control)
- North Avenue & Limani Seafood Grill Driveway (STOP control)
- North Avenue & Verizon Driveway (STOP control)
- South Avenue & Lot #3 Driveway west of Summit Avenue Driveway (STOP control)

**Figure 2** presents the existing peak hour background traffic volumes during the weekday AM and PM peak hours and **Figure 3** presents the existing Saturday MIDDAY peak hour.

## FUTURE BACKGROUND TRAFFIC

Future background traffic conditions are defined as expected traffic conditions on the roadway network in the year 2027 without the construction of the proposed redevelopment. Future background traffic volumes used in the analysis are the sum of the existing traffic, an additional amount of traffic generated by growth in the study area, and committed development traffic in the Town of Westfield. Additionally, since the Lord & Taylor building (~143,000 square feet) could be re-occupied with another department store as an “as-of-right” use, these trips were also included as background traffic and the analysis was used as the reference point for which the proposed redevelopment was compared. **Figure 4** presents the 2027 peak hour background traffic volumes during the weekday AM and PM peak hours and **Figure 5** presents the Saturday MIDDAY peak hour.

### Background Area Growth

A background growth rate was applied to existing traffic volumes to project traffic volumes in the year 2027. The growth rate was developed based on the sociodemographic projections from the North Jersey Transportation Planning Authority (NJTPA) for 2035 along with NJTPA’s regional travel model (North Jersey Regional Transportation Model Enhanced) as documented in the *Town of Westfield Unified Land Use + Circulation Element (ULUC)*, June 2021. A compounded annual growth rate (CAGR) of 0.26 percent (0.26%) per year between 2021 and 2027 or 2022 and 2027 was applied to the existing traffic volumes.

### Committed Development

The *Town of Westfield ULUC* (June 2021) created a Buildout Analysis, which was intended to show how development could affect the downtown as a whole and different areas of the downtown in particular. The following committed development projects were included in the analysis and can be found in **Appendix C**.

- The Parker (439 West Broad St)
  - 31-dwelling units
- The Bentley (501 South Ave West)
  - 30-dwelling units and 7,055 sf of retail/restaurant
- 409 Westfield Avenue (adjacent to “Roots Building”)

- 3-dwelling units and 2,100 sf of restaurant
- Former Jolly Trolley (411 North Ave West)
  - 20-dwelling units and 1,200 sf of restaurant
- Flatiron Building (44 Elm St)
  - 2-dwelling units and 1,300 sf of retail/restaurant
- 226 North Avenue West
  - 4-dwelling units and 5,070 sf of retail/restaurant
- 333 Central Avenue
  - 70-dwelling units
- Savannah Condos (111 Prospect St)
- 53-dwelling units
- The Sophia (located in the southwest corner of Prospect Street & Ferris Place, also designated as Block 2504, Lot 12, 13, and 13 as depicted on the Township of Westfield Tax Map)
  - 64-dwelling units and 500 square feet of first-floor retail space
- Westfield Crossing (located at South Avenue, Block 3307, Lots 1 and 2)
  - 193-dwelling units
- Adoni Property Group Development (located along the south side of North Avenue in the vicinity of Euclid Avenue)
  - 30-dwelling units
- Needle Point Homes Development (located along the south side of North Avenue in the vicinity of Euclid Avenue)
  - 15-dwelling units

### Lord & Taylor As-of-Right Use

Trip generation calculations for the Lord & Taylor as-of-right use were performed using the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 11<sup>th</sup> Edition*. The trip generation for the department store as-of-right use was estimated using ITE Land Use Code (LUC) 875 (Department Store) for the weekday AM and PM peak hours and Saturday Midday peak hour. The trip generation for the as-of-right use was projected to be 64 new trips during the AM peak hour, 211 trips during the PM peak hour, and 378 trips during the Saturday Midday peak hour. The detailed worksheets are included in [Appendix E](#).

## PROJECT TRAFFIC

Project traffic used in this analysis is defined as:

- the redistribution of vehicle trips associated with the commuter parking lots being redeveloped;
- vehicle trips expected to be generated by the project; and
- the distribution and assignment of that traffic over the study roadway network.

### Public Parking Lots

The proposed redevelopment will modify how the surface parking lots exist today, which will impact users such as Commuters, Employees, and Shoppers. It is anticipated that as part of this redevelopment, the Town will construct two (2) public garages; one (1) in the North Zone, located at the southwest corner of North Avenue/Route 28 & Central Avenue, and one (1) in the South Zone, located at the northwest corner of South Avenue & Summit Avenue.

### Inventory and Access

The North Zone consists of Lot 2, which is Pay Station Parking: Maximum of 4 hours, and Lot 8, which is a combination of Permit Parking for Employees and Commuters, and Reserved Business Parking (for the existing businesses located in this area and their customers/Shoppers).

The South Zone consists of Lot 3, which is a combination of Permit Parking for Commuters and 12-Hour Parking: Numbered Spaces.

The number of existing parking spaces/supply has been compiled based on recent data collection efforts in April 2022 and the *Town of Westfield Public Parking Plan* (dated September 20, 2022, as developed by THA).

Parking will be modified for Lot 2 and Lot 8 in the North Zone and for Lot 3 in the South Zone. The *Westfield Public Parking Plan* includes both Primary and Contingency strategies to replace the parking spaces being displaced as part of the redevelopment. Per Town staff, it is intended that the number of commuter parking spaces in the North Zone and South Zone will be replaced one-for-one within the Town.

The redevelopment site access to the lots in the North Zone and South Zone is summarized below.

- North Zone: North Avenue & Elm Street – existing signalized full-access driveway
- North Zone: North Avenue & Limani Seafood Grill Driveway – existing ingress only driveway
- North Zone: North Avenue & Verizon Driveway – existing full-access driveway
- North Zone: North Avenue & west of Central Avenue Driveway – proposed right-in/right-out (RIRO) only driveway
- South Zone: South Avenue & Lot 3 East Driveway – existing full-access driveway
- South Zone: South Avenue & Summit Avenue – existing signalized full-access driveway

As part of the redevelopment, the current site plan ([Appendix A](#)) indicates the net change of commuter/public parking spaces/supply within the North Zone and South Zone. There are on-going discussions between the Town and the Applicant regarding the future number of commuter parking spaces in these areas.

The Town provided geodata to review the origin-destination (O-D) data for the commuter lot permits located at Lot 8, which is in the North Zone (south of North Avenue) and Lot 3, which is in the South Zone (north of South Avenue). The information was used to determine potential travel routes between those origins and the commuter lots. Based upon the geodata for Lot 8 (North Zone), approximately 57 percent (57%) of the trips are coming to/from the residential areas south of the tracks and 43 percent (43%) of the trips are coming to/from the residential areas north of the tracks. Based upon the geodata for Lot 3 (South Zone), approximately 10 percent (10%) of the trips are coming to/from the residential areas south of the tracks and 90 percent (90%) of the trips are coming to/from the residential areas north of the tracks. The distribution for commuter trips associated with Lot 8 (North Zone) and Lot 3 (South Zone) are illustrated in [Figure 4](#) and [Figure 5](#), respectively. The geodata was utilized to understand the routes commuters may travel between the train station and their home. The general distribution for Lot 8 (North Zone) and Lot 3 (South Zone) for commuter travel patterns is shown in [Appendix D](#).

#### *Weekday*

A comparison of recent parking occupancy data and data collected previously on Tuesday, June 6, 2019, as part of the *Town of Westfield Master Plan Re-Examination Parking Planning Plan Element* (November 2019) was performed to understand the current trend in parking occupancy due to the ongoing effects of the COVID-19 pandemic. Recent parking occupancy data collected for Lot 2, Lot 3, and Lot 8 occurred on Tuesday, April 5, 2022, from 10:00 AM to 8:00 PM and was collected at 2-hour intervals to be consistent with the previous data collection efforts. Overall, the parking occupancy trended lower in April 2022 between 10:00 AM and 4:00 PM, while the parking occupancy at 6:00 PM was very similar to the previous data collected and the parking occupancy at 8:00 PM was higher. The data comparison for Lot 2, Lot 3, and Lot 8 is shown in [Appendix D](#).

On the same day of the parking occupancy data collection efforts (Tuesday, April 5, 2022), TMCs were collected at the individual commuter parking lot driveways (Lot 2, Lot 3, and Lot 8) to understand the number of commuter and public trips being generated currently. The TMCs were collected from 6:00 AM – 10:00 AM and 3:00 PM – 7:00 PM. The data utilized in this study was 7:00 AM – 8:00 AM and 5:00 PM – 6:00 PM to be consistent with the analysis time period for other data collection efforts associated with this project. Since the parking occupancy trended lower when compared between post-pandemic (April 2022) and pre-pandemic (June 2019), the TMCs at the individual commuter parking lots were scaled by a factor of 1.11 for both AM and PM peak hours to adjust the volumes to pre-pandemic levels. This factor represented the average difference in parking occupancy among the data collection intervals between 10:00 AM and 6:00 PM.

To account for the redevelopment of public parking lot spaces, the TMCs at the individual commuter parking lot driveways were scaled accordingly. The additional trips associated with the increase in commuter parking spaces in the North Zone were evenly split between the residential areas located north and south of the railroad tracks as shown in [Figure 6](#) and [Figure 7](#). The net change in trips associated with the decrease in commuter parking spaces in the South Zone were removed from the driveways and study area intersections based upon the geodata provided by the Town and the routes commuters may travel between the train station and their home as shown in [Figure 8](#). The calculation of the TMCs at the individual commuter parking lot driveways with the factors described above is included in [Appendix D](#).



### *Saturday*

Trips being generated to/from the commuter lots on a Saturday were assumed to remain unchanged in the build conditions since the number of available parking spaces in these lots will be similar to or greater than the existing conditions. Additionally, the user of these parking spaces on a weekend is associated more with public use versus commuter use. In the build conditions, the assignment of these trips may be redistributed to another site driveway due to the reconfiguration of the site driveways (e.g., North Avenue & Columbia Bank Driveway (right-out only driveway located east of North Avenue & Elm Street) trips were redistributed to North Avenue & Elm Street).

### **Project Access**

Based upon the concept plan provided in [Appendix A](#), access to the proposed redevelopment (by zone) is listed below. Each of the site access points should be coordinated with the approving jurisdiction.

- West Zone – Multifamily Residential: Access will be provided by one (1) left-in and left-out-access driveway located along Ferris Place, east of Clark Street. Ferris Place is a one-way in the southbound direction.
- West Zone – Office Building & Multifamily Residential: Access will be provided by two (2) full-access driveways along North Avenue/CR 610, west of Clark Street and east of Charles Street.
  - The existing Lord & Taylor driveway along North Avenue, immediately east of Charles Street, will be closed and the other two (2) existing accesses will remain.
- West Zone – Townhouses: Access will be provided by one (1) full-access driveway located along Clark Street, north of North Avenue/CR 610.
- North Zone: Access will be provided by one (1) full-access driveway at the signalized intersection of North Avenue/Route 28 & Elm Street and one (1) RIRO only driveway proposed along North Avenue/Route 28, west of Central Avenue.
  - The intersection of North Avenue/Route 28 & Columbia Bank Driveway (right-out only driveway) will be closed and the other two (2) existing accesses along North Avenue/Route 28 near the Verizon store will remain.
- South Zone: Access will be provided by one (1) full-access driveway at the existing signalized intersection of South Avenue & Summit Avenue, one (1) right-out only driveway proposed along South Avenue, east of Summit Avenue, and one (1) existing full-access driveway that is proposed to be signalized along South Avenue, west of Central Avenue.
  - The existing site driveway at the intersection of South Avenue & Boulevard is anticipated for non-vehicular modes of travel (e.g., pedestrian, bicycle, scooter, etc.), emergency vehicles, and delivery vehicles during events at this plaza. This access is not intended to be primary access for passenger vehicles.
  - The existing site driveway at the intersection of South Avenue & Lot 3 East Driveway is proposed to be signalized to better facilitate vehicles associated with the office buildings to utilize this access over the access at Summit Avenue. Utilizing this additional access will improve the operational efficiency of vehicles accessing the public parking garage and for pick-up/drop-off of passengers at the train station.



The traffic circulation, pick-up/drop-off locations, parking garage access and operations, bicycle parking, etc. within the North Zone and South Zone are continuing to evolve in coordination with the Town.

### Trip Generation

Trip generation calculations for the proposed redevelopment were performed using the ITE *Trip Generation Manual, 11<sup>th</sup> Edition*, and NJDOT's Highway Access Permit System (HAPS) which is based upon the ITE's *Trip Generation Manual, 10<sup>th</sup> Edition*. The trip generation for the proposed redevelopment was estimated using ITE Land Use Code (LUC) 215 (Single-Family Attached Housing), 221 (Multifamily Housing Mid-Rise), 710 (General Office Building), 720 (Medical-Dental Office), 822 (Strip Retail Plaza <40ksf), and 931 (Fine Dining Restaurant)<sup>6</sup> for the weekday AM and PM peak hours and Saturday Midday peak hour. The multifamily residential units in the West Zone and North Zone include affordable housing and/or age restricted (55+) units. However, as a conservative approach, the residential trip generation rates for LUC 221 (Multifamily Housing Mid-Rise) were used since these rates are higher than the rates for LUC 223 (Affordable Housing) and LUC 252 (Senior Adult Housing – Multifamily).

For the commercial retail land uses within the redevelopment, the trip generation was based upon "Street Retail" (LUC 822) and Restaurant (LUC 931). These land uses were chosen to be consistent with the land use types identified in the *Shared Parking Analysis Technical Memorandum*, prepared by DESMAN (July 28, 2021). Street Retail was defined as traditional goods and services.

### Multimodal Reduction

A multimodal (e.g., public transit, bicycle, pedestrian, worked at home, etc.) factor was identified based on US Census *Means of Transportation to Work* data for Census Tract 366 and *Transit Friendly Planning – A Guide for New Jersey Communities*. The Census Tract 366 data indicated approximately 2.2 percent (2.2%) walked and 6 percent (6%) worked at home for the 2019 5-Year Estimates. Per the *Transit Friendly Planning – A Guide for New Jersey Communities*, the percent reduction at a 'Town Center' for office use is 25 percent (25%), commercial use is 20 percent (20%), and residential use is 30 percent (30%).

It is projected that a portion of employees, residents, and visitors will choose to walk, bike, or take public transit to the proposed redevelopment due to the availability/planned availability of sidewalks and bicycle facilities, NJ TRANSIT bus routes (Route 59 and Route 113) in the vicinity, and the proximity of the Westfield Train Station (Raritan Valley Line). Per the NJ TRANSIT website, the Raritan Valley Line provides weekday service from High Bridge, Raritan, and Plainfield to Newark Penn Station, with trains extended to/from New York during midday and evening hours. On weekends and holidays, service operates between Raritan and Newark Penn Station, with connecting service to/from New York. Between 6:30 AM and 9:30 AM, there are seven (7) trains heading towards NYC which stop in Westfield and three (3) trains heading toward Raritan which stop in Westfield. Between 4:00 PM and 7:30 PM, there are five (5) trains heading toward NYC and six (6) trains heading toward

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<sup>6</sup> The ITE's *Trip Generation Manual, 10<sup>th</sup> Edition*, LUC 931 is Quality Restaurant.

Raritan. There are 13 stops between High Bridge and Westfield and seven (7) stops between Westfield and New York Penn Station. The municipalities located in New Jersey with a stop along the Raritan Valley Line (excluding Hoboken), west and east of Westfield, have a combined working age (18+) population of approximately 465,000 people (Source: US Census Bureau, Census 2020). This data supports the use of NJ TRANSIT train trips.

The general office (LUC 710) and residential (LUC 215 and LUC 221) land uses utilized the setting/location of “dense multi-use urban” and land use subcategory of “close to rail transit,” if these variables were provided in the *ITE Trip Generation Manual, 11<sup>th</sup> Edition*. The trip generation rates provided by ITE when using these variables already considers the effect of non-vehicular modes of transportation; thus, a separate multimodal factor was not applied for these land uses. It should be noted that the trip generation for the North Zone Lofts Residential and Retail was based upon NJDOT’s HAPS since this portion of the redevelopment will directly access a State roadway and will need to follow NJDOT methodology. The HAPS data does not provide the setting/location and land use subcategory variables; thus, the previously described multimodal factors were applied to the residential and retail uses in the North Zone. Additionally, ITE does not provide the setting/location and land use subcategory variables for the medical office (LUC 720) and commercial retail land uses (LUC 822 and LUC 931). Therefore, the general urban/suburban setting/location variable was utilized along with applying the previously described multimodal factors.

The *ITE Trip Generation Manual, 11<sup>th</sup> Edition*, LUC 215 (Single-Family Attached Housing) and LUC 221 (Multifamily Housing Mid-Rise) do not include trip rates for a Saturday time period with “dense multi-use urban” as the Setting/Location. Thus, the trip rate for the Saturday time period was proportioned by using the average trip rate of the weekday AM and PM peak hour of adjacent street with “dense/multi-use urban” over the trip rate of the weekday AM and PM peak hour of adjacent street with “general urban/suburban”. Then, the calculated average trip rate for the AM and PM peak hour of adjacent street was multiplied by the Saturday average rate with “general urban/suburban” as the Setting/Location to determine the trip rate for the Saturday time period with “dense multi-use urban.” The calculations for the Saturday trip rate under “dense multi-use urban” are included in [Appendix E](#).

The following multimodal factors were applied to the different land uses based upon a combination of the sources identified above.

- Residential Multimodal Factor (for North Zone Lofts Residential only): 38.2 percent (38.2%) (combination of walking (2.2%), working at home (6%), and taking public transit (30%))
- Retail Multimodal Factor: 22.2 percent (22.2%) (combination of walking (2.2%) and taking public transit (20%))
- Medical Office Multimodal Factor: 33.2 percent (33.2%) (combination of walking (2.2%), working at home (6%), and taking public transit (25%))

### Internal Capture and Community Capture

A portion of the trips generated by the proposed redevelopment is expected to be captured internally within each zone. Internal capture trips for each zone were determined based upon the methodology contained in the ITE's, *Trip Generation Handbook, 3<sup>rd</sup> Edition* for the weekday AM and PM peak periods. The Saturday Midday peak period was based upon the PM peak period rates and the three (3) time periods are summarized in [Table 1](#).

**Table 1. Internal Capture Rates**

Time Period	West Zone	North Zone	South Zone
AM Peak Hour	7.3%	13.3%	8.0%
PM Peak Hour	13.4%	18.2%	6.3%
Saturday Midday Peak Hour	16.5%	14.8%	16.3%

A community capture rate of 6.07 percent (6.07%) during the weekday AM peak hour and 7.37 percent (7.37%) during the weekday PM peak hour was applied to account for trips between the three (3) zones and the downtown area (residences, places of employment, and businesses). The Saturday Midday peak hour community capture rate was based upon an average of the weekday AM and PM peak hours, which is calculated to 6.72 percent (6.72%). The weekday AM and PM peak hours community capture rates were based upon the Mixed-Use Trip Generation Model ITE/EPA documented in the *Town of Westfield ULUC* (June 2021).

### Pass-by Capture

Pass-by trips represent site patrons who would already be traveling along study roadways whose primary destination is somewhere other than the site. The pass-by rates were applied only to the retail land uses and were based upon the NJDOT's approved pass-by rates, which are based upon the ITE's, *Trip Generation Handbook, 3<sup>rd</sup> Edition*. The average pass-by rate for the retail land use is 34 percent (34%) and the restaurant land use is 44 percent (44%) during the weekday AM and PM peak hours and Saturday Midday peak hour. However, as a conservative analysis for the restaurant land use, the pass-by rate of 10 percent (10%) was utilized instead of the 44 percent (44%)

### Net, New Project Trips

Net, new project trips are equal to the gross project trips minus the multimodal reduction factor, internal/community capture, and pass-by capture. The net, new project trips represent the additional vehicles on the roadway network. The project's trip generation for the entire redevelopment during the weekday AM and PM peak hours and Saturday Midday peak hour is shown in [Table 2](#). As shown in [Table 2](#), the proposed redevelopment is expected to generate 370 net, new trips during the weekday AM peak hour, 479 net, new trips during the weekday PM peak hour, and 271 net, new trips during the Saturday midday peak hour. The detailed worksheets are included in [Appendix E](#).

Table 2. Proposed Net, New Trip Generation

Land Use (ITE Code)	Scale	AM Peak Hour			PM Peak Hour			Saturday Midday Peak Hour		
		Net External Trips	Entering Trips	Exiting Trips	Net External Trips	Entering Trips	Exiting Trips	Net External Trips	Entering Trips	Exiting Trips
West Zone										
Single-Family Attached Housing (215) <sup>1</sup>	16 dus	6	2	4	3	2	1	4	2	2
Multifamily Housing (Mid-Rise) (221) <sup>2</sup>	138 dus	31	5	26	23	18	5	23	12	11
Single-Family Attached Housing (215) <sup>3</sup>	16 dus	6	2	4	3	2	1	4	2	2
General Office Building (710) <sup>4</sup>	40,000 sf	49	43	6	37	6	31	7	1	6
Medical-Dental Office Building (720) <sup>5</sup>	60,000 sf	92	73	19	144	42	102	109	62	47
Strip Retail Plaza (822) <sup>6</sup>	2,500 sf	3	2	1	8	4	4	3	2	1
Fine Dining Restaurant (931) <sup>7</sup>	10,800 sf	4	3	1	40	31	9	37	23	14
West Zone Net, New Project Trips		191	130	61	258	105	153	187	104	83
North Zone										
Multifamily Housing (Mid-Rise) (221) <sup>8</sup>	35 dus	6	2	4	6	4	2	7	4	3
Quality Restaurant (931) <sup>9</sup>	2,100 sf	5	3	2	9	6	3	14	9	5
North Zone Net, New Project Trips		11	5	6	15	10	5	21	13	8
South Zone										
General Office Building (710) <sup>10</sup>	210,000 sf	159	142	17	166	27	139	32	2	30
Strip Retail Plaza <40ksf (822) <sup>11</sup>	9,000 sf	8	5	3	29	14	15	23	11	12
Fine Dining Restaurant (931) <sup>12</sup>	3,000 sf	1	1	0	11	8	3	8	5	3
South Zone Net, New Project Trips		168	148	20	206	49	157	63	18	45
Total Net, New Project Trips		370	283	87	479	164	315	271	135	136

<sup>1</sup> Multimodal Factor – ITE Trip Generation Manual, 11<sup>th</sup> Edition Setting/Location of dense multi-use urban | Community Capture

<sup>2</sup> Multimodal Factor – ITE Trip Generation Manual, 11<sup>th</sup> Edition Setting/Location of dense multi-use urban and land use subcategory of close to rail transit | Community Capture

<sup>3</sup> Multimodal Factor – ITE Trip Generation Manual, 11<sup>th</sup> Edition Setting/Location of dense multi-use urban | Community Capture

<sup>4</sup> Multimodal Factor – ITE Trip Generation Manual, 11<sup>th</sup> Edition Setting/Location of dense multi-use urban | Community Capture

<sup>5</sup> Multimodal Factor – NJ TRANSIT and Means of Transportation to Work | Community Capture

<sup>6</sup> Multimodal Factor – NJ TRANSIT and Means of Transportation to Work | Community Capture | Pass-By

<sup>7</sup> Multimodal Factor – NJ TRANSIT and Means of Transportation to Work | Community Capture | Pass-By

<sup>8</sup> NJDOT's HAPS | Multimodal Factor – NJ TRANSIT and Means of Transportation to Work | Community Capture

<sup>9</sup> NJDOT's HAPS | Multimodal Factor – NJ TRANSIT and Means of Transportation to Work | Community Capture | Pass-By

<sup>10</sup> Multimodal Factor – ITE Trip Generation Manual, 11<sup>th</sup> Edition Setting/Location of dense multi-use urban | Community Capture

<sup>11</sup> Multimodal Factor – NJ TRANSIT and Means of Transportation to Work | Community Capture | Pass-By

<sup>12</sup> Multimodal Factor – NJ TRANSIT and Means of Transportation to Work | Community Capture | Pass-By

For comparison purposes, **Table 3** summarizes the Project's trip generation projections versus the as-of-right Department Store use<sup>8</sup>. As shown in **Table 3**, the Project is expected to generate an additional 310 net, new trips during the weekday AM peak hour, an additional 282 net, new trips during the weekday PM peak hour, and a reduction of 82 net, new trips during the Saturday Midday peak hour compared to the trip generation potential if a new department store re-occupied the Lord & Taylor building.

**Table 3. Proposed Net, New Project Trips for Lord & Taylor**

Land Use (ITE Code)	Scale	AM Peak Hour			PM Peak Hour			Saturday Midday Peak Hour		
		Net External Trips	Entering Trips	Exiting Trips	Net External Trips	Entering Trips	Exiting Trips	Net External Trips	Entering Trips	Exiting Trips
Previously Approved Development										
Department Store (875) <sup>1</sup>	143,836 sf	60	38	22	197	99	98	353	187	166
Proposed Development										
Proposed Development <sup>2</sup>		370	283	87	479	164	315	271	135	136
Total Net, New Project Trips		+310	+245	+65	+282	+65	+217	-82	-52	-30

<sup>1</sup> Multimodal Factor – NJ TRANSIT and Means of Transportation to Work | Community Capture

<sup>2</sup> Total Net, New Project Trips of the Proposed Development as shown in **Table 2**.

<sup>8</sup> Retail, as defined in the Town Code, is a permitted use for the existing 143,836 sf building. ITE data indicates that general retail space generates traffic at a higher rate than department store space. Even though the existing building could be legally reoccupied for general retail businesses (which would generate more traffic), to provide a conservative analysis, the trip generation potential for the existing building was based on the lower, department-store rates.

## Trip Distribution and Assignment

Site generated trips were assigned to the study area intersections based upon the existing roadway network surrounding the site, proposed site access, and a review of the nearby municipal populations. Primary trip distribution percentages were calculated using a gravity model, dividing each surrounding municipality's population (US Census Bureau, Census 2010) by the squared distance from the center of the municipality to the proposed site. Google Maps was used to identify routes vehicles may take to and from the project site. Reviewing aerial views of the surrounding municipalities revealed areas of high concentrations of housing units. Routes were traced from those areas to the project site with an emphasis on minimizing distance, travel time, and delays due to potential traffic congestion or traffic control.

The distribution of pass-by trips and subsequent assignment to the road network was based upon the existing directional distribution of trips on study roadways during each period of study. The distributions are summarized in [Table 4](#).

**Table 4. Distribution Percentages**

Directions (To/From)	Primary Trip Percentage	Pass-By Trip Percentage
North via Mountain Avenue	10%	--
North via Broad Street	10%	--
South via Scotch Plains Avenue	10%	--
South via Summit Avenue	5%	--
South via Central Avenue	25%	--
East via North Avenue	15%	50% <sup>1</sup>
East via South Avenue	10%	
West via North Avenue	10%	50% <sup>1</sup>
West via South Avenue	5%	

<sup>1</sup> The pass-by trip distribution for the West Zone and South Zone To/From the West is 50% and To/From the East is 50%.

The project's net, new trip distribution and trip assignment during the weekday AM and PM peak hours and Saturday Midday peak hour for each zone/redevelopment area are presented in the following figures:

- [Figure 16](#) to [Figure 18](#): West Zone Residential (Int. ID# 21)
- [Figure 19](#) to [Figure 21](#): West Zone Office, Residential, and Retail (Int. ID# 19 & 20)
- [Figure 22](#) to [Figure 24](#): West Zone Townhouses (Int. ID# 22)
- [Figure 25](#) to [Figure 27](#): North Zone Residential Lofts and Retail (Int. ID# 12 & 23)

- **Figure 28 to Figure 30:** South Zone Office and Retail (Int. ID# 4, 5, 6 & 18)
- **Figure 31 to Figure 32:** Site Generated

**Figure 33** and **Figure 34** present the total traffic conditions, which is defined as the expected traffic conditions in the year 2027 after the opening of the project for the weekday AM and PM peak hours and Saturday Midday peak hour, respectively.

## CAPACITY ANALYSIS

Capacity analyses were performed for the AM and PM peak hours at the study intersections to determine the operating characteristics at the signalized and unsignalized intersections of the adjacent street network and to evaluate the impacts of the proposed redevelopment. These analyses were performed according to the methodologies contained in the *Highway Capacity Manual* (HCM), 6<sup>th</sup> Edition, using Synchro Version 11 software. HCM 6<sup>th</sup> Edition Two-Way Stop Controlled (TWSC) procedures were used to analyze the operations at the unsignalized intersections. The Synchro program was used to analyze the operations at the signalized intersections. SIDRA roundabout analysis software was used to evaluate the operating conditions of the roundabout at Route 28 & South Avenue. Capacity is defined as the maximum number of vehicles that can pass over a particular road segment, or through a particular intersection, within a specified period of time under prevailing operational, geometric, and controlling conditions within a set time duration.

The HCM defines Level of Service (LOS) as a “quantitative stratification of a performance measure or measures representing the quality of service” and is used to “translate complex numerical performance results into a simple A-F system representative of travelers’ perceptions of the quality of service provided by a facility or service”. The HCM defines six levels of service, LOS A through LOS F, with A having the best operating conditions from the traveler’s perspective and F having the worst. However, it must be understood that “the LOS letter result hides much of the complexity of facility performance”, and that “the appropriate LOS for a given system element in the community is a decision for local policy makers”. According to the HCM, “for cost, environmental impact, and other reasons, roadways are typically designed not to provide LOS A conditions during peak periods but instead to provide some lower LOS that balances individual travelers’ desires against society’s desires and financial resources. Nevertheless, during low-volume periods of the day, a system element may operate at LOS A.”

LOS for a two-way stop-controlled (TWSC) intersection is determined by the control delay at the side-street approaches. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. With respect to field measurements, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue to the time the vehicle departs from the stop line. It is typical for stop sign-controlled side streets and driveways intersecting major streets to experience long delays during peak hours, particularly for left-turn movements. The majority of the traffic moving through the intersection on the major street experiences little or no delay. The LOS thresholds for unsignalized intersections are summarized in **Table 5**.

LOS for signalized intersections is reported for the intersection as a whole and for the individual movements and approaches. One or more movements at an intersection may experience a low level-



of-service, while the intersection as a whole may operate acceptably. The LOS thresholds for signalized intersections are summarized in [Table 6](#).

**Table 5. Level of Service Control Delay Thresholds for Unsignalized Intersections**

Level of Service	Average Control Delay per Vehicle (sec/veh)	
A	$\leq 10$	Short Delays
B	$> 10 - 15$	
C	$> 15 - 25$	
D	$> 25 - 35$	Moderate Delays
E	$> 35 - 50$	
F	$> 50$	Long Delays

**Table 6. Level-of-Service Control Delay Thresholds for Signalized Intersections**

Level of Service	Average Control Delay per Vehicle (sec/veh)
A	$\leq 10$
B	$> 10 - 20$
C	$> 20 - 35$
D	$> 35 - 55$
E	$> 55 - 80$
F	$> 80$

Capacity analyses were performed for the following traffic condition scenarios:

- Existing Traffic Conditions
- 2027 No-Build Conditions (Build-out year without proposed development but with occupied Lord & Taylor with as-of-right Department Store use)
- 2027 Build Conditions (Build-out year with proposed development)
- 2027 Build Conditions + Mitigation (Build-out year with proposed development)

Traffic signal timing information and data were obtained from multiple sources for the signalized intersections, which were used in the development of the no-build and build-out conditions Synchro network. Capacity analysis reports generated by Synchro Version 11 software are included in [Appendix F](#) for Existing Conditions, 2027 No-Build Conditions, 2027 Build Conditions, and 2027 Build + Mitigation Conditions.

Per the *New Jersey Administrative Code 16:47, Appendix F*, movements at signalized intersections accessing a State Highway (e.g., Route 28) that operate at LOS E or better in the No-Build condition may experience an increase in delay of up to 25 percent (25%) of the difference between the No-Build delay and maximum delay considered LOS E (80 seconds for signalized and 50 seconds for unsignalized). No increase in volume-to-capacity (v/c) ratio is permitted for movements operating at LOS F under the no-build conditions.

According to the Land Development Standards of [Union County](#), the County references the ITE's *Traffic Access and Impact Studies for Site Development* resource, which indicates that the intersection LOS should be LOS D and that any intersection which currently operates worse than LOS D should require mitigation back to the non-project operating conditions.

Per the *Town of Westfield ULUC* (June 2021), *Appendix A*, "an intersection with an overall LOS D or lower is generally considered as operating acceptably, while LOS E and F indicate conditions that are at or above capacity and experience excessive delays. However, it is critical to understand the limitations of using LOS as a performance metric. As an auto-oriented metric, LOS does not fully describe the value and function of a street or intersection that needs to serve multiple users – including pedestrians, bicyclists, and transit users – and is often at odds with community goals related to walkability, place-making, and urban design. Even the Highway Capacity Manual emphasizes that LOS is a part of a bigger picture and neither LOS nor any other single performance measure tells the full story of roadway performance. Furthermore, there is growing recognition that a certain level of congestion is acceptable, particularly in vibrant transit-friendly communities, and that congestion mitigation must be balanced with Westfield's other multimodal travel and community goals."

The 95<sup>th</sup> percentile queue length, provided via Synchro, is defined as the queue length that has only a 5 percent (5%) probability of being exceeded during the analysis time period. The mean queue length is a more accurate characterization of what the average driver would experience.

### Existing Conditions

The existing conditions analyses were based on the existing traffic volumes with existing lane use and traffic controls at the study area intersections. The PHF for the existing conditions was 0.92 for the AM and PM peak hours. The PHF for the Saturday Midday peak hour was based upon the TMC data collected. The results of the existing intersection capacity analyses are summarized in **Table 7** for Existing AM peak hour, **Table 8** for Existing PM peak hour, and **Table 9** for Existing Saturday Midday peak hour attached to this memorandum. Analysis results show the level of service and delay information for each movement, approach, and overall intersection. **Appendix F** includes the intersection capacity analysis worksheets.

For the intersection of North Avenue & Clark Street, field data collected and utilized as part of the intersection analysis for The Sophia project was incorporated into the analysis for this project. In addition to the TMC data collected, vehicular gap acceptance observations and data were collected during the AM, PM, and Saturday peak periods to determine local operator characteristics at this intersection. This information was utilized to determine the critical gap, which is the minimum time-gap in traffic that a motorist will accept to complete a turning movement. The gap acceptance analysis indicated that left-turning vehicles require a critical gap of 4.4 seconds and right-turning vehicles require a critical gap of 4.3 seconds. These values were utilized in the unsignalized intersection capacity analyses for this intersection.

During the weekday AM and PM peak hours and Saturday Midday peak hour, the signalized intersections in the study area study intersections operate at an overall intersection LOS C or better. However, there are individual movements that perform at LOS E or LOS F at the following intersections.

- Intersection ID #1. Crossway Place/Scotch Plains Avenue & South Avenue
  - Southbound left-turn movement during the AM peak hour
- Intersection ID #3. Route 28 & South Avenue
  - Eastbound approach during the AM peak hour
- Intersection ID #4. Summit Avenue & South Avenue
  - Northbound left-turn movement and approach during the AM peak hour
- Intersection ID #9. North Avenue & Clark Street
  - Southbound left-turn movement during the PM peak hour
- Intersection ID #14. Prospect Street & Broad Street
  - Northbound approach during the AM and PM peak hours and Saturday Midday peak hour
  - Southbound approach during the PM peak hour
- Intersection ID #17. Broad Street & Mountain Avenue
  - Eastbound left-turn movement during the AM peak hour
  - Westbound approach during the PM peak hour

## 2027 No-Build Conditions

The 2027 no-build conditions analyses were based on the future no-build traffic volumes with occupied Lord & Taylor with as of-right Department Store use with existing lane use and traffic controls at the study area intersections. The PHF for the 2027 no-build conditions was 0.95 for the AM and PM peak hours. The PHF for the Saturday Midday peak hour was based upon the TMC data collected. The results of the 2027 no-build intersection capacity analyses are summarized in [Table 7](#) for No-Build AM peak hour, [Table 8](#) for No-Build PM peak hour, and [Table 9](#) for No-Build Saturday Midday peak hour attached to this memorandum. Analysis results show the level of service and delay information for each movement, approach, and overall intersection. [Appendix F](#) includes the intersection capacity analysis worksheets.

During the weekday AM and PM peak hours and Saturday Midday peak hour, the study intersections operate at an overall intersection LOS D or better, with the exception of the roundabout at Route 28 & South Avenue during the AM and PM peak hours. However, there are individual movements that perform at LOS E or LOS F at the following intersections.

- Intersection ID #1. Crossway Place/Scotch Plains Avenue & South Avenue
  - Southbound left-turn movement during the AM peak hour
- Intersection ID #3. Route 28 & South Avenue
  - Eastbound approach during the AM peak hour
- Intersection ID #4. Summit Avenue & South Avenue
  - Northbound left-turn movement and approach during the AM peak hour
- Intersection ID #7. Ross Place & Central Avenue & South Avenue
  - Northbound left-turn movement during the PM peak hour
  - Southbound left-turn movement during the Saturday Midday peak hour
- Intersection ID #9. North Avenue & Clark Street
  - Southbound left-turn movement and approach during the PM peak hour
- Intersection ID #11. Route 28/Broad Street & North Avenue
  - Northbound left-turn movement during the PM peak hour
- Intersection ID #13. Central Avenue & North Avenue
  - Northbound and westbound approaches during the PM peak hour
- Intersection ID #14. Prospect Street & Broad Street
  - Northbound approach during the AM and PM peak hours and Saturday Midday peak hour
  - Southbound approach during the PM peak hour
- Intersection ID #17. Broad Street & Mountain Avenue
  - Eastbound left-turn movement during the AM and PM peak hours
  - Westbound approach during the PM peak hour

## 2027 Build Conditions

Intersection capacity analyses were conducted for future build traffic volumes for the study area intersections in the year 2027. The future build conditions analyses were based on the future build traffic volumes with existing lane uses and traffic controls at the study area intersections. Peak hour factors and heavy vehicle percentages were the same as those used in the future no-build analyses.

The results of the 2027 build intersection capacity analyses are summarized in [Table 7](#) for Build AM peak hour, [Table 8](#) for Build PM peak hour, and [Table 9](#) for Build Saturday Midday peak hour attached to this memorandum. Analysis results show the level of service and delay information for each movement, approach, and overall intersection. [Appendix F](#) includes the intersection capacity analysis worksheets.

Under build-out conditions, the study intersections operate at an overall intersection LOS D or better, with the exception of the roundabout at Route 28 & South Avenue during the AM peak hour. The individual movements that perform at a LOS E or LOS F, a volume-to-capacity (v/c) greater than 1.0, or exceed *New Jersey Administrative Code 16:47, Appendix F*, operating thresholds at the intersections along a state highway are identified below.

- Intersection ID #1. Crossway Place/Scotch Plains Avenue & South Avenue
  - Southbound left-turn movement during the AM peak hour
- Intersection ID #3. Route 28 & South Avenue
  - Eastbound approach during the AM peak hour
- Intersection ID #4. Summit Avenue & South Avenue
  - Northbound left-turn movement and approach during the AM peak hour
- Intersection ID #6: South Avenue & Eastern South Site Driveway
  - Southbound left-turn movement and approach during the PM peak hour
- Intersection ID #7. Ross Place & Central Avenue & South Avenue
  - Northbound left-turn movement and approach during the AM peak hour and PM peak hour
  - Southbound left-turn during the PM peak hour and Saturday Midday peak hour
- Intersection ID #9. North Avenue & Clark Street
  - Southbound left-turn movement and approach during the AM and PM peak hours
- Intersection ID #11. Route 28/Broad Street & North Avenue
  - Northbound left-turn movement during the AM and PM peak hour
- Intersection ID #13. Central Avenue & North Avenue
  - Northbound and westbound approaches during the PM peak hour
- Intersection ID #14. Prospect Street & Broad Street
  - Northbound approach during the AM and PM peak hours and Saturday Midday peak hour
  - Southbound approach during the PM peak hour
- Intersection ID #16. Central Avenue & Broad Street
  - Eastbound through movement and approach during the PM peak hour
- Intersection ID #17. Broad Street & Mountain Avenue
  - Eastbound left-turn during the AM and PM peak hours
  - Westbound approach during the PM peak hour

## 2027 Build Mitigated Conditions

Based upon the results of the Build Conditions analysis, various alternatives were evaluated to determine their effectiveness and the mitigation measures listed below are recommended at the study intersections to improve the intersection operations, site access and circulation, and user experience. The results of the 2027 build mitigated intersection capacity analyses are summarized in [Table 7](#) for Build Mitigated AM peak hour, [Table 8](#) for Build Mitigated PM peak hour, and [Table 9](#) for Build Mitigated Saturday Midday peak hour attached to this memorandum. [Appendix F](#) includes the intersection capacity analysis worksheets. [Appendix G](#) includes the traffic improvements by zones and the intersection concepts.

Analysis results show the level of service and delay information for each movement, approach, and overall intersection. Additionally, multimodal streets help to make municipalities more efficient because repurposing street space increases the total street capacity for travel modes while reducing dependency on personal automobile usage. The Town prepared the following documents to promote alternative modes of transportation.

- *Bicycle and Pedestrian Plan* (November 2019): A framework for planning and implementing both short-term and long-term bicycle and pedestrian improvements to make bicycling and walking more comfortable, accessible, and safer for residents and visitors alike.
- *Town of Westfield ULUC* (June 2021): Holistic approach to planning that elevates the focus from singular parcels and intersections to a system of relationships between the use of land and space and the ability to create places and neighborhoods that are enjoyable and enhance the human experience.

Staff at the Alan M. Voorhees Transportation Center (VTC) at Rutgers prepared the following document and it was reviewed by Sustainable Jersey and the North Jersey Transportation Planning Authority (NJTPA).

- *North Avenue Walkable Community Workshop* (2019) Report: Recommendations to promote walking as a means of travel and to improve walkability along North Avenue.

- Expanded Multi-Use Trail along Route 28
  - Proposed multi-use trail expansion from 8.0 feet to 14.0 feet.
  - Evaluate the need for additional pedestrian-friendly lighting beneath the overpass.
  - Provide connection from existing multi-use trail to future bicycle/pedestrian infrastructure along North Avenue and South Avenue.
  - Provide signing, marking, and intersection control at the connections to the existing multi-use trail.
- Intersection ID #1. Crossway Place/Scotch Plains Avenue & South Avenue
  - Modify signal timings.
- Intersection ID #4. Summit Avenue & South Avenue
  - Replace the existing traffic signal with a new signal.
  - Reconfigure the intersection to a standard, 4-way intersection.
  - Modify signal phase for an exclusive eastbound and westbound left-turn phase. Convert the eastbound approach to consist of an exclusive eastbound left-turn lane and shared eastbound through/right-turn lane. Install an exclusive westbound left-turn lane. Remove the northbound and southbound split-phase operation.
  - Road diet along South Avenue from Westfield Avenue/roundabout to Central Avenue, which would reduce the number of westbound lanes from two (2) to one (1).
  - Implement a leading pedestrian interval (LPI), which gives pedestrians the opportunity to enter the crosswalk before vehicles.
- Intersection ID #5. South Avenue & Boulevard
  - Road diet along South Avenue from traffic circle/roundabout to Central Avenue.
  - Reduce the number of traffic lanes and distance to be negotiated by pedestrians crossing South Avenue at this location.
- Intersection ID #6. South Avenue & Eastern Site Driveway
  - Install a new traffic signal.
  - Implement an LPI.
  - This intersection will include signal coordination with Intersection ID #4. South Avenue & Summit Avenue and Intersection ID #7 Ross Place & Central Avenue & South Avenue.
  - As part of the road diet, reduce the westbound through travel lanes from two to one, with the outside most travel lane used as a right-turn lane into the site.
- Intersection ID #7. Ross Place & Central Avenue & South Avenue
  - Modify signal timings.
  - Restrict westbound right-turn on red movement.
  - Add ergonomic crosswalks on the southbound and westbound approaches.
  - Construct curb extension at the corner of South Avenue & Ross Place to shorten the pedestrian crossing distance.
  - Adjust the pedestrian signal phasing so pedestrians cross Ross Place when South Avenue has a green light.
- Intersection ID #8. Crossway Place/Edgewood Avenue & North Avenue
  - Modify signal timings.
- Intersection ID #9. North Avenue & Clark Street
  - Construct curb extensions with ADA-compliant ramps at the northeast and northwest corners at Clark Street. This treatment will shorten the pedestrian crossing distance.
  - Install a new traffic signal.



- This intersection will include signal coordination with Intersection ID#11. Route 28/Broad Street & North Avenue.
  - Restrict the westbound right-turn on red movement.
  - Implement an LPI.
- Intersection ID #11. Route 28/Broad Street & North Avenue
  - Stripe the shoulders along the eastbound right-turn lane, slip ramp to narrow down the travel lane.
  - Use high visibility crosswalk markings.
  - Provide pedestrian crossing warning signs on both sides of the slip ramp. RRFBs could be provided to further enhance safety at the crossings.
  - Declutter and/or relocate existing signs as much as possible. For example, the yield sign at the southern end could be relocated further south such that it is placed adjacent to the yield markings.
  - Modify signal timings.
  - Install a no right turn for trucks sign at the northeast corner for westbound right-turn truck movements.
  - Additional bicycle and pedestrian improvements (wider sidewalk/multi-use trail, streetscape) will need to be further evaluated with the Town and NJDOT.
- Intersection ID #12. North Avenue & Elm Street
  - Replace the existing traffic signal with a new signal.
  - Reconfigure the intersection to a standard, 4-way intersection.
  - Maintain existing intersection lane geometry; however, convert to a typical four-legged intersection.
  - Modify signal timings.
  - Upgrade pedestrian crosswalk signals as part of traffic signal redesign.
  - Implement an LPI.
- Intersection ID #13. Central Avenue & North Avenue
  - Install a new traffic signal.
  - Add ADA curb ramps and pedestrian signals
  - Add ergonomic crosswalks on all approaches
  - Modify signal timings.
- Intersection ID #14. Prospect Street & Broad Street
  - Install a new traffic signal.
  - Construct curb extensions on the east leg of the intersection (Prospect Street).
  - Implement an LPI.
- Intersection ID #16. Central Avenue & Broad Street
  - Install a flashing yellow arrow (FYA) for westbound left-turn movements (Broad Street to Central Avenue).
- Intersection ID #17. Broad Street & Mountain Avenue
  - Install a FYA for eastbound left-turn movements (Broad Street to Mountain Avenue).
- Intersection ID #23. North Avenue & Eastern North Zone Parking Site Driveway
  - New driveway for only right-turn in/right-turn out movements.

Coordination with other stakeholders will be necessary to discuss the operating conditions of intersections that are maintained by either Union County or New Jersey Department of Transportation (NJDOT). For example, the proposed traffic signal at the intersections of Intersection ID #9. North Avenue & Clark Street and Intersection ID #14. Prospect Street & Broad Street will need to be coordinated with Union County and the roundabout at Intersection ID #3. Route 28 & South Avenue will need to be coordinated with NJDOT.

Signal timing modifications at several study intersections will generally improve the operating conditions but may not resolve all the operational issues. Additional capacity could be desirable at select intersections to improve vehicular traffic flows through the area; however, the right-of-way is limited and the Town's desire to create a more pedestrian/bicycle-friendly downtown may make these types of improvements infeasible. The extension of turn lane lengths would be beneficial, but the feasibility needs to be further evaluated based upon available right-of-way. Where physical improvements to an intersection may not be feasible, alternative analysis was performed with priority given to improving the pedestrian and bicycle infrastructure/safety.

Under the Build Mitigated conditions, the study intersections are expected to operate at an overall intersection LOS D or better, with the exception of the roundabout at Route 28 & South Avenue during the AM peak hour, when the eastbound Route 28 approach is projected to operate at LOS F (no change from the No-Build condition with delay increased by only 5.5 seconds). All other movements at this intersection will experience LOS C or better conditions during all peak hours.

Under build-out, with-mitigation conditions, the following individual movements are projected to perform at a LOS E or LOS F, a volume-to-capacity (v/c) greater than 1.0, or exceed *New Jersey Administrative Code 16:47, Appendix F*, operating thresholds at the intersections along a state highway:

- Intersection ID #3. Route 28 & South Avenue
  - Eastbound Approach – During the AM peak hour the delay on the eastbound approach is projected to increase from 70.8 to 76.3 seconds, the v/c will increase from 1.108 to 1.126 and the Level of service will remain unchanged at F. The Applicant has committed to review this condition with NJDOT to determine what measures, if any, could be implemented to restore delays to the No-Build condition.
- Intersection ID #5. South Avenue & Boulevard
  - Northbound Approach – During the AM peak hour the delay on the northbound approach is projected to increase from 26.1 to 36.5 seconds. This increase is due, largely, to the elimination of the second westbound through movement on South Avenue. The elimination of that lane will slow traffic, shorten the crossing distance on South Avenue for pedestrians, eliminate the condition where two vehicles are approaching the intersection on westbound South Avenue and one stops for pedestrians while the second doesn't. It is the applicant's opinion that the all-day safety benefits for pedestrians at this location outweigh the modest increase in delay during this peak one-hour period.

## **CONCLUSIONS AND RECOMMENDATIONS**

The results of the analysis with the mitigations identified and the recommended improvements indicate during the weekday AM and PM peak hours and Saturday Midday peak hours, the study intersections are expected to operate at an overall intersection LOS D or better with the proposed redevelopment, except on two intersection approaches during one peak hour. This condition, which is the result of the considerable financial investment in the numerous mitigation measures identified herein, represents a considerable improvement over the No-Build condition, where 14 movements or approaches operated at suboptimal levels. In general, the unsignalized site access points to the West Zone, North Zone, and South Zone will be adequate and operate as expected given the minor street (site driveway) stop-controlled intersection control. The egress movements at the site access locations may experience moderate to long delays due to the level of traffic volumes along the major street approaches. The site access and circulation via the signalized intersections at the North Zone and South Zone will continue to be evaluated and refined, in coordination with the Applicant and Town, to provide efficient vehicular flows and sufficient space for all modes of transportation.

The Applicant will continue to coordinate with other stakeholders as necessary to discuss the operating conditions of intersections that are maintained by either Union County or New Jersey Department of Transportation (NJDOT). The traffic study will be revised, where necessary, should significant comments or changes be recommended by the Agencies Having Jurisdiction..

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TABLES

Table 7. AM Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Proposed Development)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 1: Crossway Place/Scotch Plains Avenue & South Avenue														Modify signal timings			
Overall Intersection		1340	C (24.6)		-	1402	C (24.3)		-	1455	C (24.6)		-	1455	C (22.5)		-
Eastbound (South Avenue)	EBL	280	s	s	s	287	s	s	s	291	s	s	s	291	s	s	s
	EBT	170	B (16.8)	0.55	295	199	B (16.9)	0.56	307	211	B (17.8)	0.59	318	211	B (19.9)	0.61	337
	EBR	45	A (4.7)	0.04	m12	46	A (4.5)	0.04	m11	46	A (4.5)	0.04	m11	46	A (5.8)	0.04	m15
	EB Approach	495	B (15.7)	-	-	532	B (15.8)	-	-	548	B (16.7)	-	-	548	B (18.7)	-	-
Westbound (South Avenue)	WBL	0	A (0.0)	0	0	0	s	s	s	2	s	s	s	2	s	s	s
	WBT	155	A (5.1)	0.17	57	159	A (5.1)	0.17	57	165	A (5.3)	0.17	59	165	A (6.5)	0.18	75
	WBR	40	A (0.0)	0	0	41	A (0.0)	0	0	40	A (0.0)	0	0	40	A (0.0)	0	0
	WB Approach	195	A (5.1)	-	-	200	A (5.1)	-	-	207	A (5.3)	-	-	207	A (6.5)	-	-
Northbound (Crossway Place/Scotch Plains Avenue)	NBL	45	C (25.0)	0.27	44	46	C (24.9)	0.26	43	46	C (24.5)	0.26	43	46	C (21.3)	0.22	37
	NBT	285	C (33.6)	0.71	196	294	C (33.4)	0.71	195	304	C (34.5)	0.74	212	304	C (29.8)	0.69	186
	NBR	10	A (0.0)	0	0	10	A (0.0)	0	0	25	A (0.0)	0	0	25	A (0.0)	0	0
	NB Approach	340	C (32.4)	-	-	350	C (32.3)	-	-	375	C (33.3)	-	-	375	C (28.8)	-	-
Southbound (Crossway Place/Scotch Plains Avenue)	SBL	90	F (82.2)	0.86	#115	92	F (80.1)	0.85	#113	90	E (77.3)	0.83	#112	90	D (54.0)	0.73	#91
	SBT	180	C (26.1)	0.53	141	186	C (26.1)	0.53	141	191	C (25.8)	0.53	145	191	C (22.9)	0.49	127
	SBR	40	A (0.0)	0	0	42	A (0.0)	0	0	44	A (0.0)	0	0	44	A (0.0)	0	0
	SB Approach	310	D (42.4)	-	-	320	D (41.6)	-	-	325	D (40.1)	-	-	325	C (31.6)	-	-
Intersection 2: Broad Street & South Avenue																	
Overall Intersection		1770	B (12.3)		-	1884	B (12.6)		-	1904	B (12.7)		-	1904	B (12.7)		-
Eastbound (Broad Street)	EBL	0				0				0				0			
	EBT	340	B (13.2)	0.45	231	372	B (14.0)	0.47	248	391	B (14.2)	0.49	262	391	B (14.2)	0.49	262
	EBR	90	s	s	s	92	s	s	s	92	s	s	s	92	s	s	s
	EB Approach	430	B (13.2)	-	-	464	B (14.0)	-	-	483	B (14.2)	-	-	483	B (14.2)	-	-
Westbound (Broad Street)	WBL	725	s	s	s	761	s	s	s	760	s	s	s	760	s	s	s
	WBT	180	A (4.9)	1.08dl	109	192	A (4.9)	1.12dl	111	196	A (4.9)	1.15dl	112	196	A (4.9)	1.15dl	112
	WBR	0				0				0				0			
	WB Approach	905	A (4.9)	-	-	953	A (4.9)	-	-	956	A (4.9)	-	-	956	A (4.9)	-	-
Northbound (South Avenue)	NBL	90	C (33.8)	0.42	79	92	C (33.7)	0.42	78	92	C (33.7)	0.42	78	92	C (33.7)	0.42	78
	NBT	0				0				0				0			
	NBR	345	C (25.1)	0.66	183	375	C (25.2)	0.68	191	373	C (25.2)	0.68	190	373	C (25.2)	0.68	190
	NB Approach	435	A (0.0)	-	-	467	A (0.0)	-	-	465	A (0.0)	-	-	465	A (0.0)	-	-
Intersection 3: Route 28 & South Avenue																	
Overall Intersection		2766	C (23.0)		-	2773	E (35.3)	0	0	2807	E (37.2)		-	2807	E (37.2)		-
Eastbound (South Avenue (traffic	EB Approach	995	E (42.0)	0.91	844.3	1083	F (70.8)	1.108	1399	1081	F (76.3)	1.126	1464.8	1081	F (76.3)	1.126	1464.8
Westbound (South Avenue (traffic	WB Approach	630	B (12.4)	0.71	132	663	B (14.1)	0.66	157.2	676	B (14.4)	0.671	164.8	676	B (14.4)	0.671	164.8
Southbound (Route 28)	SB Approach	975	B (10.4)	0.6	146.1	1027	B (11.5)	0.641	183.3	1050	B (11.6)	0.648	191.9	1050	B (11.6)	0.648	191.9

Table 7. AM Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Proposed Development)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 4: Summit Avenue & South Avenue														Modify signal phase, no split-phase operation. Add LPI. Exclusive EBL & WBL. Road diet. Coordinated signal.			
Overall Intersection		1424	B (15.6)		-	1580	B (19.8)		-	1716	C (21.1)		-	1716	C (27.9)		-
Eastbound (South Avenue)	EBL	24	A (0.0)	0	0	25	A (0.0)	0	0	56	A (0.0)	0	0	56	A (9.9)	0.14	30
	EBT	613	A (9.0)	0.5	295	627	B (12.8)	0.56	335	657	B (15.3)	0.65	410	657	C (27.6)	0.71	506
	EBR	38	A (0.6)	0.03	5	44	A (0.8)	0.03	6	46	A (0.9)	0.03	7	46	s	s	s
	EB Approach	675	A (8.6)	-	-	696	B (12.1)	-	-	759	B (14.4)	-	-	759	C (26.3)	-	-
Westbound (South Avenue)	WBL	10	A (0.0)	0	0	11	A (0.0)	0	0	11	A (0.0)	0	0	11	A (6.5)	0.04	m5
	WBT	472	A (5.6)	0.21	85	487	A (7.9)	0.25	101	509	A (8.0)	0.28	110	509	C (22.4)	0.58	455
	WBR	12	A (0.0)	0	0	48	A (0.0)	0	0	74	A (0.0)	0	0	74	A (0.0)	0	0
	WB Approach	494	A (5.6)	-	-	546	A (7.9)	-	-	594	A (8.0)	-	-	594	C (22.1)	-	-
Northbound (Summit Avenue)	NBL	169	E (68.9)	0.82	#208	180	E (75.7)	0.87	#226	185	E (79.6)	0.89	#233	185	D (54.0)	0.72	187
	NBT	25	C (21.9)	0.27	51	37	C (24.6)	0.32	63	45	C (26.9)	0.35	70	45	C (21.6)	0.23	67
	NBR	37	A (0.0)	0	0	39	A (0.0)	0	0	39	A (0.0)	0	0	39	A (0.0)	0	0
	NB Approach	231	E (56.2)	-	-	256	E (60.4)	-	-	269	E (63.1)	-	-	269	D (43.9)	-	-
Southbound (Summit Avenue)	SBL	5	D (38.8)	0.03	13	58	D (42.8)	0.33	70	66	D (43.6)	0.37	78	66	D (37.2)	0.27	76
	SBT	5	C (23.6)	0.12	25	5	C (20.4)	0.13	26	5	B (19.2)	0.15	28	5	B (15.4)	0.08	26
	SBR	14	A (0.0)	0	0	19	A (0.0)	0	0	23	A (0.0)	0	0	23	A (0.0)	0	0
	SB Approach	24	C (26.7)	-	-	82	D (36.2)	-	-	94	D (36.4)	-	-	94	C (30.8)	-	-
Intersection 5: South Avenue & Boulevard																	
Overall Intersection		1317	- (-)		-	1349	- (-)		-	1408	- (-)		-	1408	- (-)		-
Eastbound (South Avenue)	EBL																
	EBT	607		-		620		-		657		-		657		-	
	EBR	52	s	s	s	53	s	s	s	53	s	s	s	53	s	s	s
	EB Approach	659	A (0.0)	-	-	673	A (0.0)	-	-	710	A (0.0)	-	-	710	A (0.0)	-	-
Westbound (South Avenue)	WBL	19	s	s	s	19	s	s	s	19	s	s	s	19	s	s	s
	WBT	440	A (0.1)	-	-	455	A (0.1)	-	-	477	A (0.1)	-	-	477	A (0.0)	-	-
	WBR																
	WB Approach	459	A (0.5)	-	-	474	A (0.5)	-	-	496	A (0.5)	-	-	496	A (0.4)	-	-
Northbound (Middle South Site Driveway)	NBL	47	C (24.7)	0.543	77.5	48	D (26.1)	0.566	85	48	D (29.1)	0.6	92.5	48	E (36.5)	0.672	115
	NBT																
	NBR	152	s	s	s	154	s	s	s	154	s	s	s	154	s	s	s
	NB Approach	199	C (24.7)	-	-	202	D (26.1)	-	-	202	D (29.1)	-	-	202	E (36.5)	-	-



Table 7. AM Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Proposed Development)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 6: South Avenue & Eastern South Site Driveway														Install a traffic signal. Add LPI. Road diet. Coordinated signal.			
Overall Intersection		1254	- (-)		0	1283	- (-)		-	1431	- (-)		-	1431	A (9.3)		-
Eastbound (South Avenue)	EBL	23	s	s	s	23	s	s	s	47	s	s	s	47	s	s	s
	EBT	736	A (0.0)	-	-	750	A (0.0)	-	-	757	A (0.0)	-	-	757	B (10.4)	0.68	315
	EBR													0			
	EB Approach	759	A (0.3)	-	-	773	A (0.3)	-	-	804	A (0.5)	-	-	804	B (10.4)	-	-
Westbound (South Avenue)	WBL													0			
	WBT	438		-		453		-		492		-		492	A (7.6)	0.39	m178
	WBR	23	s	s	s	23	s	s	s	91	s	s	s	91	A (1.6)	0.08	m8
	WB Approach	461	A (0.0)	-	-	476	A (0.0)	-	-	583	A (0.0)	-	-	583	A (6.7)	-	-
Southbound (Eastern South Site Driveway)	SBL	13	C (18.1)	0.117	10	13	C (18.7)	0.121	10	19	D (25.6)	0.212	20	19		-	
	SBT													0			
	SBR	21	s	s	s	21	s	s	s	25	s	s	s	25	A (0.0)	0	0
	SB Approach	34	C (18.1)	-	-	34	C (18.7)	-	-	44	D (25.6)	-	-	44	C (22.5)	-	-
Intersection 7: Ross Place & Central Avenue & South Avenue														Modify signal timings. Restrict the WBR on red movement. Coordinated signal.			
Overall Intersection		2353	C (28.7)		-	2717	C (33.6)		-	2817	D (39.6)		-	2817	C (32.8)		-
Eastbound (South Avenue (5 legged))	EBL	210	C (22.2)	0.51	134	214	C (22.9)	0.53	132	207	C (23.4)	0.54	128	207	B (13.9)	0.56	m92
	EBT	350	C (25.4)	0.44	187	394	C (26.2)	0.48	205	398	C (26.5)	0.49	210	398	B (18.8)	0.48	181
	EBR	145	s	s	s	164	s	s	s	171	s	s	s	171	s	s	s
	EB Approach	705	C (24.4)	-	-	772	C (25.3)	-	-	776	C (25.6)	-	-	776	B (17.5)	-	-
Westbound (South Avenue (5 legged))	WBL	15	B (15.3)	0.09	30	15	B (15.4)	0.1	30	15	B (15.4)	0.1	30	15	B (16.8)	0.11	32
	WBT	275	C (29.4)	0.5	223	295	C (30.1)	0.52	232	314	C (31.0)	0.56	248	314	C (32.4)	0.53	262
	WBR	95	A (3.7)	0.17	25	109	A (4.7)	0.19	33	114	A (5.1)	0.2	35	114	C (27.1)	0.23	102
	WB Approach	385	C (22.1)	-	-	419	C (22.6)	-	-	443	C (23.4)	-	-	443	C (29.9)	-	-
Northbound (Central Avenue)	NBL	140	B (17.6)	0.42	91	171	D (54.9)	0.87	#165	213	F (117.7)	1.11	#234	213	D (45.3)	0.84	#214
	NBT	585	D (48.1)	0.92	#595	615	D (47.3)	0.91	#611	632	D (50.4)	0.93	#635	632	D (45.1)	0.89	#632
	NBR	10	s	s	s	11	s	s	s	11	s	s	s	11	s	s	s
	NB Approach	735	D (41.9)	-	-	797	D (49.0)	-	-	856	E (67.8)	-	-	856	D (45.1)	-	-
Southbound (Central Avenue)	SBL	80	B (19.0)	0.41	53	89	C (20.2)	0.45	57	92	C (20.6)	0.47	58	92	C (25.2)	0.52	m61
	SBT	368	C (29.2)	0.6	290	560	D (42.4)	0.86	#512	570	D (43.6)	0.87	#526	570	D (49.3)	0.95	#559
	SBR	80	B (12.5)	0.37	107	80	B (12.5)	0.37	109	80	B (13.0)	0.38	116	80	A (7.1)	0.39	m68
	SB Approach	528	C (22.5)	-	-	729	C (32.3)	-	-	742	C (33.1)	-	-	742	D (35.6)	-	-

Table 7. AM Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Proposed Development)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 8: Crossway Place/Edgewood Avenue & North Avenue														Modify signal timings			
Overall Intersection		1830	C (20.0)		-	1937	C (21.0)		-	1988	C (21.6)		-	1988	C (22.8)		-
Eastbound (North Avenue)	EBL	5	B (12.2)	0.01	7	5	B (12.2)	0.01	7	5	B (12.4)	0.01	7	5	B (14.2)	0.01	8
	EBT	595	C (21.5)	0.68	426	666	C (23.4)	0.73	480	691	C (24.8)	0.76	#514	691	C (30.3)	0.82	#603
	EBR	25	A (0.0)	0	0	26	A (0.0)	0	0	26	A (0.0)	0	0	26	A (0.0)	0	0
	EB Approach	625	C (21.4)	-	-	697	C (23.4)	-	-	722	C (24.8)	-	-	722	C (30.2)	-	-
Westbound (North Avenue)	WBL	115	A (7.8)	0.31	43	121	A (8.6)	0.36	43	128	A (9.4)	0.4	45	128	B (12.8)	0.47	55
	WBT	325	A (8.5)	0.28	128	334	A (8.5)	0.28	127	342	A (8.6)	0.29	130	342	B (10.2)	0.31	144
	WBR	0	A (0.0)	0	0	0	A (0.0)	0	0	0	A (0.0)	0	0	0	A (0.0)	0	0
	WB Approach	440	A (8.4)	-	-	455	A (8.5)	-	-	470	A (8.8)	-	-	470	B (10.9)	-	-
Northbound (Crossway Place/Edgewood Avenue)	NBL	130	A (0.0)	0	0	132	A (0.0)	0	0	132	A (0.0)	0	0	132	A (0.0)	0	0
	NBT	55	D (43.7)	0.68	#198	56	D (42.7)	0.67	#193	55	D (42.2)	0.66	#191	55	C (34.5)	0.56	167
	NBR	390	B (14.2)	0.54	179	403	B (15.8)	0.55	193	417	B (17.0)	0.57	208	417	B (15.8)	0.54	204
	NB Approach	575	C (23.7)	-	-	591	C (24.3)	-	-	604	C (24.8)	-	-	604	C (21.6)	-	-
Southbound (Crossway Place/Edgewood Avenue)	SBL	25	A (0.0)	0	0	26	A (0.0)	0	0	26	A (0.0)	0	0	26	A (0.0)	0	0
	SBT	160	C (31.2)	0.43	163	163	C (31.1)	0.42	162	161	C (31.0)	0.42	159	161	C (27.8)	0.37	151
	SBR	5	A (0.0)	0	0	5	A (0.0)	0	0	5	A (0.0)	0	0	5	A (0.0)	0	0
	SB Approach	190	C (31.2)	-	-	194	C (31.1)	-	-	192	C (31.0)	-	-	192	C (27.8)	-	-
Intersection 9: North Avenue & Clark Street														Modify signal timings. Add LPI. Restrict the WBR on red movement. Coordinated signal.			
Overall Intersection		1560	- (-)		-	1597	- (-)		-	1611	- (-)		-	1611	B (16.5)		-
Eastbound (North Avenue)	EBL	7	A (9.0)	0.008	0	7	A (9.1)	0.008	0	8	A (9.1)	0.009	0	8	A (0.0)	0	0
	EBT	676	A (0.0)	-	-	687	A (0.0)	-	-	690	A (0.0)	-	-	690	B (11.5)	0.55	342
	EBR													0			
	EB Approach	683	A (0.1)	-	-	694	A (0.1)	-	-	698	A (0.1)	-	-	698	B (11.5)	-	-
Westbound (North Avenue)	WBL													0			
	WBT	529		-		540		-		544		-		544	B (13.6)	0.56	321
	WBR	152	s	s	s	154	s	s	s	153	s	s	s	153	s	s	s
	WB Approach	681	A (0.0)	-	-	694	A (0.0)	-	-	697	A (0.0)	-	-	697	B (13.6)	-	-
Southbound (Clark Street)	SBL	185	D (27.3)	0.552	80	197	D (30.1)	0.6	92.5	202	D (31.5)	0.621	97.5	202	D (42.9)	0.55	202
	SBT													0			
	SBR	11	B (10.4)	0.017	2.5	12	B (10.5)	0.019	2.5	14	B (10.5)	0.022	2.5	14	C (23.1)	0.04	21
	SB Approach	196	D (26.4)	-	-	209	D (29.0)	-	-	216	D (30.1)	-	-	216	D (41.6)	-	-

Table 7. AM Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Proposed Development)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 10: Clark Street & Ferris Place																	
Overall Intersection		424	- (-)		-	442	- (-)		-	445	- (-)		-	445	- (-)		-
Eastbound (Clark Street)	EBL	0		-		0		-		0		-		0		-	
	EBT	164		-		177		-		176		-		176		-	
	EBR																
	EB Approach	164	A (0.0)	-	-	177	A (0.0)	-	-	176	A (0.0)	-	-	176	A (0.0)	-	-
Westbound (Clark Street)	WBL																
	WBT	176		-		179		-		179		-		179		-	
	WBR	0		-		0		-		0		-		0		-	
	WB Approach	176	A (0.0)	-	-	179	A (0.0)	-	-	179	A (0.0)	-	-	179	A (0.0)	-	-
Southbound (Ferris Place)	SBL	41	B (11.8)	0.183	17.5	42	B (12.0)	0.191	17.5	46	B (12.2)	0.202	20	46	B (12.2)	0.202	20
	SBT																
	SBR	43	s	s	s	44	s	s	s	44	s	s	s	44	s	s	s
	SB Approach	84	B (11.8)	-	-	86	B (12.0)	-	-	90	B (12.2)	-	-	90	B (12.2)	-	-
Intersection 11: Route 28/Broad Street & North Avenue														Modify signal timings. Coordinated signal.			
Overall Intersection		2848	C (24.4)		-	3112	C (26.6)		-	3239	C (29.4)		-	3239	C (29.3)		-
Eastbound (North Avenue)	EBL	170	B (13.5)	0.45	76	186	B (16.6)	0.56	82	195	B (19.6)	0.62	#96	195	C (24.4)	0.64	#140
	EBT	348	B (17.4)	0.54	196	398	B (19.8)	0.62	235	412	C (20.5)	0.65	247	412	C (24.6)	0.63	360
	EBR	320	A (3.7)	0.36	54	341	A (4.4)	0.39	63	350	A (4.7)	0.41	68	350	A (4.6)	0.39	57
	EB Approach	838	B (11.4)	-	-	925	B (13.5)	-	-	957	B (14.6)	-	-	957	B (17.3)	-	-
Westbound (North Avenue)	WBL	197	A (0.0)	0	0	219	A (0.0)	0	0	223	A (0.0)	0	0	223	A (0.0)	0	0
	WBT	409	C (28.9)	0.7	212	445	C (31.2)	0.79	#250	474	C (32.8)	0.84	#271	474	C (32.3)	0.77	305
	WBR	5	A (0.0)	0	0	5	A (0.0)	0	0	7	A (0.0)	0	0	7	A (0.0)	0	0
	WB Approach	611	C (28.9)	-	-	669	C (31.2)	-	-	704	C (32.8)	-	-	704	C (32.3)	-	-
Northbound (Route 28/East Broad Street)	NBL	210	C (32.9)	0.75	#133	224	D (38.6)	0.81	#155	247	E (59.2)	0.93	#192	247	C (31.6)	0.73	165
	NBT	543	C (32.9)	0.84	#376	573	C (34.9)	0.86	#409	574	C (34.6)	0.86	#411	574	C (33.2)	0.77	452
	NBR	111	B (16.5)	0.21	69	161	B (17.4)	0.29	96	167	B (17.5)	0.3	99	167	C (20.9)	0.27	121
	NB Approach	864	C (30.8)	-	-	958	C (32.8)	-	-	988	D (37.8)	-	-	988	C (30.7)	-	-
Southbound (Route 28/East Broad Street)	SBL	6	A (0.0)	0	0	11	A (0.0)	0	0	13	A (0.0)	0	0	13	A (0.0)	0	0
	SBT	456	C (29.2)	0.72	164	465	C (32.1)	0.79	176	475	D (35.0)	0.84	#206	475	D (42.7)	0.79	252
	SBR	73	A (0.0)	0	0	84	A (0.0)	0	0	102	A (0.0)	0	0	102	A (0.0)	0	0
	SB Approach	535	C (29.2)	-	-	560	C (32.1)	-	-	590	D (35.0)	-	-	590	D (42.7)	-	-

Table 7. AM Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Proposed Development)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 12: North Avenue & Elm Street														Convert to a 4-legged intersection. Add LPI. Coordinated signal.			
Overall Intersection		1342	A (8.5)		-	1578	B (10.3)		-	1664	B (11.0)		-	1664	B (12.1)		-
Eastbound (North Avenue)	EBL	23	A (0.0)	0	0	69	A (0.0)	0	0	69	A (0.0)	0	0	69	A (0.0)	0	0
	EBT	480	A (7.4)	0.24	101	538	A (9.6)	0.38	164	550	B (10.2)	0.4	m172	550	A (9.2)	0.41	156
	EBR	22	A (0.0)	0	0	22	A (0.0)	0	0	32	A (0.0)	0	0	32	A (0.0)	0	0
	EB Approach	525	A (7.4)	-	-	629	A (9.6)	-	-	651	B (10.2)	-	-	651	A (9.2)	-	-
Westbound (North Avenue)	WBL	4	A (0.0)	0	0	4	A (0.0)	0	0	18	A (0.0)	0	0	18	A (0.0)	0	0
	WBT	609	A (5.7)	0.3	m106	632	A (7.1)	0.38	m132	659	A (7.8)	0.41	m146	659	A (8.1)	0.42	m173
	WBR	84	A (0.0)	0	0	150	A (0.0)	0	0	150	A (0.0)	0	0	150	A (0.0)	0	0
	WB Approach	697	A (5.7)	-	-	786	A (7.1)	-	-	827	A (7.8)	-	-	827	A (8.1)	-	-
Northbound (Elm Street)	NBL	2	A (0.0)	0	0	2	A (0.0)	0	0	10	A (0.0)	0	0	10	A (0.0)	0	0
	NBT	9	C (23.6)	0.05	17	9	C (22.2)	0.04	16	14	C (22.8)	0.09	28	14	D (35.0)	0.09	37
	NBR	0	A (0.0)	0	0	0	A (0.0)	0	0	3	A (0.0)	0.01	0	3	A (0.0)	0.01	0
	NB Approach	11	C (23.6)	-	-	11	C (22.2)	-	-	27	C (20.5)	-	-	27	C (31.5)	-	-
Southbound (Elm Street)	SBL	73	A (0.0)	0	0	83	A (0.0)	0	0	83	A (0.0)	0	0	83	A (0.0)	0	0
	SBT	13	C (30.9)	0.54	86	13	C (29.1)	0.62	103	20	C (29.8)	0.63	108	20	D (41.7)	0.62	149
	SBR	23	A (0.0)	0	0	56	A (0.0)	0	0	56	A (0.0)	0	0	56	A (0.0)	0	0
	SB Approach	109	C (30.9)	-	-	152	C (29.1)	-	-	159	C (29.8)	-	-	159	D (41.7)	-	-
Intersection 13: Central Avenue & North Avenue														Coordinated signal.			
Overall Intersection		2445	C (23.3)		-	2677	C (24.8)		-	2744	C (26.1)		-	2744	C (29.7)		-
Eastbound (North Avenue)	EBL	10	A (0.0)	0	0	17	A (0.0)	0	0	19	A (0.0)	0	0	19	A (0.0)	0	0
	EBT	375	B (18.5)	0.47	65	437	B (16.5)	0.54	65	445	B (16.6)	0.57	68	445	C (30.5)	0.6	243
	EBR	100	A (0.0)	0	0	106	A (0.0)	0	0	119	A (0.0)	0	0	119	A (0.0)	0	0
	EB Approach	485	B (18.5)	-	-	560	B (16.5)	-	-	583	B (16.6)	-	-	583	C (30.5)	-	-
Westbound (North Avenue)	WBL	150	A (0.0)	0	0	153	A (0.0)	0	0	175	A (0.0)	0	0	175	A (0.0)	0	0
	WBT	465	B (18.5)	0.63	147	522	C (20.6)	0.7	160	538	C (23.2)	0.77	170	538	C (25.8)	0.71	238
	WBR	15	A (0.0)	0	0	27	A (0.0)	0	0	27	A (0.0)	0	0	27	A (0.0)	0	0
	WB Approach	630	B (18.5)	-	-	702	C (20.6)	-	-	740	C (23.2)	-	-	740	C (25.8)	-	-
Northbound (Central Avenue)	NBL	185	A (0.0)	0	0	218	A (0.0)	0	0	240	A (0.0)	0	0	240	A (0.0)	0	0
	NBT	585	C (30.7)	0.89	#253	595	D (35.0)	0.93	#280	585	D (36.7)	0.94	#294	585	C (34.2)	0.88	m300
	NBR	120	A (0.0)	0	0	125	A (0.0)	0	0	128	A (0.0)	0	0	128	A (0.0)	0	0
	NB Approach	890	C (30.7)	-	-	938	D (35.0)	-	-	953	D (36.7)	-	-	953	C (34.2)	-	-
Southbound (Central Avenue)	SBL	15	A (0.0)	0	0	15	A (0.0)	0	0	15	A (0.0)	0	0	15	A (0.0)	0	0
	SBT	415	C (20.8)	0.45	124	452	C (20.9)	0.47	131	439	C (20.6)	0.45	128	439	C (25.8)	0.42	165
	SBR	10	A (0.0)	0	0	10	A (0.0)	0	0	14	A (0.0)	0	0	14	A (0.0)	0	0
	SB Approach	440	C (20.8)	-	-	477	C (20.9)	-	-	468	C (20.6)	-	-	468	C (25.8)	-	-

Table 7. AM Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Proposed Development)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 14: Prospect Street & Broad Street														Install a traffic signal			
Overall Intersection		1270	- (-)		-	1352	- (-)		-	1394	- (-)		-	1394	A (4.2)		-
Eastbound (Broad Street)	EBL	55	A (9.0)	0.062	5	61	A (9.1)	0.067	5	62	A (9.2)	0.071	5	62	A (3.6)	0.11	17
	EBT	490		-		532		-		542		-		542		-	
	EBR	0		-		0		-		0		-		0	A (0.0)	0	0
	EB Approach	545	A (0.9)	-	-	593	A (0.9)	-	-	604	A (0.9)	-	-	604	A (4.4)	-	-
Westbound (Broad Street)	WBL	0		-		0		-		0		-		0	A (0.0)	0	0
	WBT	525		-		546		-		579		-		579	A (2.7)	0.43	65
	WBR	30	s	s	s	36	s	s	s	37	s	s	s	37	s	s	s
	WB Approach	555	A (0.0)	-	-	582	A (0.0)	-	-	616	A (0.0)	-	-	616	A (2.7)	-	-
Northbound (Prospect Street)	NBL	5	E (37.2)	0.352	37.5	5	E (40.4)	0.371	40	5	E (44.2)	0.396	42.5	5		-	
	NBT	40		-		41		-		41		-		41	C (22.9)	0.26	44
	NBR	10	s	s	s	10	s	s	s	10	s	s	s	10	s	s	s
	NB Approach	55	E (37.2)	-	-	56	E (40.4)	-	-	56	E (44.2)	-	-	56	C (22.9)	-	-
Southbound (Prospect Street)	SBL	0		-		0		-		0		-		0		-	
	SBT	0		-		0		-		0		-		0	A (1.8)	0.29	0
	SBR	115	B (14.5)	0.249	25	121	B (14.7)	0.255	25	118	C (15.2)	0.26	25	118	s	s	s
	SB Approach	115	B (14.5)	-	-	121	B (14.7)	-	-	118	C (15.2)	-	-	118	A (1.8)	-	-
Intersection 15: Elm Street & Broad Street																	
Overall Intersection		1320	A (8.4)		-	1457	A (8.6)		-	1513	A (8.6)		-	1513	A (7.9)		-
Eastbound (Broad Street)	EBL	20	A (4.5)	0.04	9	22	A (4.6)	0.04	10	22	A (4.6)	0.04	10	22	A (3.6)	0.04	m5
	EBT	475	A (5.4)	0.35	134	497	A (5.8)	0.38	150	507	A (5.8)	0.39	155	507	A (3.9)	0.39	71
	EBR	5	A (0.0)	0	0	24	A (0.0)	0	0	24	A (0.0)	0	0	24	A (0.0)	0	0
	EB Approach	500	A (5.4)	-	-	543	A (5.7)	-	-	553	A (5.8)	-	-	553	A (3.9)	-	-
Westbound (Broad Street)	WBL	20	A (3.5)	0.03	m8	49	A (4.0)	0.08	19	55	A (4.1)	0.09	21	55	A (4.1)	0.09	21
	WBT	490	A (6.7)	0.42	227	508	A (6.8)	0.44	227	541	A (6.9)	0.46	239	541	A (6.9)	0.46	239
	WBR	80	A (0.0)	0	0	81	A (0.0)	0	0	81	A (0.0)	0	0	81	A (0.0)	0	0
	WB Approach	590	A (6.6)	-	-	638	A (6.6)	-	-	677	A (6.7)	-	-	677	A (6.7)	-	-
Northbound (Elm Street)	NBL	5	C (20.2)	0.02	9	11	C (20.7)	0.06	15	11	C (20.7)	0.06	15	11	C (20.7)	0.06	15
	NBT	20	B (16.5)	0.11	25	27	B (14.5)	0.18	33	28	B (14.0)	0.19	34	28	B (14.0)	0.19	34
	NBR	10	A (0.0)	0	0	25	A (0.0)	0	0	29	A (0.0)	0	0	29	A (0.0)	0	0
	NB Approach	35	B (17.0)	-	-	63	B (15.7)	-	-	68	B (15.1)	-	-	68	B (15.1)	-	-
Southbound (Elm Street)	SBL	80	C (27.1)	0.38	60	81	C (27.1)	0.38	60	81	C (27.2)	0.38	60	81	C (27.2)	0.38	60
	SBT	50	B (14.4)	0.36	53	64	B (15.4)	0.4	60	66	B (15.6)	0.41	61	66	B (15.6)	0.41	61
	SBR	65	A (0.0)	0	0	68	A (0.0)	0	0	68	A (0.0)	0	0	68	A (0.0)	0	0
	SB Approach	195	B (19.6)	-	-	213	B (19.9)	-	-	215	C (20.0)	-	-	215	C (20.0)	-	-



Table 7. AM Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Proposed Development)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 16: Central Avenue & Broad Street														Install flashing yellow arrow			
Overall Intersection		1970	B (18.5)		-	2116	C (20.4)		-	2151	C (22.0)		-	2151	A (9.0)		-
Eastbound (Broad Street)	EBL	0				0				0				0			
	EBT	505	D (37.9)	0.65	270	542	D (43.1)	0.68	275	556	D (51.2)	0.69	280	556	B (14.9)	0.34	135
	EBR	55	A (8.5)	0.08	29	56	A (8.2)	0.08	29	56	A (8.2)	0.08	29	56	A (6.9)	0.07	29
	EB Approach	560	D (35.0)	-	-	598	D (39.8)	-	-	612	D (47.2)	-	-	612	B (14.1)	-	-
Westbound (Broad Street)	WBL	345	C (25.5)	0.48	206	381	C (27.2)	0.51	217	372	C (25.7)	0.5	198	372	A (3.3)	0.36	28
	WBT	545	A (0.7)	0.3	9	593	A (0.6)	0.31	7	631	A (0.7)	0.33	8	631	A (0.7)	0.33	8
	WBR	0				0				0				0			
	WB Approach	890	B (10.3)	-	-	974	B (11.0)	-	-	1003	B (10.0)	-	-	1003	A (1.7)	-	-
Northbound (Central Avenue)	NBL	0	A (0.0)	0	0	0	A (0.0)	0	0	0	A (0.0)	0	0	0	A (0.0)	0	0
	NBT	0				0				0				0			
	NBR	520	B (14.8)	0.68	202	544	B (15.8)	0.7	212	536	B (15.7)	0.69	210	536	B (16.7)	0.73	210
	NB Approach	520	A (0.0)	-	-	544	A (0.0)	-	-	536	A (0.0)	-	-	536	A (0.0)	-	-
Intersection 17: Broad Street & Mountain Avenue														Install flashing yellow arrow			
Overall Intersection		1940	C (30.6)		-	2048	C (30.2)		-	2084	C (30.0)		-	2084	A (7.5)		-
Eastbound (Broad Street)	EBL	640	E (79.9)	0.89	#417	655	E (79.2)	0.88	#411	660	E (79.4)	0.89	#417	660	A (9.7)	0.64	121
	EBT	390	A (0.2)	0.21	0	399	A (0.2)	0.21	m0	400	A (0.2)	0.21	m0	400	A (0.2)	0.21	m0
	EBR	0				0				0				0			
	EB Approach	1030	D (49.7)	-	-	1054	D (49.3)	-	-	1060	D (49.5)	-	-	1060	A (6.1)	-	-
Westbound (Broad Street)	WBL	0				0				0				0			
	WBT	490	B (13.4)	0.35	101	542	B (14.1)	0.37	108	550	B (13.6)	0.38	110	550	B (12.1)	0.35	110
	WBR	20	s	s	s	21	s	s	s	21	s	s	s	21	s	s	s
	WB Approach	510	B (13.4)	-	-	563	B (14.1)	-	-	571	B (13.6)	-	-	571	B (12.1)	-	-
Southbound (Mountain Avenue)	SBL	0	A (0.0)	0	0	0	A (0.0)	0	0	0	A (0.0)	0	0	0	A (0.0)	0	0
	SBT	0				0				0				0			
	SBR	400	A (3.3)	0.3	34	431	A (4.4)	0.32	43	453	A (5.0)	0.34	48	453	A (5.0)	0.35	48
	SB Approach	400	A (0.0)	-	-	431	A (0.0)	-	-	453	A (0.0)	-	-	453	A (0.0)	-	-

Table 7. AM Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Proposed Development)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 18: South Avenue & South Zone Exit Out																	
Overall Intersection										1225	- (-)		-	1225	- (-)		-
Eastbound (South Avenue)	EBL									0		-		0		-	
	EBT									695		-		695		-	
	EBR																
	EB Approach									695	A (0.0)	-	-	695	A (0.0)	-	-
Westbound (South Avenue)	WBL																
	WBT									512		-		512		-	
	WBR									0		-		0		-	
	WB Approach									512	A (0.0)	-	-	512	A (0.0)	-	-
Southbound (South Zone Exit Out)	SBL									0		-		0		-	
	SBT																
	SBR									18	B (10.1)	0.026	2.5	18	B (11.9)	0.035	2.5
	SB Approach									18	B (10.1)	-	-	18	B (11.9)	-	-
Intersection 19: West Boomer Western Site Driveway/Townhouses Driveway & North Avenue																	
Overall Intersection						1436	- (-)		-	1528	- (-)		-	1528	- (-)		-
Eastbound (North Avenue)	EBL					0	A (0.0)	-	0	0	A (0.0)	-	0				
	EBT					700	(-)	-	-	731	(-)	-	-	731	(-)	-	-
	EBR					4	s	s	s	13	s	s	s	13	s	s	s
	EB Approach					704	A (0.0)	-	-	744	A (0.0)	-	-	744	A (0.0)	-	-
Westbound (North Avenue)	WBL					13	A (9.3)	0.016	0	44	A (9.6)	0.056	5	44	A (9.6)	0.056	5
	WBT					709	A (0.0)	-	-	716	A (0.0)	-	-	716	A (0.0)	-	-
	WBR					0		-		0		-					
	WB Approach					722	A (0.2)	-	-	760	A (0.6)	-	-	760	A (0.6)	-	-
Northbound (West Boomer Western Site Driveway/West Resi Site Driveway)	NBL					2	C (20.2)	0.043	2.5	5	C (24.6)	0.121	10	5	C (21.5)	0.104	7.5
	NBT					0		-		0		-					
	NBR					8	s	s	s	19	s	s	s	19	s	s	s
	NB Approach					10	C (20.2)	-	-	24	C (24.6)	-	-	24	C (21.5)	-	-



Table 7. AM Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Proposed Development)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 20: West Boomer Eastern Site Driveway & North Avenue																	
Overall Intersection						1454	- (-)		-	1571	- (-)		-	1571	- (-)		-
Eastbound (North Avenue)	EBL																
	EBT					702		-		715		-		715		-	
	EBR					6	s	s	s	20	s	s	s	20	s	s	s
	EB Approach					708	A (0.0)	-	-	735	A (0.0)	-	-	735	A (0.0)	-	-
Westbound (North Avenue)	WBL					15	A (9.3)	0.019	2.5	51	A (9.6)	0.065	5	51	A (9.6)	0.065	5
	WBT					719	A (0.0)	-	-	755	A (0.0)	-	-	755	A (0.0)	-	-
	WBR																
	WB Approach					734	A (0.2)	-	-	806	A (0.6)	-	-	806	A (0.6)	-	-
Northbound (West Boomer Eastern Site Driveway)	NBL					3	C (19.6)	0.049	5	8	D (25.0)	0.15	12.5	8	D (25.0)	0.15	12.5
	NBT																
	NBR					9	s	s	s	22	s	s	s	22	s	s	s
	NB Approach					12	C (19.6)	-	-	30	D (25.0)	-	-	30	D (25.0)	-	-
Intersection 21: Ferris Place & Townhomes Driveway																	
Overall Intersection										91	- (-)		-	91	- (-)		-
Eastbound (North Avenue)	EBL											-				-	
	EBT																
	EBR																
	EB Approach											-	-			-	-
Westbound (North Avenue)	WBL									4		-		4		-	
	WBT																
	WBR									0		-		0		-	
	WB Approach									4	A (9.0)	-	-	4	A (9.0)	-	-
Southbound (Multifamily Housing)	SBL									2	s	s	s	2	s	s	s
	SBT									85		-		85		-	
	SBR																
	SB Approach									87	A (0.0)	-	-	87	A (0.0)	-	-

Table 7. AM Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Proposed Development)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 22: West Townhouses Driveway & Clark Street																	
Overall Intersection										364	- (-)		-	364	- (-)		-
Eastbound (Clark Street)	EBL																
	EBT									198		-		198		-	
	EBR									0		-		0		-	
	EB Approach									198	A (0.0)	-	-	198	A (0.0)	-	-
Westbound (Clark Street)	WBL									2	A (7.7)	0.002	0	2	A (7.7)	0.002	0
	WBT									160	A (0.0)	-	-	160	A (0.0)	-	-
	WBR																
	WB Approach									162	A (0.1)	-	-	162	A (0.1)	-	-
Northbound (West Resi Site Driveway)	NBL									0	A (9.4)	0.005	0	0	A (9.4)	0.005	0
	NBT																
	NBR									4	s	s	s	4	s	s	s
	NB Approach									4	A (9.4)	-	-	4	A (9.4)	-	-
Intersection 23: Eastern North Zone Parking Site Driveway & North Avenue																	
Overall Intersection										1317	- (-)		-	1317	- (-)		-
Eastbound (North Avenue)	EBL																
	EBT									583		-		583		-	
	EBR									0		-		0		-	
	EB Approach									583	A (0.0)	-	-	583	A (0.0)	-	-
Westbound (North Avenue)	WBL									0		-		0		-	
	WBT									726		-		726		-	
	WBR																
	WB Approach									726	A (0.0)	-	-	726	A (0.0)	-	-
Northbound (Eastern North Zone Parking Site Driveway)	NBL									0		-		0		-	
	NBT																
	NBR									8	B (10.4)	0.013	0	8	B (10.4)	0.013	0
	NB Approach									8	B (10.4)	-	-	8	B (10.4)	-	-

Table 8. PM Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Proposed Development)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 1: Crossway Place/Scotch Plains Avenue & South Avenue														Modify signal timings			
Overall Intersection		1370	B (18.5)		-	1471	B (18.6)		-	1544	C (22.8)		-	1544	B (11.2)		-
Eastbound (South Avenue)	EBL	75	s	s	s	81	s	s	s	81	s	s	s	81	s	s	s
	EBT	255	B (11.0)	0.32	187	282	B (11.5)	0.35	201	291	B (11.8)	0.36	206	291	A (9.6)	0.46	112
	EBR	55	A (4.6)	0.05	m16	56	A (4.6)	0.05	m15	56	A (4.6)	0.05	m15	56	A (2.7)	0.07	12
	EB Approach	385	B (10.1)	-	-	419	B (10.6)	-	-	428	B (10.9)	-	-	428	A (8.7)	-	-
Westbound (South Avenue)	WBL	15	s	s	s	15	s	s	s	31	s	s	s	31	s	s	s
	WBT	240	A (6.2)	0.3	103	267	A (6.5)	0.31	110	302	A (7.2)	0.37	132	302	A (8.5)	0.46	112
	WBR	90	A (0.0)	0	0	92	A (0.0)	0	0	91	A (0.0)	0	0	91	A (0.0)	0	0
	WB Approach	345	A (6.2)	-	-	374	A (6.5)	-	-	424	A (7.2)	-	-	424	A (8.5)	-	-
Northbound (Crossway Place/Scotch Plains Avenue)	NBL	35	C (29.3)	0.32	39	36	C (29.1)	0.32	39	36	C (29.1)	0.32	39	36	B (12.4)	0.19	21
	NBT	195	C (25.4)	0.47	134	210	C (25.3)	0.47	140	211	C (25.2)	0.48	143	211	B (13.0)	0.42	77
	NBR	10	A (0.0)	0.435	0	10	A (0.0)	0	0	15	A (0.0)	0.435	0	15	A (0.0)	0	0
	NB Approach	240	C (25.9)	-	-	256	C (25.8)	-	-	262	C (25.8)	-	-	262	B (12.9)	-	-
Southbound (Crossway Place/Scotch Plains Avenue)	SBL	50	C (24.0)	0.25	46	51	C (23.8)	0.25	46	50	C (23.7)	0.25	46	50	B (11.5)	0.17	25
	SBT	215	C (34.1)	0.79	218	229	C (34.1)	0.79	#226	235	C (34.8)	0.8	#241	235	B (15.7)	0.67	116
	SBR	135	A (0.0)	0	0	142	A (0.0)	0	0	145	A (0.0)	0	0	145	A (0.0)	0	0
	SB Approach	400	C (32.8)	-	-	422	C (32.8)	-	-	430	C (33.5)	-	-	430	B (15.2)	-	-
Intersection 2: Broad Street & South Avenue																	
Overall Intersection		1970	B (14.5)		-	2125	B (15.0)		-	2169	B (15.2)		-	2169	B (15.2)		-
Eastbound (Broad Street)	EBL	0				0				0				0			
	EBT	250	B (13.9)	0.41	188	277	B (14.2)	0.42	201	290	B (14.4)	0.44	209	290	B (14.4)	0.44	209
	EBR	110	s	s	s	112	s	s	s	112	s	s	s	112	s	s	s
	EB Approach	360	B (13.9)	-	-	389	B (14.2)	-	-	402	B (14.4)	-	-	402	B (14.4)	-	-
Westbound (Broad Street)	WBL	645	s	s	s	695	s	s	s	694	s	s	s	694	s	s	s
	WBT	405	A (8.6)	0.99dl	170	433	A (9.1)	1.06dl	179	466	A (9.6)	1.08dl	186	466	A (9.6)	1.08dl	186
	WBR	0				0				0				0			
	WB Approach	1050	A (8.6)	-	-	1128	A (9.1)	-	-	1160	A (9.6)	-	-	1160	A (9.6)	-	-
Northbound (South Avenue)	NBL	190	D (35.5)	0.63	136	195	D (35.5)	0.63	135	195	D (35.5)	0.63	135	195	D (35.5)	0.63	135
	NBT	0				0				0				0			
	NBR	370	C (21.1)	0.6	195	413	C (22.3)	0.65	210	412	C (22.2)	0.65	209	412	C (22.2)	0.65	209
	NB Approach	560	A (0.0)	-	-	608	A (0.0)	-	-	607	A (0.0)	-	-	607	A (0.0)	-	-
Intersection 3: Route 28 & South Avenue																	
Overall Intersection		2534	B (14.4)		-	2779	C (22.9)			2534	B (14.4)		-	2534	B (14.4)		-
Eastbound (South Avenue (traffic	EB Approach	869	C (23.9)	0.855	466.7	965	E (44.8)	0.99	893.4	869	C (23.9)	0.855	466.7	869	C (23.9)	0.855	466.7
Westbound (South Avenue (traffic	WB Approach	704	A (8.9)	0.454	70.3	770	B (10.9)	0.537	101	704	A (8.9)	0.454	70	704	A (8.9)	0.454	70
Southbound (Route 28)	SB Approach	961	A (9.8)	0.539	106.8	1044	B (11.5)	0.603	144.4	961	A (9.8)	0.539	107	961	A (9.8)	0.539	107

Table 8. PM Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Proposed Development)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 4: Summit Avenue & South Avenue														Modify signal phase, no split-phase operation. Add LPI. Exclusive EBL & WBL. Road diet. Coordinated signal.			
Overall Intersection		1478	B (12.4)		-	1694	B (14.2)		-	1847	B (16.6)		-	1847	C (23.7)		-
Eastbound (South Avenue)	EBL	21	A (0.0)	0	0	21	A (0.0)	0	0	34	A (0.0)	0	0	34	A (8.0)	0.1	18
	EBT	588	B (10.2)	0.46	288	617	B (11.4)	0.49	314	636	B (13.4)	0.57	346	636	C (21.8)	0.63	433
	EBR	30	A (0.8)	0.02	5	53	A (0.7)	0.04	6	55	A (0.7)	0.04	7	55	s	s	s
	EB Approach	639	A (9.8)	-	-	691	B (10.6)	-	-	725	B (12.5)	-	-	725	C (21.2)	-	-
Westbound (South Avenue)	WBL	25	A (0.0)	0	0	28	A (0.0)	0	0	28	A (0.0)	0	0	28	A (7.6)	0.08	m15
	WBT	573	A (7.4)	0.26	116	602	A (8.1)	0.29	131	627	A (8.9)	0.33	138	627	C (20.6)	0.63	362
	WBR	13	A (0.0)	0	0	48	A (0.0)	0	0	57	A (0.0)	0	0	57	A (0.0)	0	0
	WB Approach	611	A (7.4)	-	-	678	A (8.1)	-	-	712	A (8.9)	-	-	712	C (20.1)	-	-
Northbound (Summit Avenue)	NBL	90	D (46.7)	0.48	99	101	D (48.3)	0.53	109	101	D (48.3)	0.53	109	101	D (48.1)	0.51	114
	NBT	13	B (19.0)	0.25	42	21	C (20.7)	0.29	50	23	C (21.1)	0.3	51	23	B (18.2)	0.21	51
	NBR	41	A (0.0)	0	0	43	A (0.0)	0	0	43	A (0.0)	0	0	43	A (0.0)	0	0
	NB Approach	144	D (36.3)	-	-	165	D (37.6)	-	-	167	D (37.6)	-	-	167	D (36.2)	-	-
Southbound (Summit Avenue)	SBL	25	D (39.8)	0.15	38	76	D (44.5)	0.41	86	131	D (53.9)	0.65	#144	131	D (50.3)	0.59	141
	SBT	21	C (23.3)	0.32	49	21	B (19.1)	0.37	55	21	B (16.9)	0.43	61	21	B (13.7)	0.33	60
	SBR	38	A (0.0)	0	0	63	A (0.0)	0	0	91	A (0.0)	0	0	91	A (0.0)	0	0
	SB Approach	84	C (28.2)	-	-	160	C (31.1)	-	-	243	D (36.8)	-	-	243	C (33.4)	-	-
Intersection 5: South Avenue & Boulevard																	
Overall Intersection		1343	- (-)		-	1402	- (-)		-	1501	- (-)		-	1501	- (-)		-
Eastbound (South Avenue)	EBL																
	EBT	613		-		642		-		716		-		716		-	
	EBR	46	s	s	s	47	s	s	s	47	s	s	s	47	s	s	s
	EB Approach	659	A (0.0)	-	-	689	A (0.0)	-	-	763	A (0.0)	-	-	763	A (0.0)	-	-
Westbound (South Avenue)	WBL	29	s	s	s	29	s	s	s	29	s	s	s	29	s	s	s
	WBT	532	A (0.2)	-	-	560	A (0.2)	-	-	585	A (0.2)	-	-	585	A (0.0)	-	-
	WBR																
	WB Approach	561	A (0.7)	-	-	589	A (0.6)	-	-	614	A (0.6)	-	-	614	A (0.4)	-	-
Northbound (Middle South Site Driveway)	NBL	35	C (18.8)	0.324	35	35	C (20.0)	0.344	37.5	35	C (22.8)	0.384	45	35	D (28.4)	0.454	55
	NBT																
	NBR	88	s	s	s	89	s	s	s	89	s	s	s	89	s	s	s
	NB Approach	123	C (18.8)	-	-	124	C (20.0)	-	-	124	C (22.8)	-	-	124	D (28.4)	-	-

Table 8. PM Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Proposed Development)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 6: South Avenue & Eastern South Site Driveway														Install a traffic signal. Add LPI. Road diet. Coordinated signal.			
Overall Intersection		1290	- (-)		-	1348	- (-)		-	1469	- (-)		-	1469	A (7.9)		-
Eastbound (South Avenue)	EBL	5	s	s	s	5	s	s	s	17	s	s	s	17	s	s	s
	EBT	693	A (0.0)	-	-	723	A (0.0)	-	-	731	A (0.0)	-	-	731	A (5.7)	0.58	149
	EBR													0			
	EB Approach	698	A (0.1)	-	-	728	A (0.1)	-	-	748	A (0.2)	-	-	748	A (5.7)	-	-
Westbound (South Avenue)	WBL													0			
	WBT	532		-		560		-		564		-		564	A (6.7)	0.43	m143
	WBR	14	s	s	s	14	s	s	s	40	s	s	s	40	A (1.6)	0.03	m2
	WB Approach	546	A (0.0)	-	-	574	A (0.0)	-	-	604	A (0.0)	-	-	604	A (6.4)	-	-
Southbound (Eastern South Site Driveway)	SBL	18	C (18.2)	0.149	12.5	18	C (19.4)	0.159	15	61	E (37.2)	0.529	70	61		-	
	SBT													0			
	SBR	28	s	s	s	28	s	s	s	56	s	s	s	56	A (0.0)	0	0
	SB Approach	46	C (18.2)	-	-	46	C (19.4)	-	-	117	E (37.2)	-	-	117	C (29.4)	-	-
Intersection 7: Ross Place & Central Avenue & South Avenue														Modify signal timings. Restrict the WBR on red movement. Coordinated signal.			
Overall Intersection		2888	C (34.0)		-	3163	D (37.8)		-	3310	D (40.3)		-	3310	D (39.6)		-
Eastbound (South Avenue (5 legged))	EBL	168	C (23.3)	0.54	108	172	C (25.1)	0.58	107	204	C (33.7)	0.72	#146	204	D (36.0)	0.78	#146
	EBT	440	C (27.7)	0.53	230	475	C (28.9)	0.59	254	494	C (30.4)	0.65	282	494	C (28.1)	0.66	255
	EBR	165	s	s	s	209	s	s	s	253	s	s	s	253	s	s	s
	EB Approach	773	C (26.8)	-	-	856	C (28.1)	-	-	951	C (31.1)	-	-	951	C (29.8)	-	-
Westbound (South Avenue (5 legged))	WBL	30	B (16.9)	0.25	57	30	B (17.3)	0.27	56	30	B (18.0)	0.31	56	30	C (20.6)	0.33	62
	WBT	390	C (33.7)	0.67	323	425	D (35.3)	0.7	343	430	D (36.1)	0.72	349	430	D (39.7)	0.73	374
	WBR	170	A (9.2)	0.29	70	190	B (10.0)	0.31	78	191	B (10.2)	0.32	79	191	C (30.3)	0.38	165
	WB Approach	590	C (25.1)	-	-	645	C (26.3)	-	-	651	C (26.9)	-	-	651	C (34.9)	-	-
Northbound (Central Avenue)	NBL	150	D (44.0)	0.79	#133	181	E (66.8)	0.93	#173	193	F (84.4)	1	#209	193	D (45.0)	0.83	#187
	NBT	530	D (44.5)	0.88	#528	575	D (48.8)	0.92	#571	586	D (49.1)	0.92	#586	586	D (51.7)	0.92	#608
	NBR	30	s	s	s	32	s	s	s	32	s	s	s	32	s	s	s
	NB Approach	710	D (44.4)	-	-	788	D (53.0)	-	-	811	E (57.6)	-	-	811	D (50.1)	-	-
Southbound (Central Avenue)	SBL	155	D (44.0)	0.79	#133	173	D (54.1)	0.86	#154	176	E (59.0)	0.89	#172	176	D (37.1)	0.74	m107
	SBT	575	D (46.7)	0.9	#547	616	D (50.0)	0.92	#578	636	D (52.3)	0.94	#608	636	D (53.9)	0.94	m#573
	SBR	85	B (13.8)	0.39	124	85	B (13.8)	0.39	124	85	B (14.3)	0.4	131	85	C (22.2)	0.4	m135
	SB Approach	815	D (38.0)	-	-	874	D (41.9)	-	-	897	D (44.1)	-	-	897	D (43.4)	-	-

Table 8. PM Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Proposed Development)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 8: Crossway Place/Edgewood Avenue & North Avenue														Modify signal timings			
Overall Intersection		1895	B (15.8)		-	2093	B (19.5)		-	2134	C (21.0)		-	2134	B (18.8)		-
Eastbound (North Avenue)	EBL	5	B (10.0)	0.01	6	5	B (10.2)	0.01	7	5	B (10.2)	0.01	7	5	B (10.2)	0.01	7
	EBT	510	B (16.1)	0.55	304	587	B (17.3)	0.61	351	595	B (17.5)	0.61	357	595	B (17.5)	0.61	357
	EBR	40	A (0.0)	0	0	41	A (0.0)	0	0	41	A (0.0)	0	0	41	A (0.0)	0	0
	EB Approach	555	B (16.0)	-	-	633	B (17.3)	-	-	641	B (17.4)	-	-	641	B (17.4)	-	-
Westbound (North Avenue)	WBL	335	C (23.1)	0.79	#150	356	D (42.4)	0.93	#200	365	D (50.3)	0.96	#216	365	D (38.5)	0.91	#196
	WBT	585	B (11.0)	0.5	262	660	B (11.7)	0.55	298	684	B (12.1)	0.57	314	684	B (11.4)	0.56	302
	WBR	5	s	s	s	5	s	s	s	5	s	s	s	5	s	s	s
	WB Approach	925	B (15.4)	-	-	1021	C (22.4)	-	-	1054	C (25.3)	-	-	1054	C (20.8)	-	-
Northbound (Crossway Place/Edgewood Avenue)	NBL	90	A (0.0)	0	0	92	A (0.0)	0	0	92	A (0.0)	0	0	92	A (0.0)	0	0
	NBT	60	C (31.1)	0.39	135	61	C (31.1)	0.39	134	60	C (31.1)	0.39	133	60	C (32.1)	0.4	135
	NBR	205	A (3.9)	0.29	44	225	A (3.8)	0.3	46	227	A (4.0)	0.3	47	227	A (4.0)	0.3	47
	NB Approach	355	B (15.4)	-	-	378	B (14.9)	-	-	379	B (14.9)	-	-	379	B (15.3)	-	-
Southbound (Crossway Place/Edgewood Avenue)	SBL	10	A (0.0)	0	0	10	A (0.0)	0	0	10	A (0.0)	0	0	10	A (0.0)	0	0
	SBT	35	C (21.5)	0.13	53	36	C (21.5)	0.13	53	35	C (21.4)	0.13	52	35	C (22.1)	0.14	53
	SBR	15	A (0.0)	0	0	15	A (0.0)	0	0	15	A (0.0)	0	0	15	A (0.0)	0	0
	SB Approach	60	C (21.5)	-	-	61	C (21.5)	-	-	60	C (21.4)	-	-	60	C (22.1)	-	-
Intersection 9: North Avenue & Clark Street														Install traffic signal. Add LPI. Restrict the WBR on red movement. Coordinated signal.			
Overall Intersection		1591	- (-)		-	1626	- (-)		-	1649	- (-)		-	1649	B (17.2)		-
Eastbound (North Avenue)	EBL	5	A (9.7)	0.007	0	5	A (9.7)	0.007	0	6	A (9.8)	0.009	0	6	A (0.0)	0	0
	EBT	533	A (0.0)	-	-	544	A (0.0)	-	-	548	A (0.0)	-	-	548	A (9.9)	0.45	258
	EBR													0			
	EB Approach	538	A (0.1)	-	-	549	A (0.1)	-	-	554	A (0.1)	-	-	554	A (9.9)	-	-
Westbound (North Avenue)	WBL													0			
	WBT	651		-		663		-		681		-		681	B (13.8)	0.68	329
	WBR	146	s	s	s	148	s	s	s	147	s	s	s	147	s	s	s
	WB Approach	797	A (0.0)	-	-	811	A (0.0)	-	-	828	A (0.0)	-	-	828	B (13.8)	-	-
Southbound (Clark Street)	SBL	221	E (36.7)	0.7	125	230	E (41.5)	0.746	142.5	231	E (45.0)	0.77	152.5	231	D (46.3)	0.65	#260
	SBT													0			
	SBR	35	B (11.5)	0.064	5	36	B (11.5)	0.066	5	36	B (11.6)	0.067	5	36	C (21.8)	0.11	39
	SB Approach	256	D (33.3)	-	-	266	E (37.4)	-	-	267	E (40.5)	-	-	267	D (43.0)	-	-



Table 8. PM Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Proposed Development)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 10: Clark Street & Ferris Place																	
Overall Intersection		474	- (-)		-	482	- (-)		-	481	- (-)		-	481	- (-)		-
Eastbound (Clark Street)	EBL	0		-		0		-		0		-		0		-	
	EBT	188		-		191		-		190		-		190		-	
	EBR																
	EB Approach	188	A (0.0)	-	-	191	A (0.0)	-	-	190	A (0.0)	-	-	190	A (0.0)	-	-
Westbound (Clark Street)	WBL																
	WBT	197		-		200		-		199		-		199		-	
	WBR	0		-		0		-		0		-		0		-	
	WB Approach	197	A (0.0)	-	-	200	A (0.0)	-	-	199	A (0.0)	-	-	199	A (0.0)	-	-
Southbound (Ferris Place)	SBL	51	B (11.6)	0.164	15	52	B (11.7)	0.168	15	53	B (11.7)	0.17	15	53	B (11.7)	0.17	15
	SBT																
	SBR	38	s	s	s	39	s	s	s	39	s	s	s	39	s	s	s
	SB Approach	89	B (11.6)	-	-	91	B (11.7)	-	-	92	B (11.7)	-	-	92	B (11.7)	-	-
Intersection 11: Route 28/Broad Street & North Avenue														Modify signal timings. Coordinated signal.			
Overall Intersection		2764	C (21.3)		-	3186	C (25.8)		-	3295	C (28.2)		-	3295	C (26.0)		-
Eastbound (North Avenue)	EBL	122	B (10.8)	0.29	54	153	B (13.5)	0.44	65	165	B (14.9)	0.5	70	165	B (17.7)	0.5	m88
	EBT	299	B (15.3)	0.43	154	374	B (17.7)	0.55	202	393	B (18.4)	0.58	216	393	C (22.5)	0.55	325
	EBR	339	A (3.2)	0.35	49	380	A (4.3)	0.4	66	393	A (4.7)	0.42	72	393	A (4.2)	0.39	54
	EB Approach	760	A (9.2)	-	-	907	B (11.4)	-	-	951	B (12.2)	-	-	951	B (14.1)	-	-
Westbound (North Avenue)	WBL	199	A (0.0)	0	0	228	A (0.0)	0	0	240	A (0.0)	0	0	240	A (0.0)	0	0
	WBT	436	C (21.8)	0.62	215	523	C (27.3)	0.82	#275	528	C (29.2)	0.85	#289	528	C (22.5)	0.78	#173
	WBR	6	A (0.0)	0	0	6	A (0.0)	0	0	10	A (0.0)	0	0	10	A (0.0)	0	0
	WB Approach	641	C (21.8)	-	-	757	C (27.3)	-	-	778	C (29.2)	-	-	778	C (22.5)	-	-
Northbound (Route 28/East Broad Street)	NBL	236	D (39.6)	0.82	#155	265	E (65.1)	0.96	#200	281	F (80.9)	1.02	#222	281	D (42.4)	0.83	#216
	NBT	448	C (24.4)	0.66	251	492	C (25.7)	0.71	281	506	C (26.1)	0.72	291	506	C (29.0)	0.66	359
	NBR	123	B (16.6)	0.21	71	162	B (17.1)	0.27	92	169	B (17.2)	0.28	95	169	C (20.9)	0.25	116
	NB Approach	807	C (27.6)	-	-	919	D (35.5)	-	-	956	D (40.6)	-	-	956	C (31.5)	-	-
Southbound (Route 28/East Broad Street)	SBL	26	A (0.0)	0	0	33	A (0.0)	0	0	35	A (0.0)	0	0	35	A (0.0)	0	0
	SBT	422	C (28.2)	0.71	159	435	C (30.8)	0.79	175	439	C (32.6)	0.82	#182	439	D (40.3)	0.77	240
	SBR	108	A (0.0)	0	0	135	A (0.0)	0	0	136	A (0.0)	0	0	136	A (0.0)	0	0
	SB Approach	556	C (28.2)	-	-	603	C (30.8)	-	-	610	C (32.6)	-	-	610	D (40.3)	-	-



		Existing				No-Build (Lord & Taylor)				Build (Proposed Development)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 12: North Avenue & Elm Street														Convert to a 4-legged intersection. Add LPI. Coordinated signal.			
Overall Intersection		1525	B (13.2)		-	1817	B (14.4)		-	1914	B (14.9)		-	1914	B (18.9)		-
Eastbound (North Avenue)	EBL	29	A (0.0)	0	0	66	A (0.0)	0	0	66	A (0.0)	0	0	66	A (0.0)	0	0
	EBT	402	A (9.9)	0.27	101	480	B (12.7)	0.41	139	497	B (13.3)	0.43	m97	497	A (9.8)	0.38	138
	EBR	21	A (0.0)	0	0	21	A (0.0)	0	0	33	A (0.0)	0	0	33	A (0.0)	0	0
	EB Approach	452	A (9.9)	-	-	567	B (12.7)	-	-	596	B (13.3)	-	-	596	A (9.8)	-	-
Westbound (North Avenue)	WBL	21	A (0.0)	0	0	21	A (0.0)	0	0	40	A (0.0)	0	0	40	A (0.0)	0	0
	WBT	670	B (13.4)	0.45	m136	727	B (14.0)	0.52	m132	730	B (14.1)	0.55	m130	730	B (16.8)	0.49	m287
	WBR	104	A (0.0)	0	0	163	A (0.0)	0	0	163	A (0.0)	0	0	163	A (0.0)	0	0
	WB Approach	795	B (13.4)	-	-	911	B (14.0)	-	-	933	B (14.1)	-	-	933	B (16.8)	-	-
Northbound (Elm Street)	NBL	16	A (0.0)	0	0	16	A (0.0)	0	0	35	A (0.0)	0	0	35	A (0.0)	0	0
	NBT	16	B (18.2)	0.07	30	16	B (18.2)	0.07	31	28	B (19.1)	0.15	50	28	C (32.1)	0.22	65
	NBR	9	A (0.0)	0.02	0	9	A (0.0)	0.02	0	17	A (0.1)	0.03	0	17	A (0.2)	0.04	0
	NB Approach	41	B (14.4)	-	-	41	B (14.4)	-	-	80	B (15.0)	-	-	80	C (25.2)	-	-
Southbound (Elm Street)	SBL	103	A (0.0)	0	0	105	A (0.0)	0	0	105	A (0.0)	0	0	105	A (0.0)	0	0
	SBT	19	B (18.5)	0.5	132	19	B (19.2)	0.6	158	26	C (20.4)	0.62	167	26	D (41.7)	0.78	225
	SBR	115	A (0.0)	0	0	174	A (0.0)	0	0	174	A (0.0)	0	0	174	A (0.0)	0	0
	SB Approach	237	B (18.5)	-	-	298	B (19.2)	-	-	305	C (20.4)	-	-	305	D (41.7)	-	-
Intersection 13: Central Avenue & North Avenue														Coordinated signal.			
Overall Intersection		3005	C (27.9)		-	3293	D (42.7)		-	3396	D (51.8)		-	3396	D (44.0)		-
Eastbound (North Avenue)	EBL	25	A (0.0)	0	0	32	A (0.0)	0	0	38	A (0.0)	0	0	38	A (0.0)	0	0
	EBT	420	B (18.4)	0.57	96	482	B (18.5)	0.68	99	494	B (19.8)	0.74	106	494	D (36.5)	0.74	307
	EBR	140	A (0.0)	0	0	158	A (0.0)	0	0	180	A (0.0)	0	0	180	A (0.0)	0	0
	EB Approach	585	B (18.4)	-	-	672	B (18.5)	-	-	712	B (19.8)	-	-	712	D (36.5)	-	-
Westbound (North Avenue)	WBL	210	A (0.0)	0	0	214	A (0.0)	0	0	221	A (0.0)	0	0	221	A (0.0)	0	0
	WBT	610	C (28.8)	0.87	#241	672	D (54.7)	1.02	#321	677	E (67.4)	1.06	#341	677	D (54.7)	1	#412
	WBR	45	A (0.0)	0	0	62	A (0.0)	0	0	62	A (0.0)	0	0	62	A (0.0)	0	0
	WB Approach	865	C (28.8)	-	-	948	D (54.7)	-	-	960	E (67.4)	-	-	960	D (54.7)	-	-
Northbound (Central Avenue)	NBL	150	A (0.0)	0	0	200	A (0.0)	0	0	213	A (0.0)	0	0	213	A (0.0)	0	0
	NBT	525	C (34.2)	0.92	#243	534	E (57.8)	1.03	#314	542	E (74.4)	1.08	#349	542	D (45.6)	0.99	m#338
	NBR	190	A (0.0)	0	0	200	A (0.0)	0	0	223	A (0.0)	0	0	223	A (0.0)	0	0
	NB Approach	865	C (34.2)	-	-	934	E (57.8)	-	-	978	E (74.4)	-	-	978	D (45.6)	-	-
Southbound (Central Avenue)	SBL	55	A (0.0)	0	0	57	A (0.0)	0	0	57	A (0.0)	0	0	57	A (0.0)	0	0
	SBT	625	C (27.1)	0.75	205	666	C (30.2)	0.81	#248	668	C (32.5)	0.84	#259	668	D (35.1)	0.77	307
	SBR	10	A (0.0)	0	0	16	A (0.0)	0	0	21	A (0.0)	0	0	21	A (0.0)	0	0
	SB Approach	690	C (27.1)	-	-	739	C (30.2)	-	-	746	C (32.5)	-	-	746	D (35.1)	-	-

Table 8. PM Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Proposed Development)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 14: Prospect Street & Broad Street														Install a traffic signal			
Overall Intersection		1380	- (-)		-	1523	- (-)		-	1560	- (-)		-	1560	A (5.5)		-
Eastbound (Broad Street)	EBL	115	A (9.0)	0.119	10	125	A (9.2)	0.134	12.5	128	A (9.3)	0.138	12.5	128	A (4.7)	0.22	38
	EBT	560		-		634		-		660		-		660		-	
	EBR	0		-		0		-		0		-		0	A (0.0)	0	0
	EB Approach	675	A (1.5)	-	-	759	A (1.5)	-	-	788	A (1.5)	-	-	788	A (5.5)	-	-
Westbound (Broad Street)	WBL	0		-		0		-		0		-		0	A (0.0)	0	0
	WBT	485		-		513		-		519		-		519	A (3.6)	0.39	115
	WBR	45	s	s	s	55	s	s	s	56	s	s	s	56	s	s	s
	WB Approach	530	A (0.0)	-	-	568	A (0.0)	-	-	575	A (0.0)	-	-	575	A (3.6)	-	-
Northbound (Prospect Street)	NBL	10	F (55.0)	0.499	57.5	26	F (147.8)	0.91	130	26	F (170.8)	0.971	140	26		-	
	NBT	40		-		42		-		42		-		42	C (23.9)	0.37	56
	NBR	15	s	s	s	15	s	s	s	15	s	s	s	15	s	s	s
	NB Approach	65	F (55.0)	-	-	83	F (147.8)	-	-	83	F (170.8)	-	-	83	C (23.9)	-	-
Southbound (Prospect Street)	SBL	0		-		0		-		0		-		0		-	
	SBT	0		-		0		-		0		-		0	A (1.2)	0.25	0
	SBR	110	B (13.4)	0.212	20	113	B (13.9)	0.228	22.5	114	B (14.1)	0.232	22.5	114	s	s	s
	SB Approach	110	B (13.4)	-	-	113	B (13.9)	-	-	114	B (14.1)	-	-	114	A (1.2)	-	-
Intersection 15: Elm Street & Broad Street																	
Overall Intersection		1545	B (11.6)		-	1730	B (11.9)		-	1782	B (12.0)		-	1782	B (10.7)		-
Eastbound (Broad Street)	EBL	60	A (7.1)	0.12	29	62	A (7.7)	0.13	31	62	A (7.8)	0.13	31	62	A (5.2)	0.13	m14
	EBT	485	A (8.6)	0.44	194	528	A (9.8)	0.51	237	554	B (10.2)	0.53	254	554	A (6.4)	0.53	81
	EBR	35	A (0.0)	0	0	65	A (0.0)	0	0	65	A (0.0)	0	0	65	A (0.0)	0	0
	EB Approach	580	A (8.4)	-	-	655	A (9.6)	-	-	681	B (10.0)	-	-	681	A (6.3)	-	-
Westbound (Broad Street)	WBL	40	A (6.9)	0.08	26	61	A (7.9)	0.15	36	67	A (8.4)	0.18	40	67	A (8.4)	0.18	40
	WBT	420	A (9.5)	0.42	206	452	A (9.9)	0.46	215	458	A (9.9)	0.46	217	458	B (10.1)	0.46	217
	WBR	75	A (0.0)	0	0	76	A (0.0)	0	0	76	A (0.0)	0	0	76	A (0.0)	0	0
	WB Approach	535	A (9.3)	-	-	589	A (9.7)	-	-	601	A (9.7)	-	-	601	A (9.9)	-	-
Northbound (Elm Street)	NBL	25	B (17.7)	0.09	22	28	B (17.4)	0.11	23	28	B (17.3)	0.11	23	28	B (17.3)	0.11	23
	NBT	60	B (15.2)	0.2	43	69	B (12.8)	0.27	51	72	B (12.3)	0.29	53	72	B (12.2)	0.29	53
	NBR	20	A (0.0)	0	0	47	A (0.0)	0	0	56	A (0.0)	0	0	56	A (0.0)	0	0
	NB Approach	105	B (15.8)	-	-	144	B (13.7)	-	-	156	B (13.1)	-	-	156	B (13.1)	-	-
Southbound (Elm Street)	SBL	160	C (27.9)	0.56	94	163	C (27.6)	0.57	95	163	C (27.7)	0.57	95	163	C (27.7)	0.57	95
	SBT	80	B (12.1)	0.37	61	90	B (12.0)	0.39	65	92	B (12.2)	0.39	66	92	B (12.2)	0.39	66
	SBR	85	A (0.0)	0	0	89	A (0.0)	0	0	89	A (0.0)	0	0	89	A (0.0)	0	0
	SB Approach	325	B (19.8)	-	-	342	B (19.4)	-	-	344	B (19.6)	-	-	344	B (19.5)	-	-

Table 8. PM Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Proposed Development)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 16: Central Avenue & Broad Street														Install flashing yellow arrow			
Overall Intersection		2055	B (19.6)		-	2248	C (28.1)		-	2318	D (36.0)		-	2318	A (8.8)		-
Eastbound (Broad Street)	EBL	0				0				0				0			
	EBT	580	C (23.4)	0.67	269	651	D (42.6)	0.76	#378	687	E (66.9)	0.81	#414	687	B (13.0)	0.4	153
	EBR	85	A (5.8)	0.11	34	87	A (5.1)	0.11	m27	87	A (4.9)	0.11	m24	87	A (4.6)	0.11	m24
	EB Approach	665	C (21.2)	-	-	738	D (38.2)	-	-	774	E (59.9)	-	-	774	B (12.0)	-	-
Westbound (Broad Street)	WBL	515	D (42.6)	0.71	290	561	D (52.6)	0.76	316	568	D (54.6)	0.76	#322	568	A (8.4)	0.57	109
	WBT	485	A (0.3)	0.25	0	538	A (0.3)	0.27	0	551	A (0.3)	0.28	0	551	A (0.3)	0.28	0
	WBR	0				0				0				0			
	WB Approach	1000	C (22.1)	-	-	1099	C (27.0)	-	-	1119	C (27.9)	-	-	1119	A (4.4)	-	-
Northbound (Central Avenue)	NBL	0	A (0.0)	0	0	0	A (0.0)	0	0	0	A (0.0)	0	0	0	A (0.0)	0	0
	NBT	0				0				0				0			
	NBR	390	B (10.6)	0.52	125	411	B (12.6)	0.55	149	425	B (13.7)	0.57	162	425	B (14.5)	0.61	161
	NB Approach	390	A (0.0)	-	-	411	A (0.0)	-	-	425	A (0.0)	-	-	425	A (0.0)	-	-
Intersection 17: Broad Street & Mountain Avenue														Install flashing yellow arrow			
Overall Intersection		1990	C (28.8)		-	2182	D (35.6)		-	2249	D (37.4)		-	2249	A (6.6)		-
Eastbound (Broad Street)	EBL	460	D (39.4)	0.62	230	500	E (65.7)	0.66	m234	522	E (73.4)	0.69	m234	522	A (6.7)	0.5	93
	EBT	505	A (0.2)	0.26	0	557	A (0.3)	0.28	m0	584	A (0.3)	0.3	m0	584	A (0.3)	0.3	0
	EBR	0				0				0				0			
	EB Approach	965	B (18.9)	-	-	1057	C (31.2)	-	-	1106	C (34.8)	-	-	1106	A (3.4)	-	-
Westbound (Broad Street)	WBL	0				0				0				0			
	WBT	525	E (66.9)	0.34	104	583	E (67.7)	0.38	116	593	E (68.1)	0.39	118	593	B (12.0)	0.37	118
	WBR	25	s	s	s	26	s	s	s	26	s	s	s	26	s	s	s
	WB Approach	550	E (66.9)	-	-	609	E (67.7)	-	-	619	E (68.1)	-	-	619	B (12.0)	-	-
Southbound (Mountain Avenue)	SBL	0	A (0.0)	0	0	0	A (0.0)	0	0	0	A (0.0)	0	0	0	A (0.0)	0	0
	SBT	0				0				0				0			
	SBR	475	A (4.6)	0.35	47	516	A (6.6)	0.38	64	524	A (6.9)	0.39	67	524	A (7.0)	0.41	67
	SB Approach	475	A (0.0)	-	-	516	A (0.0)	-	-	524	A (0.0)	-	-	524	A (0.0)	-	-

Table 8. PM Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Proposed Development)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 18: South Avenue & South Zone Exit Out																	
Overall Intersection										1478	- (-)		-	1478	- (-)		-
Eastbound (South Avenue)	EBL									0		-		0		-	
	EBT									750		-		750		-	
	EBR																
	EB Approach									750	A (0.0)	-	-	750	A (0.0)	-	-
Westbound (South Avenue)	WBL																
	WBT									669		-		669		-	
	WBR									0		-		0		-	
	WB Approach									669	A (0.0)	-	-	669	A (0.0)	-	-
Southbound (South Zone Exit Out)	SBL									0		-		0		-	
	SBT																
	SBR									59	B (11.2)	0.096	7.5	59	B (14.6)	0.142	12.5
	SB Approach									59	B (11.2)	-	-	59	B (14.6)	-	-
Intersection 19: West Boomer Western Site Driveway/Townhouses Driveway & North Avenue																	
Overall Intersection						1461	- (-)		-	1506	- (-)		-	1506	- (-)		-
Eastbound (North Avenue)	EBL					0	A (0.0)	-	0	0	A (0.0)	-	0				
	EBT					564	(-)	-	-	573	(-)	-	-	573	(-)	-	-
	EBR					10	s	s	s	10	s	s	s	10	s	s	s
	EB Approach					574	A (0.0)	-	-	583	A (0.0)	-	-	583	A (0.0)	-	-
Westbound (North Avenue)	WBL					35	A (8.8)	0.038	2.5	36	A (8.9)	0.039	2.5	36	A (8.9)	0.039	2.5
	WBT					808	A (0.0)	-	-	819	A (0.0)	-	-	819	A (0.0)	-	-
	WBR					0		-		0		-					
	WB Approach					843	A (0.4)	-	-	855	A (0.4)	-	-	855	A (0.4)	-	-
Northbound (West Boomer Western Site Driveway/West Resi Site Driveway)	NBL					10	C (22.8)	0.187	17.5	15	D (25.6)	0.292	30	15	C (21.6)	0.249	25
	NBT					0		-		0		-					
	NBR					34	s	s	s	53	s	s	s	53	s	s	s
	NB Approach					44	C (22.8)	-	-	68	D (25.6)	-	-	68	C (21.6)	-	-

Table 8. PM Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Proposed Development)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 20: West Boomer Eastern Site Driveway & North Avenue																	
Overall Intersection										1595	- (-)		-	1595	- (-)		-
Eastbound (North Avenue)	EBL																
	EBT									603		-		603		-	
	EBR									18	s	s	s	18	s	s	s
	EB Approach									621	A (0.0)	-	-	621	A (0.0)	-	-
Westbound (North Avenue)	WBL									43	A (9.1)	0.049	5	43	A (9.1)	0.049	5
	WBT									846	A (0.0)	-	-	846	A (0.0)	-	-
	WBR																
	WB Approach									889	A (0.4)	-	-	889	A (0.4)	-	-
Northbound (West Boomer Eastern Site Driveway)	NBL									24	D (29.9)	0.386	42.5	24	D (29.9)	0.386	42.5
	NBT																
	NBR									61	s	s	s	61	s	s	s
	NB Approach									85	D (29.9)	-	-	85	D (29.9)	-	-
Intersection 21: Ferris Place & Townhomes Driveway																	
Overall Intersection										93	- (-)		-	93	- (-)		-
Eastbound (North Avenue)	EBL											-				-	
	EBT																
	EBR																
	EB Approach											-	-			-	-
Westbound (North Avenue)	WBL									1		-		1		-	
	WBT																
	WBR									0		-		0		-	
	WB Approach									1	A (9.0)	-	-	1	A (9.0)	-	-
Southbound (Multifamily Housing)	SBL									2	s	s	s	2	s	s	s
	SBT									90		-		90		-	
	SBR																
	SB Approach									92	A (0.0)	-	-	92	A (0.0)	-	-

Table 8. PM Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Proposed Development)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 22: West Townhouses Driveway & Clark Street																	
Overall Intersection										414	- (-)		-	414	- (-)		-
Eastbound (Clark Street)	EBL																
	EBT									259		-		259		-	
	EBR									0		-		0		-	
	EB Approach									259	A (0.0)	-	-	259	A (0.0)	-	-
Westbound (Clark Street)	WBL									2	A (7.8)	0.002	0	2	A (7.8)	0.002	0
	WBT									152	A (0.0)	-	-	152	A (0.0)	-	-
	WBR																
	WB Approach									154	A (0.1)	-	-	154	A (0.1)	-	-
Northbound (West Resi Site Driveway)	NBL									0	A (9.8)	0.001	0	0	A (9.8)	0.001	0
	NBT																
	NBR									1	s	s	s	1	s	s	s
	NB Approach									1	A (9.8)	-	-	1	A (9.8)	-	-
Intersection 23: Eastern North Zone Parking Site Driveway & North Avenue																	
Overall Intersection										1428	- (-)		-	1428	- (-)		-
Eastbound (North Avenue)	EBL																
	EBT									578		-		578		-	
	EBR									0		-		0		-	
	EB Approach									578	A (0.0)	-	-	578	A (0.0)	-	-
Westbound (North Avenue)	WBL									0		-		0		-	
	WBT									834		-		834		-	
	WBR																
	WB Approach									834	A (0.0)	-	-	834	A (0.0)	-	-
Northbound (Eastern North Zone Parking Site Driveway)	NBL									0		-		0		-	
	NBT																
	NBR									16	B (10.4)	0.026	2.5	16	B (10.4)	0.026	2.5
	NB Approach									16	B (10.4)	-	-	16	B (10.4)	-	-



Table 9. Saturday Midday Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Updated Development Program)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 1: Crossway Place/Scotch Plains Avenue & South Avenue																	
Overall Intersection		1506	B (15.3)		-	1626	B (16.9)		-	1618	B (16.5)		-	1618	B (16.5)		-
Eastbound (South Avenue)	EBL	145	s	s	s	156	s	s	s	152	s	s	s	152	s	s	s
	EBT	360	B (11.5)	0.48	264	373	B (13.4)	0.53	281	374	B (13.1)	0.52	279	374	B (13.1)	0.52	279
	EBR	44	A (4.4)	0.04	22	45	A (4.7)	0.04	m21	45	A (4.7)	0.04	m22	45	A (4.7)	0.04	m22
	EB Approach	549	B (10.9)	-	-	574	B (12.8)	-	-	571	B (12.5)	-	-	571	B (12.5)	-	-
Westbound (South Avenue)	WBL	25	s	s	s	25	s	s	s	30	s	s	s	30	s	s	s
	WBT	336	A (5.6)	0.33	132	348	A (6.4)	0.35	141	355	A (6.3)	0.36	146	355	A (6.3)	0.36	146
	WBR	73	A (0.0)	0	0	74	A (0.0)	0	0	74	A (0.0)	0	0	74	A (0.0)	0	0
	WB Approach	434	A (5.6)	-	-	447	A (6.4)	-	-	459	A (6.3)	-	-	459	A (6.3)	-	-
Northbound (Crossway Place/Scotch Plains Avenue)	NBL	42	C (32.4)	0.37	42	43	C (31.9)	0.38	43	43	C (31.9)	0.38	43	43	C (31.9)	0.38	43
	NBT	154	C (27.7)	0.48	109	191	C (27.6)	0.52	132	184	C (27.8)	0.52	128	184	C (27.8)	0.52	128
	NBR	19	A (0.0)	0	0	19	A (0.0)	0	0	21	A (0.0)	0	0	21	A (0.0)	0	0
	NB Approach	215	C (28.6)	-	-	253	C (28.4)	-	-	248	C (28.5)	-	-	248	C (28.5)	-	-
Southbound (Crossway Place/Scotch Plains Avenue)	SBL	61	C (29.3)	0.36	52	62	C (28.7)	0.37	54	62	C (29.2)	0.38	54	62	C (29.2)	0.38	54
	SBT	132	C (26.8)	0.64	133	165	C (28.7)	0.68	161	157	C (28.2)	0.67	154	157	C (28.2)	0.67	154
	SBR	115	A (0.0)	0	0	125	A (0.0)	0	0	121	A (0.0)	0	0	121	A (0.0)	0	0
	SB Approach	308	C (27.3)	-	-	352	C (28.7)	-	-	340	C (28.4)	-	-	340	C (28.4)	-	-
Intersection 2: Broad Street & South Avenue																	
Overall Intersection		1669	B (11.5)		-	1705	B (11.6)		-	1716	B (11.5)		-	1716	B (11.5)		-
Eastbound (Broad Street)	EBL	0				0				0				0			
	EBT	388	B (11.2)	0.41	198	401	B (11.4)	0.42	206	404	B (11.4)	0.43	207	404	B (11.4)	0.43	207
	EBR	72	s	s	s	73	s	s	s	73	s	s	s	73	s	s	s
	EB Approach	460	B (11.2)	-	-	474	B (11.4)	-	-	477	B (11.4)	-	-	477	B (11.4)	-	-
Westbound (Broad Street)	WBL	401	s	s	s	406	s	s	s	406	s	s	s	406	s	s	s
	WBT	400	A (4.1)	0.42	85	412	A (4.2)	0.44	88	420	A (4.2)	0.44	89	420	A (4.2)	0.44	89
	WBR	0				0				0				0			
	WB Approach	801	A (4.1)	-	-	818	A (4.2)	-	-	826	A (4.2)	-	-	826	A (4.2)	-	-
Northbound (South Avenue)	NBL	107	C (33.8)	0.44	85	108	C (33.8)	0.45	86	108	C (33.8)	0.45	86	108	C (33.8)	0.45	86
	NBT	0				0				0				0			
	NBR	301	C (23.6)	0.56	163	305	C (23.7)	0.57	164	305	C (23.7)	0.57	164	305	C (23.7)	0.57	164
	NB Approach	408	A (0.0)	-	-	413	A (0.0)	-	-	413	A (0.0)	-	-	413	A (0.0)	-	-
Intersection 3: Route 28 & South Avenue																	
Overall Intersection		2212	B (10.8)			2345	B (12.4)			2324	B (12.1)			2324	B (12.1)		
Eastbound (South Avenue (traffic	EB Approach	849	B (13.4)	0.717	268.2	868	B (15.7)	0.78	319.1	871	C (15.1)	0.755	312	871	C (15.1)	0.755	312
Westbound (South Avenue (traffic	WB Approach	674	B (11.2)	0.598	134.7	737	B (12.9)	0.663	178.7	732	B (12.7)	0.657	174	732	B (12.7)	0.657	174
Southbound (Route 28)	SB Approach	689	A (7.4)	0.415	52.5	740	A (8.0)	0.454	65.7	721	A (7.9)	0.443	63	721	A (7.9)	0.443	63



Table 9. Saturday Midday Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Updated Development Program)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 4: Summit Avenue & South Avenue														Modify signal phase, no split-phase operation. Add LPI. Exclusive EBL & WBL. Road diet. Coordinated signal.			
Overall Intersection		1355	B (10.6)		-	1491	B (10.9)		-	1508	B (12.4)		-	1508	C (21.0)		-
Eastbound (South Avenue)	EBL	9	A (0.0)	0	0	9	A (0.0)	0	0	17	A (0.0)	0	0	17	A (5.5)	0.04	10
	EBT	582	A (8.3)	0.41	249	631	A (8.7)	0.44	278	618	B (10.2)	0.46	296	618	B (18.5)	0.58	379
	EBR	38	A (0.6)	0.03	4	47	A (0.6)	0.03	5	43	A (0.7)	0.03	6	43	s	s	s
	EB Approach	629	A (7.8)	-	-	687	A (8.2)	-	-	678	A (9.6)	-	-	678	B (18.1)	-	-
Westbound (South Avenue)	WBL	20	A (0.0)	0	0	27	A (0.0)	0	0	28	A (0.0)	0	0	28	A (5.0)	0.07	m9
	WBT	528	A (6.1)	0.22	96	580	A (6.3)	0.24	108	560	A (7.3)	0.25	112	560	C (20.6)	0.5	364
	WBR	11	A (0.0)	0	0	11	A (0.0)	0	0	15	A (0.0)	0	0	15	A (0.0)	0	0
	WB Approach	559	A (6.1)	-	-	618	A (6.3)	-	-	603	A (7.3)	-	-	603	B (19.9)	-	-
Northbound (Summit Avenue)	NBL	91	D (46.4)	0.48	99	102	D (47.9)	0.52	109	97	D (47.2)	0.51	105	97	D (46.5)	0.46	110
	NBT	13	C (20.5)	0.22	39	13	B (19.1)	0.25	42	14	B (19.2)	0.26	43	14	B (17.7)	0.19	44
	NBR	32	A (0.0)	0	0	40	A (0.0)	0	0	41	A (0.0)	0	0	41	A (0.0)	0	0
	NB Approach	136	D (37.8)	-	-	155	D (38.0)	-	-	152	D (37.0)	-	-	152	D (36.0)	-	-
Southbound (Summit Avenue)	SBL	12	D (39.8)	0.08	25	12	D (39.8)	0.08	25	34	D (41.1)	0.21	47	34	D (39.3)	0.16	48
	SBT	2	C (20.7)	0.13	23	2	C (20.7)	0.13	23	3	B (16.9)	0.23	32	3	B (14.3)	0.15	32
	SBR	17	A (0.0)	0	0	17	A (0.0)	0	0	38	A (0.0)	0	0	38	A (0.0)	0	0
	SB Approach	31	C (28.2)	-	-	31	C (28.2)	-	-	75	C (27.7)	-	-	75	C (25.5)	-	-
Intersection 5: South Avenue & Boulevard																	
Overall Intersection		1314	- (-)		-	1432	- (-)		-	1426	- (-)		-	1426	- (-)		-
Eastbound (South Avenue)	EBL																
	EBT	590		-		647		-		650		-		650		-	
	EBR	42	s	s	s	43	s	s	s	43	s	s	s	43	s	s	s
	EB Approach	632	A (0.0)	-	-	690	A (0.0)	-	-	693	A (0.0)	-	-	693	A (0.0)	-	-
Westbound (South Avenue)	WBL	32	s	s	s	32	s	s	s	32	s	s	s	32	s	s	s
	WBT	504	A (0.2)	-	-	562	A (0.2)	-	-	553	A (0.2)	-	-	553	A (0.0)	-	-
	WBR																
	WB Approach	536	A (0.7)	-	-	594	A (0.7)	-	-	585	A (0.7)	-	-	585	A (0.5)	-	-
Northbound (Middle South Site Driveway)	NBL	42	C (19.7)	0.38	42.5	43	C (22.4)	0.425	52.5	43	C (22.5)	0.427	52.5	43	D (28.3)	0.5	65
	NBT																
	NBR	104	s	s	s	105	s	s	s	105	s	s	s	105	s	s	s
	NB Approach	146	C (19.7)	-	-	148	C (22.4)	-	-	148	C (22.5)	-	-	148	D (28.3)	-	-

Table 9. Saturday Midday Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Updated Development Program)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 6: South Avenue & Eastern South Site Driveway														Install a traffic signal. Add LPI. Road diet. Coordinated signal.			
Overall Intersection		1289	- (-)		-	1406	- (-)		-	2351	- (-)		-	1426	A (8.7)		-
Eastbound (South Avenue)	EBL	21	0	0	0	21	s	s	s	28	s	s	s	28	s	s	s
	EBT	655	0	0	0	713	A (0.0)	-	-	694	A (0.0)	-	-	694	A (7.6)	0.58	180
	EBR		0	0	0									0			
	EB Approach	868	B (15.9)	0	321	734	A (0.3)	-	-	868	A (0.3)	-	-	722	A (7.6)	-	-
Westbound (South Avenue)	WBL		0	0	0									0			
	WBT	542	0	0	0	601		-		584		-		584	A (8.7)	0.45	233
	WBR	16	0	0	0	16	s	s	s	28	s	s	s	28	A (2.8)	0.03	m4
	WB Approach	740	B (13.0)	0	181	617	A (0.0)	-	-	740	A (0.0)	-	-	612	A (8.4)	-	-
Southbound (Eastern South Site Driveway)	SBL	18	0	0	0	18	C (21.6)	0.214	20	33	D (26.3)	0.372	40	33		-	
	SBT		0	0	0									0			
	SBR	37	0	0	0	37	s	s	s	59	s	s	s	59	s	s	s
	SB Approach	743	A (8.0)	0	67	55	C (21.6)	-	-	743	D (26.3)	-	-	92	B (18.7)	-	-
Intersection 7: Ross Place & Central Avenue & South Avenue														Modify signal timings. Restrict the WBR on red movement. Coordinated signal.			
Overall Intersection		2640	C (26.7)		-	2813	D (35.2)		-	2795	C (33.8)		-	2795	C (29.3)		-
Eastbound (South Avenue (5 legged))	EBL	119	B (15.4)	0.26	76	122	B (17.0)	0.31	78	134	B (17.3)	0.34	85	134	A (9.8)	0.38	60
	EBT	370	C (24.1)	0.43	197	398	C (26.9)	0.51	217	398	C (26.8)	0.51	217	398	B (18.2)	0.55	166
	EBR	181	s	s	s	197	s	s	s	196	s	s	s	196	s	s	s
	EB Approach	670	C (22.6)	-	-	717	C (25.2)	-	-	728	C (25.0)	-	-	728	B (16.7)	-	-
Westbound (South Avenue (5 legged))	WBL	86	B (14.8)	0.2	58	26	B (17.3)	0.33	77	26	B (17.2)	0.33	77	26	C (20.1)	0.35	84
	WBT	353	C (26.6)	0.5	273	380	C (29.9)	0.57	297	378	C (29.7)	0.57	295	378	C (34.2)	0.6	316
	WBR	190	A (6.9)	0.27	62	256	A (8.0)	0.37	83	253	A (7.9)	0.36	82	253	C (31.8)	0.48	217
	WB Approach	629	B (19.1)	-	-	662	C (20.5)	-	-	657	C (20.4)	-	-	657	C (31.1)	-	-
Northbound (Central Avenue)	NBL	134	B (18.0)	0.4	79	160	C (20.0)	0.49	95	152	B (19.2)	0.46	90	152	B (16.7)	0.39	89
	NBT	443	D (39.9)	0.82	363	471	D (44.1)	0.87	#441	466	D (43.7)	0.87	#430	466	D (54.8)	0.91	#522
	NBR	28	s	s	s	65	s	s	s	65	s	s	s	65	s	s	s
	NB Approach	605	D (35.1)	-	-	696	D (38.5)	-	-	683	D (38.2)	-	-	683	D (46.2)	-	-
Southbound (Central Avenue)	SBL	168	C (29.2)	0.67	#101	239	F (127.4)	1.14	#239	235	F (114.6)	1.11	#231	235	D (41.0)	0.76	m#199
	SBT	385	C (32.5)	0.67	288	410	C (32.0)	0.66	308	403	C (31.8)	0.65	303	403	C (24.0)	0.61	m245
	SBR	183	C (26.1)	0.37	139	89	B (10.0)	0.3	76	89	B (10.4)	0.31	80	89	A (7.2)	0.3	m68
	SB Approach	736	C (30.2)	-	-	738	D (54.3)	-	-	727	D (50.3)	-	-	727	C (24.9)	-	-

Table 9. Saturday Midday Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Updated Development Program)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 8: Crossway Place/Edgewood Avenue & North Avenue																	
Overall Intersection		1706	B (12.3)		-	1879	B (13.0)		-	1847	B (12.8)		-	1847	B (12.8)		-
Eastbound (North Avenue)	EBL	6	B (10.0)	0.01	7	6	B (10.0)	0.01	7	6	B (10.0)	0.01	7	6	B (10.0)	0.01	7
	EBT	446	B (14.9)	0.49	260	487	B (15.6)	0.53	288	481	B (15.5)	0.52	285	481	B (15.5)	0.52	285
	EBR	49	A (0.0)	0	0	50	A (0.0)	0	0	50	A (0.0)	0	0	50	A (0.0)	0	0
	EB Approach	501	B (14.8)	-	-	543	B (15.5)	-	-	537	B (15.4)	-	-	537	B (15.4)	-	-
Westbound (North Avenue)	WBL	224	A (9.1)	0.46	77	266	B (12.0)	0.59	91	255	B (11.2)	0.56	87	255	B (11.2)	0.56	87
	WBT	497	B (10.0)	0.43	213	535	B (10.5)	0.46	234	531	B (10.4)	0.46	232	531	B (10.4)	0.46	232
	WBR	17	s	s	s	17	s	s	s	17	s	s	s	17	s	s	s
	WB Approach	738	A (9.7)	-	-	818	B (11.0)	-	-	803	B (10.7)	-	-	803	B (10.7)	-	-
Northbound (Crossway Place/Edgewood Avenue)	NBL	66	A (0.0)	0	0	67	A (0.0)	0	0	67	A (0.0)	0	0	67	A (0.0)	0	0
	NBT	57	C (29.5)	0.31	111	58	C (29.5)	0.31	112	58	C (29.5)	0.31	112	58	C (29.5)	0.31	112
	NBR	269	A (3.8)	0.35	50	317	A (5.2)	0.41	69	306	A (4.6)	0.39	61	306	A (4.6)	0.39	61
	NB Approach	392	B (11.8)	-	-	442	B (12.1)	-	-	431	B (11.8)	-	-	431	B (11.8)	-	-
Southbound (Crossway Place/Edgewood Avenue)	SBL	5	A (0.0)	0	0	5	A (0.0)	0	0	5	A (0.0)	0	0	5	A (0.0)	0	0
	SBT	57	C (23.5)	0.15	66	58	C (23.6)	0.15	67	58	C (23.6)	0.15	67	58	C (23.6)	0.15	67
	SBR	13	A (0.0)	0	0	13	A (0.0)	0	0	13	A (0.0)	0	0	13	A (0.0)	0	0
	SB Approach	75	C (23.5)	-	-	76	C (23.6)	-	-	76	C (23.6)	-	-	76	C (23.6)	-	-
Intersection 9: North Avenue & Clark Street														Install traffic signal. Add LPI. Restrict the WBR on red movement. Coordinated signal.			
Overall Intersection		1354	- (-)		-	1439	- (-)		-	1453	- (-)		-	1453	B (15.1)		-
Eastbound (North Avenue)	EBL	13	A (8.9)	0.014	0	13	A (9.0)	0.015	0	14	A (9.0)	0.016	0	14	A (0.0)	0	0
	EBT	527	A (0.0)	-	-	566	A (0.0)	-	-	569	A (0.0)	-	-	569	B (10.9)	0.46	272
	EBR													0			
	EB Approach	540	A (0.2)	-	-	579	A (0.2)	-	-	583	A (0.2)	-	-	583	B (10.9)	-	-
Westbound (North Avenue)	WBL													0			
	WBT	483		-		518		-		524		-		524	B (13.4)	0.53	297
	WBR	146	s	s	s	148	s	s	s	148	s	s	s	148	s	s	s
	WB Approach	629	A (0.0)	-	-	666	A (0.0)	-	-	672	A (0.0)	-	-	672	B (13.4)	-	-
Southbound (Clark Street)	SBL	151	C (18.9)	0.377	42.5	160	C (21.0)	0.426	52.5	163	C (21.6)	0.44	55	163	D (37.1)	0.39	159
	SBT													0			
	SBR	34	B (10.4)	0.05	5	34	B (10.5)	0.051	5	35	B (10.6)	0.053	5	35	B (15.3)	0.09	31
	SB Approach	185	C (17.3)	-	-	194	C (19.2)	-	-	198	C (19.7)	-	-	198	C (33.2)	-	-

Table 9. Saturday Midday Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Updated Development Program)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 10: Clark Street & Ferris Place																	
Overall Intersection		377	- (-)		-	395	- (-)		-	399	- (-)		-	399	- (-)		-
Eastbound (Clark Street)	EBL	0		-		0		-		0		-		0		-	
	EBT	165		-		167		-		168		-		168		-	
	EBR																
	EB Approach	165	A (0.0)	-	-	167	A (0.0)	-	-	168	A (0.0)	-	-	168	A (0.0)	-	-
Westbound (Clark Street)	WBL																
	WBT	160		-		162		-		163		-		163		-	
	WBR	0		-		0		-		0		-		0		-	
	WB Approach	160	A (0.0)	-	-	162	A (0.0)	-	-	163	A (0.0)	-	-	163	A (0.0)	-	-
Southbound (Ferris Place)	SBL	41	B (10.8)	0.085	7.5	49	B (10.9)	0.107	10	51	B (10.9)	0.111	10	51	B (10.9)	0.111	10
	SBT																
	SBR	11	s	s	s	17	s	s	s	17	s	s	s	17	s	s	s
	SB Approach	52	B (10.8)	-	-	66	B (10.9)	-	-	68	B (10.9)	-	-	68	B (10.9)	-	-
Intersection 11: Route 28/Broad Street & North Avenue														Modify signal timings. Coordinated signal.			
Overall Intersection		2548	B (19.1)		-	2916	C (20.9)		-	2797	C (20.0)		-	2797	C (24.2)		-
Eastbound (North Avenue)	EBL	108	B (10.0)	0.23	48	143	B (11.3)	0.34	61	126	B (10.7)	0.29	55	126	B (10.2)	0.28	55
	EBT	268	B (13.9)	0.36	133	361	B (16.1)	0.49	187	331	B (15.4)	0.45	168	331	B (15.3)	0.41	241
	EBR	313	A (2.6)	0.32	40	359	A (2.9)	0.36	47	338	A (2.6)	0.34	41	338	A (2.7)	0.32	25
	EB Approach	689	A (8.1)	-	-	863	A (9.8)	-	-	795	A (9.2)	-	-	795	A (9.2)	-	-
Westbound (North Avenue)	WBL	187	A (0.0)	0	0	189	A (0.0)	0	0	189	A (0.0)	0	0	189	A (0.0)	0	0
	WBT	381	B (19.6)	0.54	157	471	C (20.3)	0.65	220	447	B (19.8)	0.62	181	447	C (20.3)	0.56	125
	WBR	12	A (0.0)	0	0	12	A (0.0)	0	0	12	A (0.0)	0	0	12	A (0.0)	0	0
	WB Approach	580	B (19.6)	-	-	672	C (20.3)	-	-	648	B (19.8)	-	-	648	C (20.3)	-	-
Northbound (Route 28/East Broad Street)	NBL	211	C (25.9)	0.66	#104	261	D (44.3)	0.86	#173	244	D (35.7)	0.79	#149	244	D (38.3)	0.76	#167
	NBT	407	C (23.0)	0.6	220	412	C (22.6)	0.59	222	417	C (22.8)	0.6	226	417	C (29.9)	0.59	295
	NBR	158	B (17.7)	0.27	89	160	B (17.4)	0.27	90	160	B (17.5)	0.27	90	160	C (23.8)	0.27	116
	NB Approach	776	C (22.7)	-	-	833	C (28.4)	-	-	821	C (25.6)	-	-	821	C (31.2)	-	-
Southbound (Route 28/East Broad Street)	SBL	46	A (0.0)	0	0	47	A (0.0)	0	0	47	A (0.0)	0	0	47	A (0.0)	0	0
	SBT	371	C (28.1)	0.68	143	376	C (27.7)	0.71	152	378	C (27.9)	0.7	150	378	D (40.6)	0.74	207
	SBR	86	A (0.0)	0	0	125	A (0.0)	0	0	108	A (0.0)	0	0	108	A (0.0)	0	0
	SB Approach	503	C (28.1)	-	-	548	C (27.7)	-	-	533	C (27.9)	-	-	533	D (40.6)	-	-

Table 9. Saturday Midday Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Updated Development Program)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 12: North Avenue & Elm Street														Convert to a 4-legged intersection. Add LPI. Coordinated signal.			
Overall Intersection		1459	B (11.2)		-	1651	B (12.7)		-	1682	B (12.1)		-	1682	B (13.7)		-
Eastbound (North Avenue)	EBL	24	A (0.0)	0	0	24	A (0.0)	0	0	24	A (0.0)	0	0	24	A (0.0)	0	0
	EBT	417	A (7.7)	0.27	52	511	B (10.4)	0.32	121	480	A (9.4)	0.31	106	480	A (7.8)	0.26	100
	EBR	45	A (0.0)	0	0	46	A (0.0)	0	0	48	A (0.0)	0	0	48	A (0.0)	0	0
	EB Approach	486	A (7.7)	-	-	581	B (10.4)	-	-	552	A (9.4)	-	-	552	A (7.8)	-	-
Westbound (North Avenue)	WBL	36	A (0.0)	0	0	36	A (0.0)	0	0	46	A (0.0)	0	0	46	A (0.0)	0	0
	WBT	564	B (10.4)	0.4	131	656	B (11.9)	0.45	m144	632	B (11.8)	0.45	m144	632	A (8.6)	0.4	156
	WBR	130	A (0.0)	0	0	132	A (0.0)	0	0	132	A (0.0)	0	0	132	A (0.0)	0	0
	WB Approach	730	B (10.4)	-	-	824	B (11.9)	-	-	810	B (11.8)	-	-	810	A (8.6)	-	-
Northbound (Elm Street)	NBL	0	A (0.0)	0	0	0	A (0.0)	0	0	2	A (0.0)	0	0	2	A (0.0)	0	0
	NBT	0	A (0.0)	0	0	0	A (0.0)	0	0	2	B (17.2)	0.01	8	2	C (29.2)	0.01	10
	NBR	0	A (0.0)	0	0	0	A (0.0)	0	0	68	A (4.9)	0.12	22	68	A (8.5)	0.17	33
	NB Approach	0	A (0.0)	-	-	0	A (0.0)	-	-	72	A (5.6)	-	-	72	A (9.7)	-	-
Southbound (Elm Street)	SBL	126	A (0.0)	0	0	128	A (0.0)	0	0	128	A (0.0)	0	0	128	A (0.0)	0	0
	SBT	26	C (20.8)	0.51	142	26	C (21.0)	0.51	145	28	C (21.1)	0.52	146	28	D (44.5)	0.72	199
	SBR	91	A (0.0)	0	0	92	A (0.0)	0	0	92	A (0.0)	0	0	92	A (0.0)	0	0
	SB Approach	243	C (20.8)	-	-	246	C (21.0)	-	-	248	C (21.1)	-	-	248	D (44.5)	-	-
Intersection 13: Central Avenue & North Avenue														Coordinated signal.			
Overall Intersection		2653	C (21.0)		-	2930	C (24.8)		-	2905	C (24.5)		-	2905	C (32.1)		-
Eastbound (North Avenue)	EBL	70	A (0.0)	0	0	76	A (0.0)	0	0	76	A (0.0)	0	0	76	A (0.0)	0	0
	EBT	367	B (17.5)	0.57	99	406	C (22.0)	0.75	#105	388	C (21.8)	0.72	111	388	C (29.2)	0.76	258
	EBR	162	A (0.0)	0	0	220	A (0.0)	0	0	211	A (0.0)	0	0	211	A (0.0)	0	0
	EB Approach	599	B (17.5)	-	-	702	C (22.0)	-	-	675	C (21.8)	-	-	675	C (29.2)	-	-
Westbound (North Avenue)	WBL	198	A (0.0)	0	0	215	A (0.0)	0	0	218	A (0.0)	0	0	218	A (0.0)	0	0
	WBT	510	B (18.0)	0.66	167	547	C (25.1)	0.81	#206	537	C (24.2)	0.8	#198	537	C (23.0)	0.69	242
	WBR	58	A (0.0)	0	0	59	A (0.0)	0	0	59	A (0.0)	0	0	59	A (0.0)	0	0
	WB Approach	766	B (18.0)	-	-	821	C (25.1)	-	-	814	C (24.2)	-	-	814	C (23.0)	-	-
Northbound (Central Avenue)	NBL	169	A (0.0)	0	0	226	A (0.0)	0	0	219	A (0.0)	0	0	219	A (0.0)	0	0
	NBT	470	C (24.5)	0.8	166	489	C (27.8)	0.86	#207	494	C (27.9)	0.86	#208	494	D (43.6)	0.84	m338
	NBR	143	A (0.0)	0	0	164	A (0.0)	0	0	171	A (0.0)	0	0	171	A (0.0)	0	0
	NB Approach	782	C (24.5)	-	-	879	C (27.8)	-	-	884	C (27.9)	-	-	884	D (43.6)	-	-
Southbound (Central Avenue)	SBL	42	A (0.0)	0	0	44	A (0.0)	0	0	44	A (0.0)	0	0	44	A (0.0)	0	0
	SBT	435	C (24.2)	0.58	137	455	C (22.7)	0.56	144	457	C (22.8)	0.56	145	457	C (30.3)	0.55	194
	SBR	29	A (0.0)	0	0	29	A (0.0)	0	0	31	A (0.0)	0	0	31	A (0.0)	0	0
	SB Approach	506	C (24.2)	-	-	528	C (22.7)	-	-	532	C (22.8)	-	-	532	C (30.3)	-	-



Table 9. Saturday Midday Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Updated Development Program)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 14: Prospect Street & Broad Street														Install a traffic signal			
Overall Intersection		1271	- (-)		-	1371	- (-)		-	1345	- (-)		-	1345	A (4.9)		-
Eastbound (Broad Street)	EBL	134	A (8.6)	0.127	10	142	A (8.9)	0.141	12.5	143	A (8.8)	0.14	12.5	143	A (4.7)	0.22	43
	EBT	426		-		465		-		453		-		453		-	
	EBR	1	s	s	s	1	s	s	s	1	s	s	s	1	s	s	s
	EB Approach	561	A (2.1)	-	-	608	A (2.1)	-	-	597	A (2.1)	-	-	597	A (4.7)	-	-
Westbound (Broad Street)	WBL	0		-		0		-		0		-		0	A (0.0)	0	0
	WBT	343		-		385		-		370		-		370	A (2.4)	0.33	33
	WBR	66	s	s	s	72	s	s	s	72	s	s	s	72	s	s	s
	WB Approach	409	A (0.0)	-	-	457	A (0.0)	-	-	442	A (0.0)	-	-	442	A (2.4)	-	-
Northbound (Prospect Street)	NBL	17	E (40.3)	0.606	90	17	F (58.9)	0.731	120	17	F (53.4)	0.7	112.5	17		-	
	NBT	45		-		47		-		47		-		47	B (17.6)	0.5	65
	NBR	75	s	s	s	76	s	s	s	76	s	s	s	76	s	s	s
	NB Approach	137	E (40.3)	-	-	140	F (58.9)	-	-	140	F (53.4)	-	-	140	B (17.6)	-	-
Southbound (Prospect Street)	SBL	0		-		0		-		0		-		0		-	
	SBT	0		-		0		-		0		-		0	A (1.4)	0.31	0
	SBR	164	B (12.6)	0.272	27.5	166	B (13.3)	0.293	30	166	B (13.1)	0.287	30	166	s	s	s
	SB Approach	164	B (12.6)	-	-	166	B (13.3)	-	-	166	B (13.1)	-	-	166	A (1.4)	-	-
Intersection 15: Elm Street & Broad Street																	
Overall Intersection		1466	B (13.5)		-	1556	B (13.4)		-	1532	B (13.5)		-	1532	B (12.9)		-
Eastbound (Broad Street)	EBL	74	A (6.5)	0.11	31	75	A (6.7)	0.12	33	75	A (6.7)	0.12	33	75	A (4.9)	0.12	21
	EBT	337	A (6.9)	0.33	133	375	A (7.3)	0.37	151	362	A (7.2)	0.36	146	362	A (5.0)	0.36	77
	EBR	72	A (0.0)	0	0	73	A (0.0)	0	0	73	A (0.0)	0	0	73	A (0.0)	0	0
	EB Approach	483	A (6.8)	-	-	523	A (7.2)	-	-	510	A (7.1)	-	-	510	A (5.0)	-	-
Westbound (Broad Street)	WBL	31	A (6.7)	0.05	21	31	A (6.7)	0.05	21	33	A (6.7)	0.05	22	33	A (7.0)	0.05	22
	WBT	277	A (7.9)	0.29	144	318	A (8.3)	0.33	160	303	A (8.2)	0.31	154	303	A (8.6)	0.31	154
	WBR	78	A (0.0)	0	0	79	A (0.0)	0	0	79	A (0.0)	0	0	79	A (0.0)	0	0
	WB Approach	386	A (7.8)	-	-	428	A (8.2)	-	-	415	A (8.1)	-	-	415	A (8.4)	-	-
Northbound (Elm Street)	NBL	50	C (20.6)	0.22	37	51	C (20.6)	0.22	37	51	C (20.5)	0.22	37	51	C (20.5)	0.22	37
	NBT	147	C (20.8)	0.56	105	149	C (20.8)	0.56	106	149	C (20.6)	0.56	106	149	C (20.6)	0.56	106
	NBR	84	A (0.0)	0	0	85	A (0.0)	0	0	87	A (0.0)	0	0	87	A (0.0)	0	0
	NB Approach	281	C (20.8)	-	-	285	C (20.8)	-	-	287	C (20.6)	-	-	287	C (20.6)	-	-
Southbound (Elm Street)	SBL	122	D (35.9)	0.64	81	124	D (36.3)	0.65	82	124	D (36.4)	0.65	82	124	D (36.4)	0.65	82
	SBT	114	B (16.6)	0.46	82	115	B (16.5)	0.46	83	115	B (16.5)	0.46	82	115	B (16.5)	0.46	82
	SBR	80	A (0.0)	0	0	81	A (0.0)	0	0	81	A (0.0)	0	0	81	A (0.0)	0	0
	SB Approach	316	C (24.1)	-	-	320	C (24.2)	-	-	320	C (24.2)	-	-	320	C (24.2)	-	-

Table 9. Saturday Midday Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Updated Development Program)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 16: Central Avenue & Broad Street														Install flashing yellow arrow			
Overall Intersection		1764	B (15.0)		-	1888	B (15.0)		-	1872	B (15.2)		-	1872	A (4.9)		-
Eastbound (Broad Street)	EBL	0				0				0				0			
	EBT	401	B (13.9)	0.43	172	439	B (15.2)	0.48	196	429	B (14.7)	0.46	188	429	A (9.7)	0.21	89
	EBR	157	A (4.5)	0.18	38	159	A (4.7)	0.18	41	159	A (4.6)	0.18	40	159	A (4.2)	0.16	41
	EB Approach	558	B (11.3)	-	-	598	B (12.4)	-	-	588	B (12.0)	-	-	588	A (8.2)	-	-
Westbound (Broad Street)	WBL	455	D (40.5)	0.64	245	477	D (38.4)	0.66	258	480	D (40.0)	0.67	260	480	A (3.0)	0.43	22
	WBT	392	A (0.2)	0.19	0	435	A (0.2)	0.22	0	421	A (0.2)	0.21	0	421	A (0.2)	0.21	0
	WBR	0				0				0				0			
	WB Approach	847	C (21.9)	-	-	912	C (20.2)	-	-	901	C (21.4)	-	-	901	A (1.7)	-	-
Northbound (Central Avenue)	NBL	0	A (0.0)	0	0	0	A (0.0)	0	0	0	A (0.0)	0	0	0	A (0.0)	0	0
	NBT	0				0				0				0			
	NBR	359	A (4.9)	0.44	61	378	A (6.4)	0.47	79	383	A (6.3)	0.47	79	383	A (7.4)	0.54	79
	NB Approach	359	A (0.0)	-	-	378	A (6.4)	-	-	383	A (6.3)	-	-	383	A (7.4)	-	-
Intersection 17: Broad Street & Mountain Avenue														Install flashing yellow arrow			
Overall Intersection		1647	B (10.6)		-	1769	B (12.2)		-	1753	B (11.9)		-	1753	A (3.9)		-
Eastbound (Broad Street)	EBL	391	C (28.4)	0.54	185	427	C (31.3)	0.57	203	424	C (30.3)	0.57	199	424	A (2.3)	0.38	11
	EBT	368	A (0.2)	0.18	0	389	A (0.2)	0.19	0	386	A (0.2)	0.19	0	386	A (0.2)	0.19	0
	EBR	0				0				0				0			
	EB Approach	759	B (14.7)	-	-	816	B (16.5)	-	-	810	B (15.9)	-	-	810	A (1.3)	-	-
Westbound (Broad Street)	WBL	0				0				0				0			
	WBT	439	B (11.9)	0.27	86	463	B (13.9)	0.29	92	458	B (13.7)	0.28	91	458	A (9.3)	0.25	91
	WBR	39	s	s	s	40	s	s	s	40	s	s	s	40	s	s	s
	WB Approach	478	B (11.9)	-	-	503	B (13.9)	-	-	498	B (13.7)	-	-	498	A (9.3)	-	-
Southbound (Mountain Avenue)	SBL	0	A (0.0)	0	0	0	A (0.0)	0	0	0	A (0.0)	0	0	0	A (0.0)	0	0
	SBT	0				0				0				0			
	SBR	410	A (1.6)	0.29	17	450	A (2.5)	0.31	28	445	A (2.3)	0.31	26	445	A (2.5)	0.36	26
	SB Approach	410	A (0.0)	-	-	450	A (0.0)	-	-	445	A (0.0)	-	-	445	A (0.0)	-	-



Table 9. Saturday Midday Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Updated Development Program)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 18: South Avenue & South Zone Exit Out																	
Overall Intersection										1287	- (-)		-	1287	- (-)		-
Eastbound (South Avenue)	EBL									0		-		0		-	
	EBT									670		-		670		-	
	EBR																
	EB Approach									670	A (0.0)	-	-	670	A (0.0)	-	-
Westbound (South Avenue)	WBL																
	WBT									605		-		605		-	
	WBR									0		-		0		-	
	WB Approach									605	A (0.0)	-	-	605	A (0.0)	-	-
Southbound (South Zone Exit Out)	SBL									0		-		0		-	
	SBT																
	SBR									12	B (10.3)	0.018	2.5	12	B (12.5)	0.025	2.5
	SB Approach									12	B (10.3)	-	-	12	B (12.5)	-	-
Intersection 19: West Boomer Western Site Driveway/Townhouses Driveway & North Avenue																	
Overall Intersection						1337	- (-)		-	1239	- (-)		-	1239	- (-)		-
Eastbound (North Avenue)	EBL					0	A (0.0)	-	0	0	A (0.0)	-	0				
	EBT					566	(-)	-	-	558	(-)	-	-	558	(-)	-	-
	EBR					19	s	s	s	10	s	s	s	10	s	s	s
	EB Approach					585	A (0.0)	-	-	568	A (0.0)	-	-	568	A (0.0)	-	-
Westbound (North Avenue)	WBL					65	A (8.9)	0.068	5	35	A (8.7)	0.036	2.5	35	A (8.7)	0.036	2.5
	WBT					612	A (0.0)	-	-	600	A (0.0)	-	-	600	A (0.0)	-	-
	WBR					0		-		0		-					
	WB Approach					677	A (0.9)	-	-	635	A (0.5)	-	-	635	A (0.5)	-	-
Northbound (West Boomer Western Site Driveway/West Resi Site Driveway)	NBL					17	C (21.9)	0.268	27.5	8	C (17.5)	0.115	10	8	C (16.0)	0.102	7.5
	NBT					0		-		0		-					
	NBR					58	s	s	s	28	s	s	s	28	s	s	s
	NB Approach					75	C (21.9)	-	-	36	C (17.5)	-	-	36	C (16.0)	-	-

Table 9. Saturday Midday Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Updated Development Program)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 20: West Boomer Eastern Site Driveway & North Avenue																	
Overall Intersection						1438	- (-)		-	1295	- (-)		-	1295	- (-)		-
Eastbound (North Avenue)	EBL																
	EBT					595		-		567		-		567		-	
	EBR					28	s	s	s	16	s	s	s	16	s	s	s
	EB Approach					623	A (0.0)	-	-	583	A (0.0)	-	-	583	A (0.0)	-	-
Westbound (North Avenue)	WBL					75	A (9.1)	0.08	7.5	41	A (8.8)	0.042	2.5	41	A (8.8)	0.042	2.5
	WBT					649	A (0.0)	-	-	625	A (0.0)	-	-	625	A (0.0)	-	-
	WBR																
	WB Approach					724	A (0.9)	-	-	666	A (0.5)	-	-	666	A (0.5)	-	-
Northbound (West Boomer Eastern Site Driveway)	NBL					25		-		13	C (18.1)	0.146	12.5	13	C (18.1)	0.146	12.5
	NBT																
	NBR					66	s	s	s	33	s	s	s	33	s	s	s
	NB Approach					91	C (24.4)	-	-	46	C (18.1)	-	-	46	C (18.1)	-	-
Intersection 21: Ferris Place & Townhomes Driveway																	
Overall Intersection										57	- (-)		-	57	- (-)		-
Eastbound (North Avenue)	EBL											-				-	
	EBT																
	EBR																
	EB Approach											-	-			-	-
Westbound (North Avenue)	WBL									2		-		2		-	
	WBT																
	WBR									0		-		0		-	
	WB Approach									2	A (8.8)	-	-	2	A (8.8)	-	-
Southbound (Multifamily Housing)	SBL									2	s	s	s	2	s	s	s
	SBT									53		-		53		-	
	SBR																
	SB Approach									55	A (0.0)	-	-	55	A (0.0)	-	-

Table 9. Saturday Midday Peak Hour

		Existing				No-Build (Lord & Taylor)				Build (Updated Development Program)				Build Mitigated (Proposed Development)			
Approach	Movement	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length	Volume	LOS (Delay)	VC Ratio	Queue Length
Intersection 22: West Townhouses Driveway & Clark Street																	
Overall Intersection										339	- (-)		-	339	- (-)		-
Eastbound (Clark Street)	EBL																
	EBT									167		-		167		-	
	EBR									0		-		0		-	
	EB Approach									167	A (0.0)	-	-	167	A (0.0)	-	-
Westbound (Clark Street)	WBL									2	A (7.6)	0.002	0	2	A (7.6)	0.002	0
	WBT									168	A (0.0)	-	-	168	A (0.0)	-	-
	WBR																
	WB Approach									170	A (0.1)	-	-	170	A (0.1)	-	-
Northbound (West Resi Site Driveway)	NBL									0	A (9.2)	0.003	0	0	A (9.2)	0.003	0
	NBT																
	NBR									2	s	s	s	2	s	s	s
	NB Approach									2	A (9.2)	-	-	2	A (9.2)	-	-
Intersection 23: Eastern North Zone Parking Site Driveway & North Avenue																	
Overall Intersection										1420	- (-)		-	1420	- (-)		-
Eastbound (North Avenue)	EBL																
	EBT									613		-		613		-	
	EBR									0		-		0		-	
	EB Approach									613	A (0.0)	-	-	613	A (0.0)	-	-
Westbound (North Avenue)	WBL									0		-		0		-	
	WBT									803		-		803		-	
	WBR																
	WB Approach									803	A (0.0)	-	-	803	A (0.0)	-	-
Northbound (Eastern North Zone Parking Site Driveway)	NBL									0		-		0		-	
	NBT																
	NBR									4	B (10.3)	0.006	0	4	B (10.3)	0.006	0
	NB Approach									4	B (10.3)	-	-	4	B (10.3)	-	-

## FIGURES



Figure 1. Location Map  
Westfield TOD  
Westfield, New Jersey

**Legend**

- Study Intersection ID#
- Site Driveway ID#

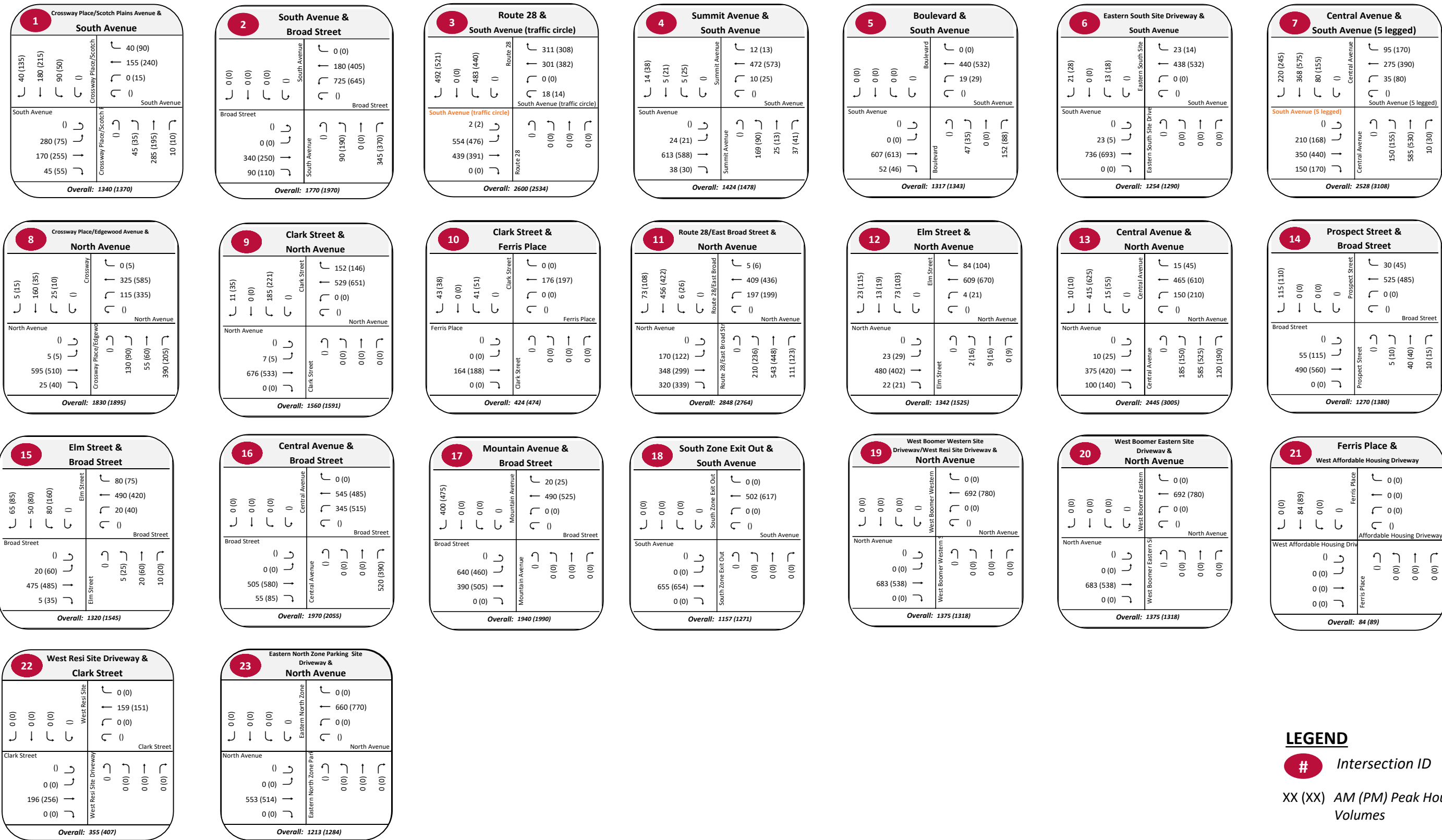


NOT TO SCALE





Figure 2. Existing 2021/2022 (Weekday AM and PM)



**LEGEND**

# Intersection ID

XX (XX) AM (PM) Peak Hour Volumes

Figure 3. Existing 2021/2022 (Saturday Midday)

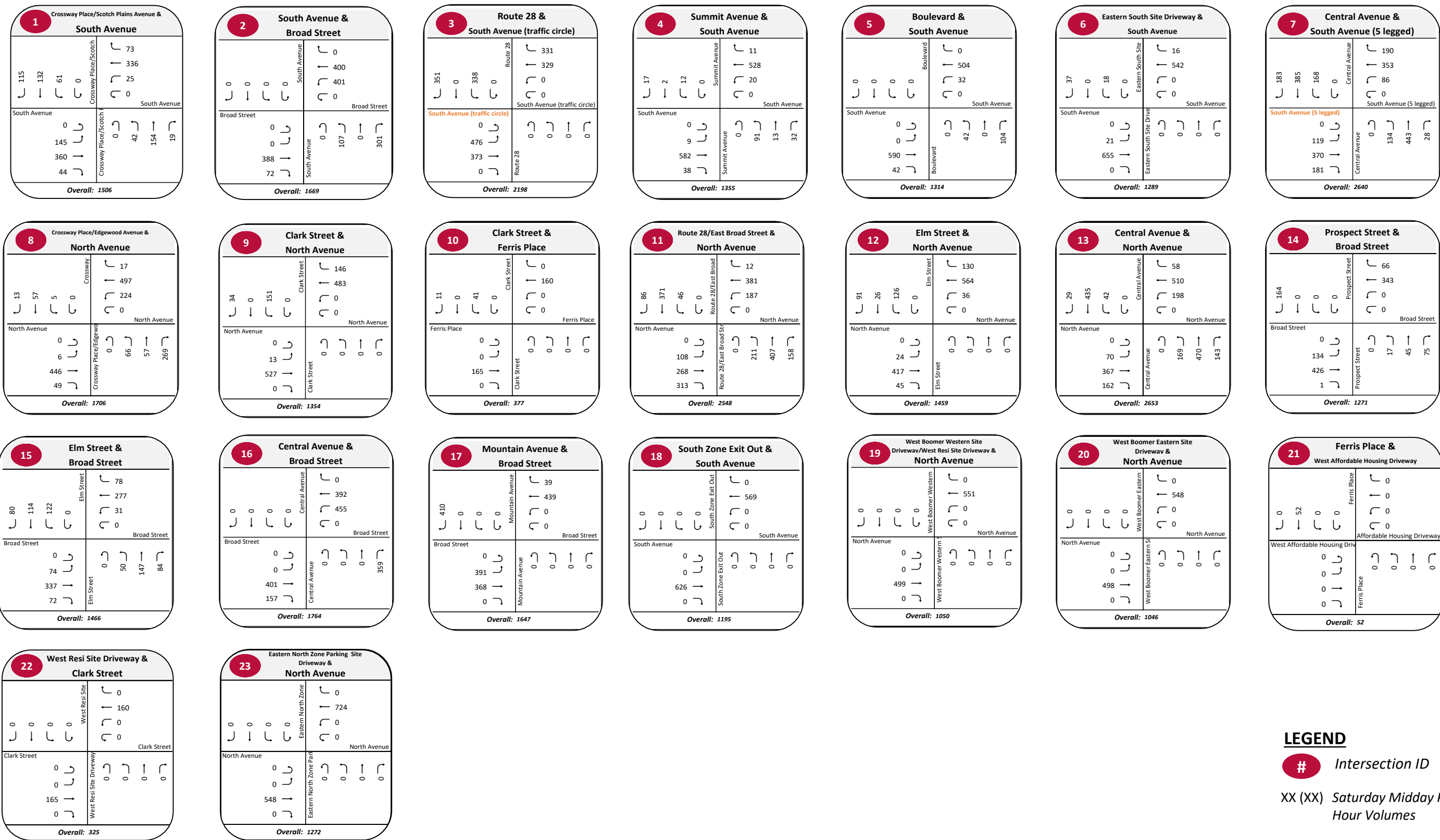




Figure 4. No Build 2027 (Weekday AM and PM)

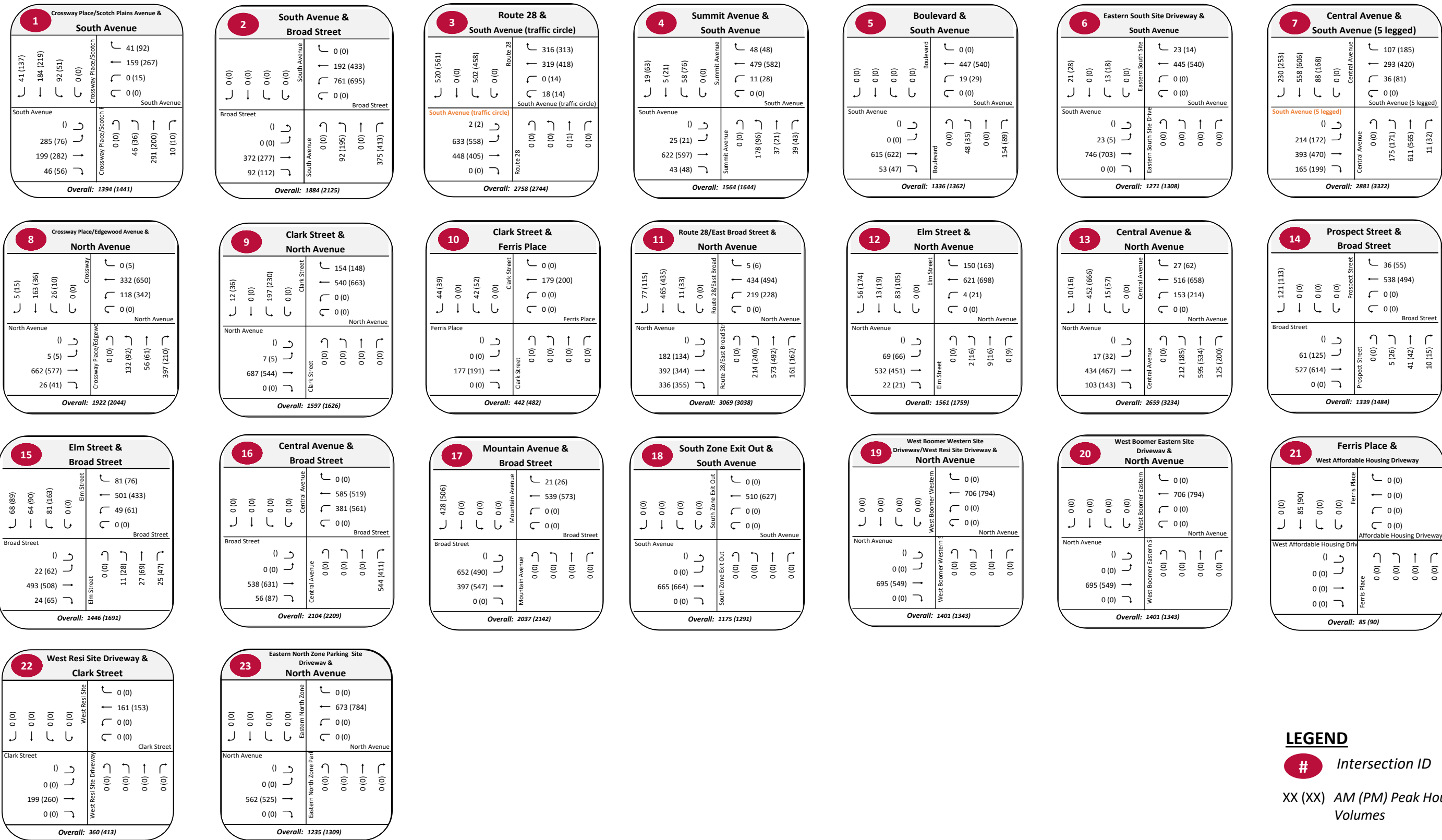


Figure 5. No Build 2027 (Saturday Midday)

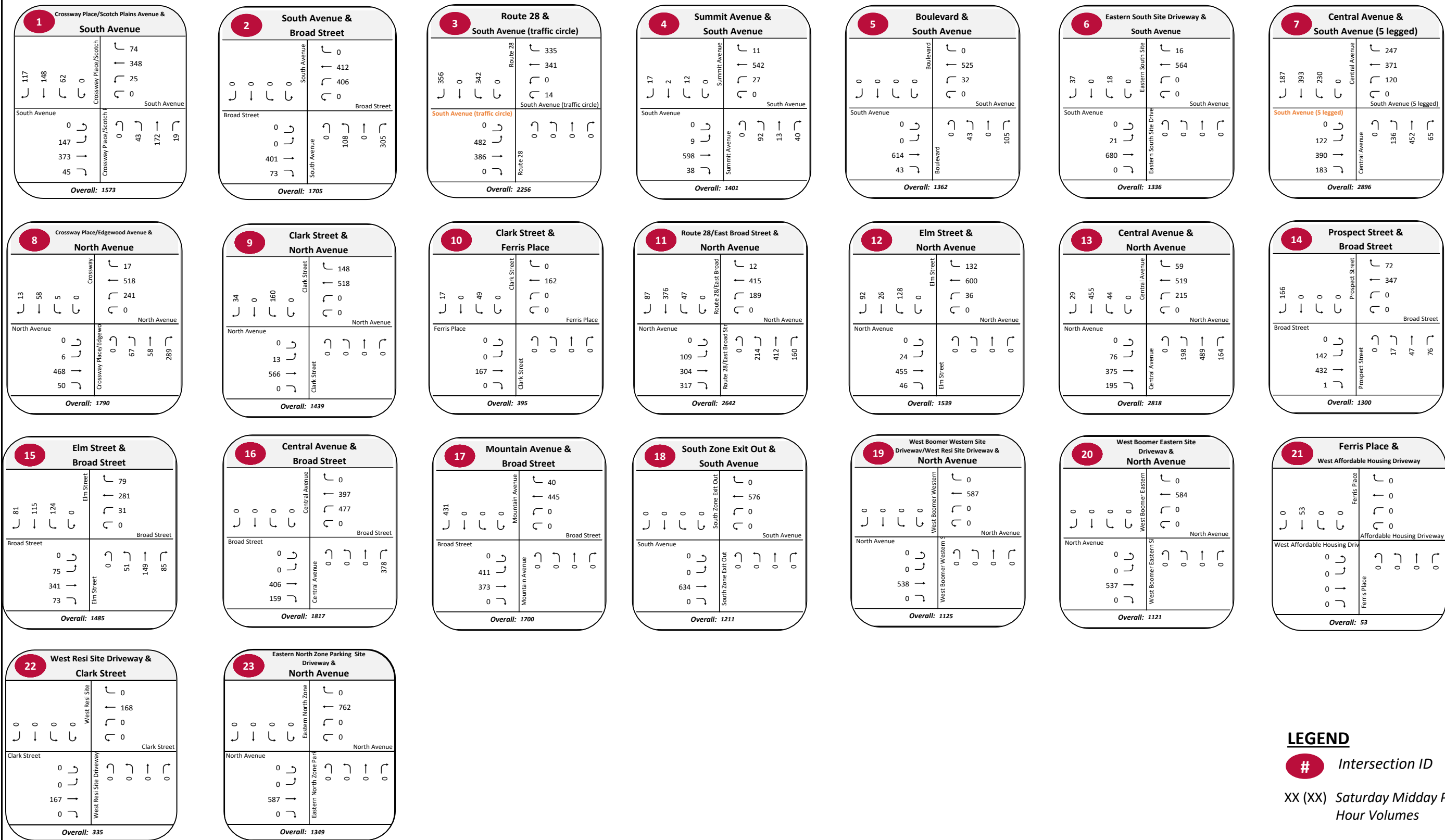


Figure 6. Lord & Taylor Trip Distribution (Int. ID #19 & 20)

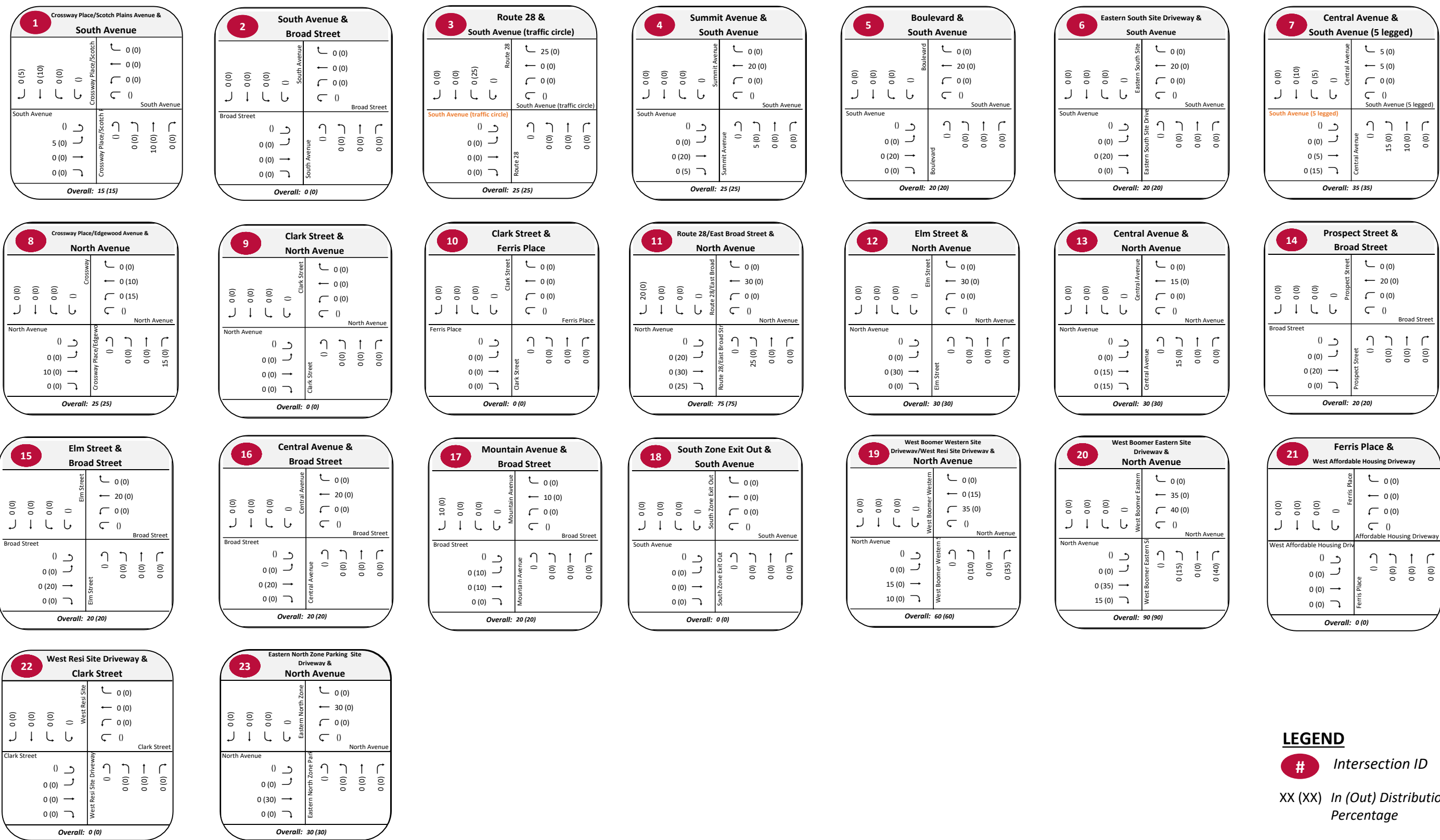


Figure 7. Lord & Taylor Trip Assignment (Int. ID #19 & 20) (Weekday AM and PM)

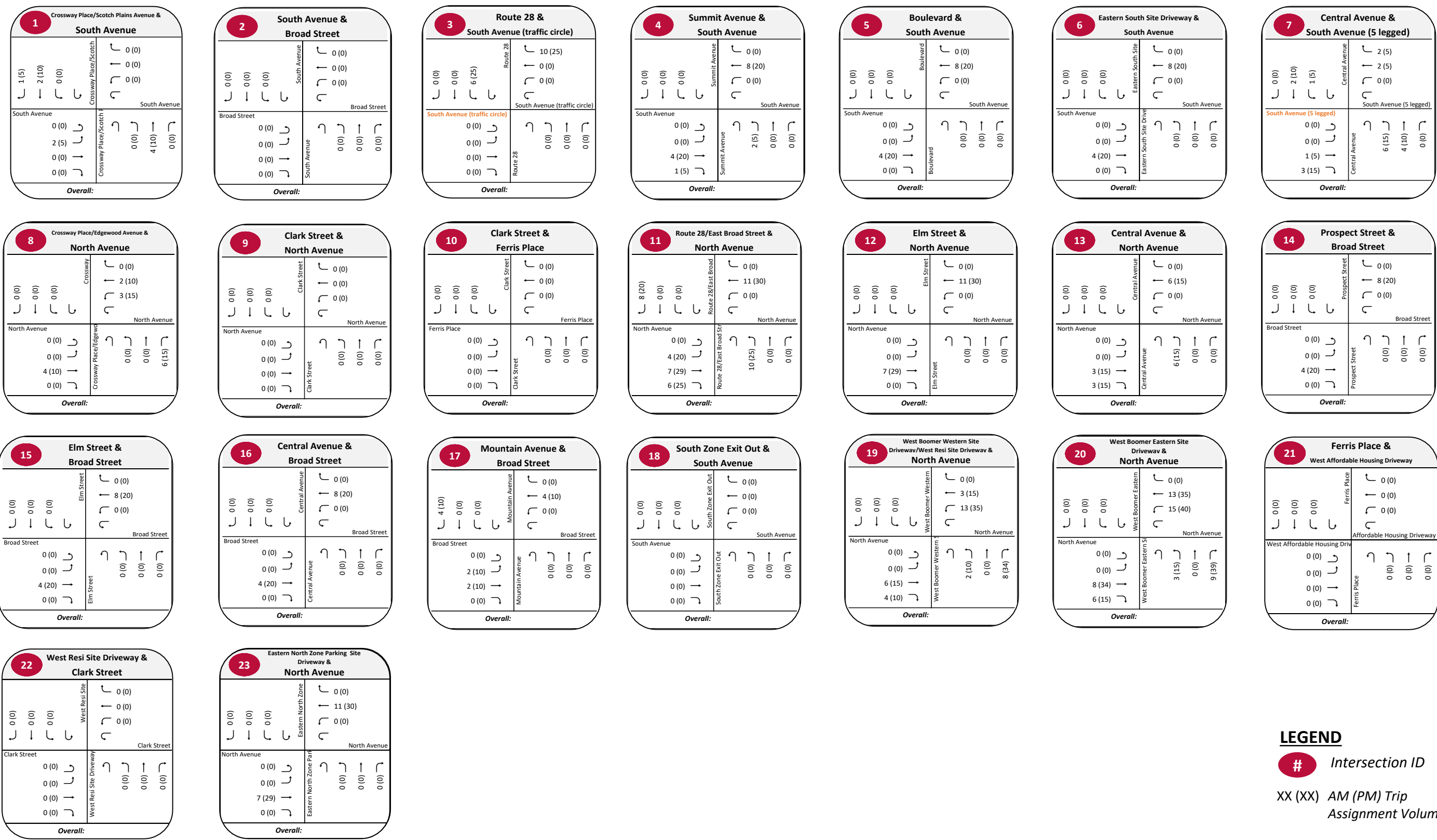
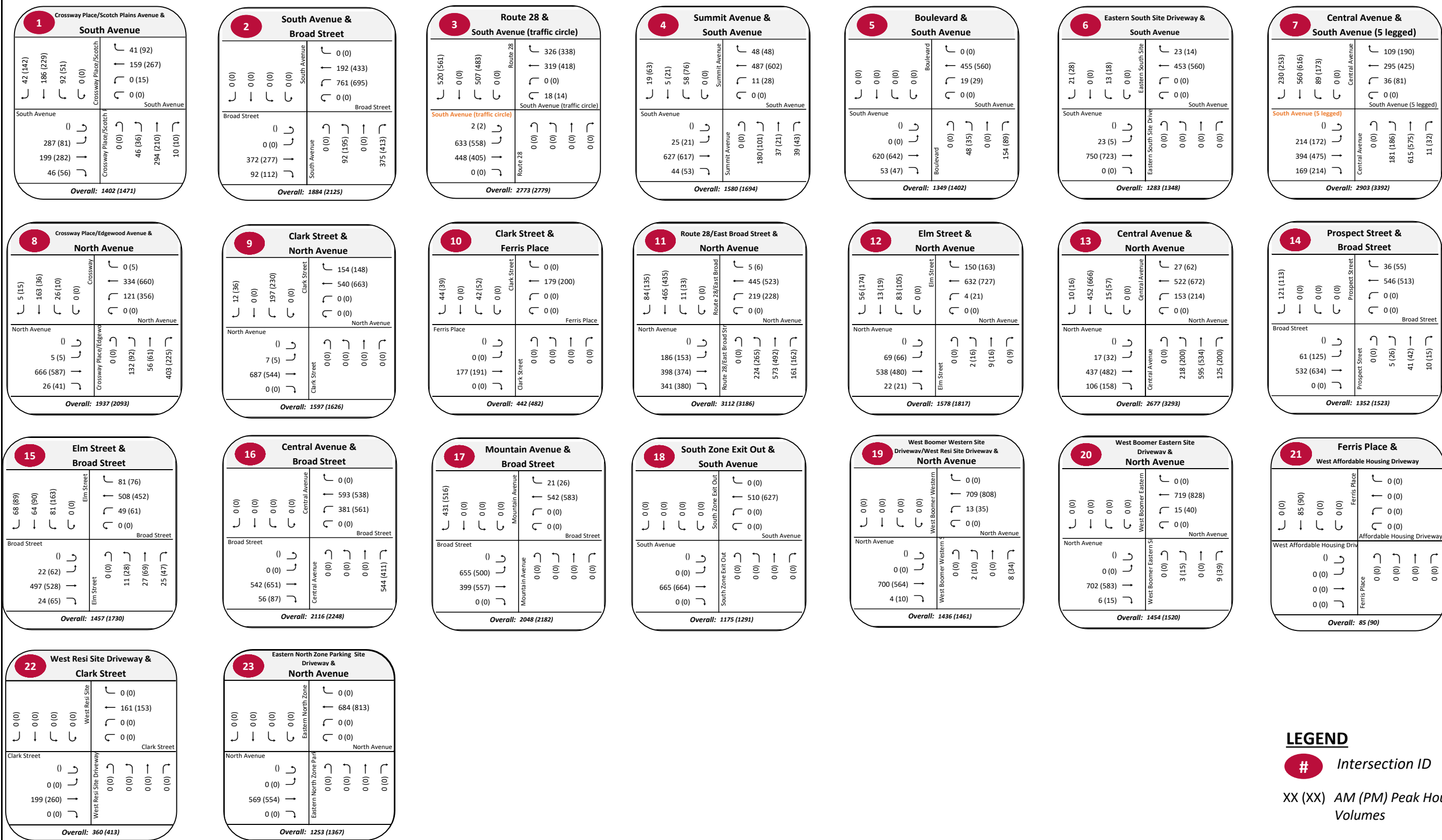




Figure 8. Lord & Taylor Trip Assignment (Int. ID #19 & 20) (Saturday MIDDAY)



Figure 9. No Build + Lord & Taylor 2027 (Weekday AM and PM)



LEGEND

# Intersection ID

XX (XX) AM (PM) Peak Hour Volumes

Figure 10. No Build + Lord & Taylor 2027 (Saturday MIDDAY)





Figure 11. Commuter Lot North Zone Current Trip Distribution

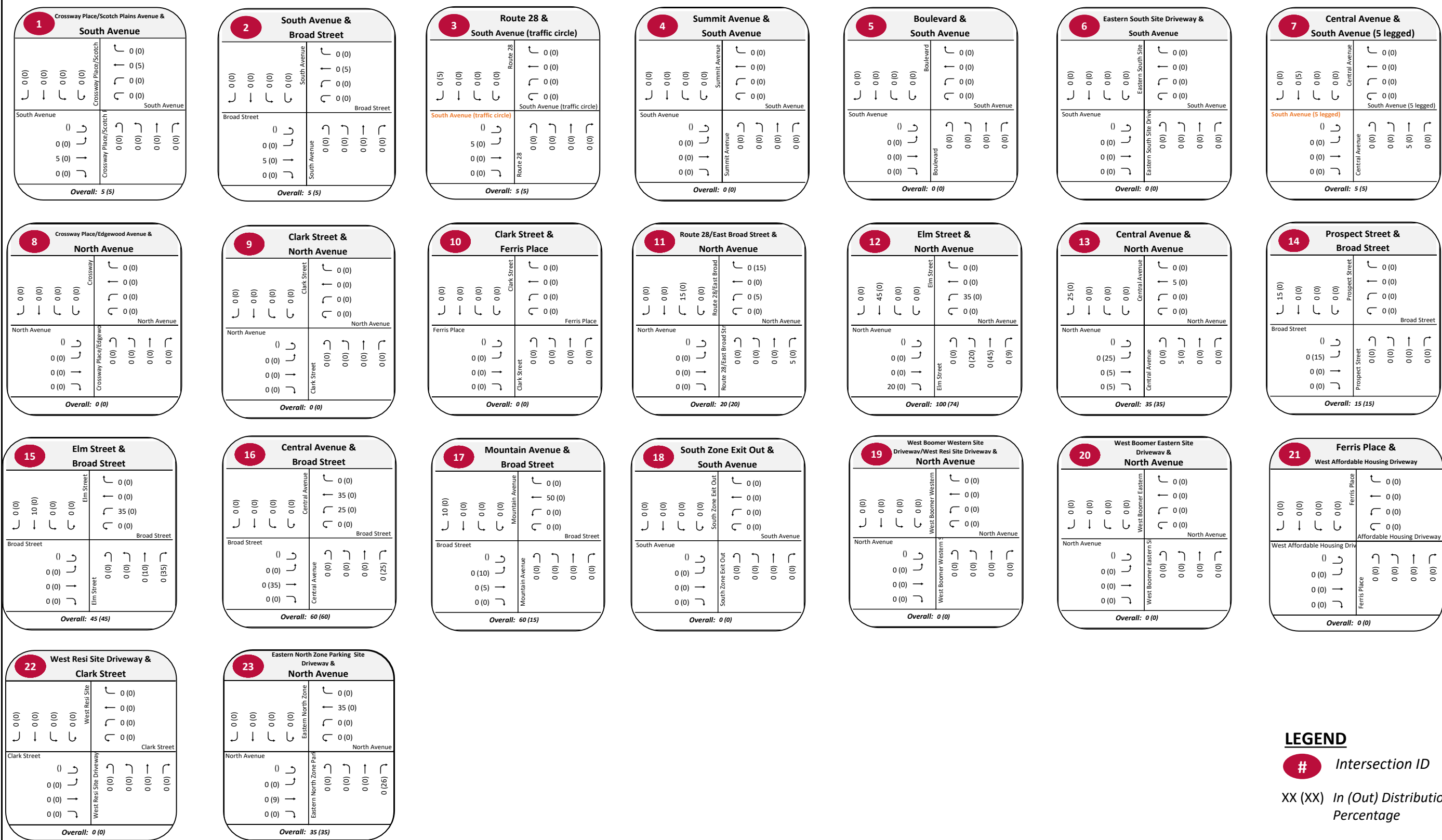


Figure 12. Commuter Lot South Zone Current Trip Distribution

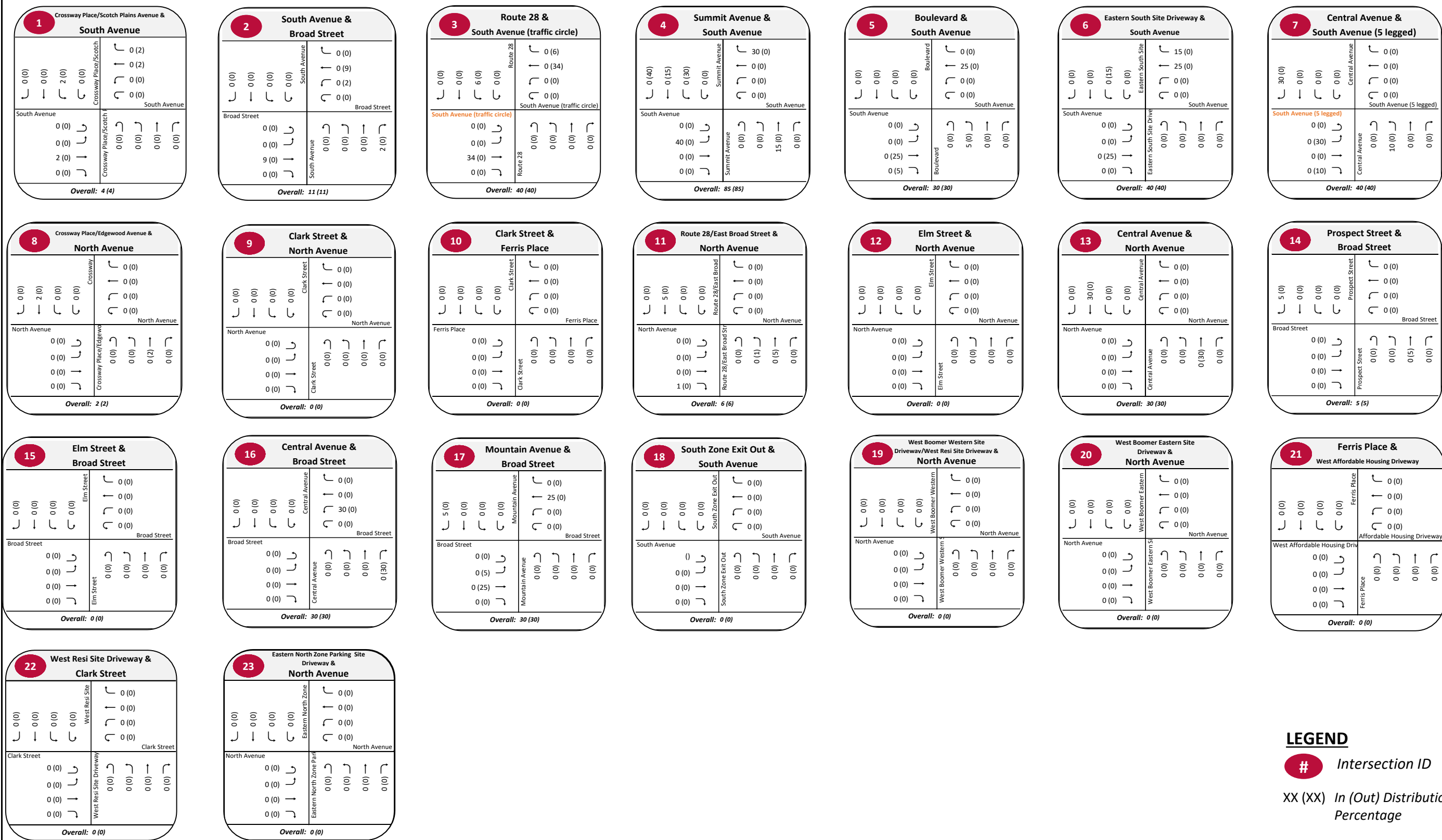


Figure 13. Commuter Lot North Zone (North of Tracks) Trip Assignment (Weekday AM and PM)

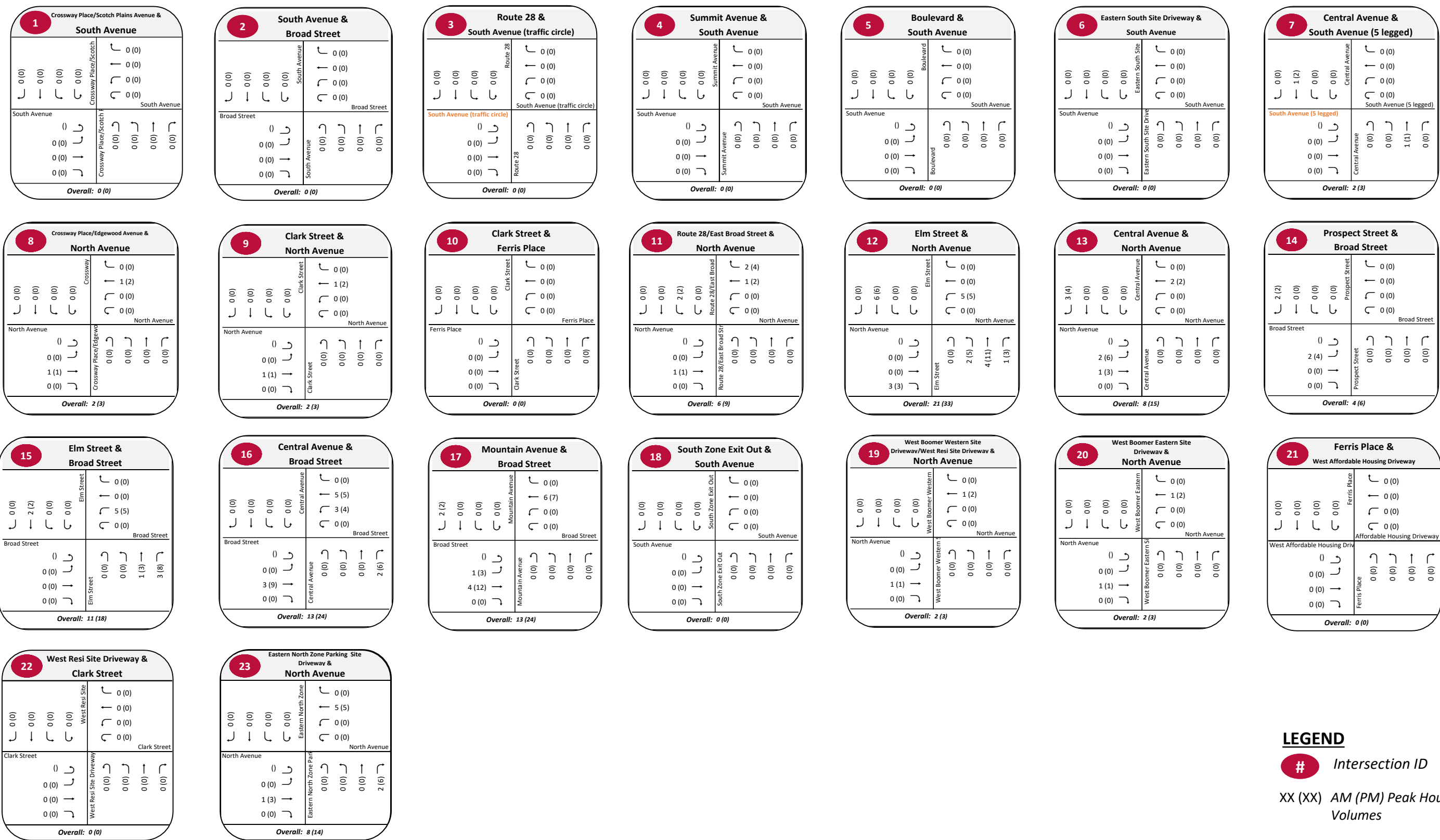


Figure 14. Commuter Lot North Zone (South of Tracks) Trip Assignment (Weekday AM and PM)

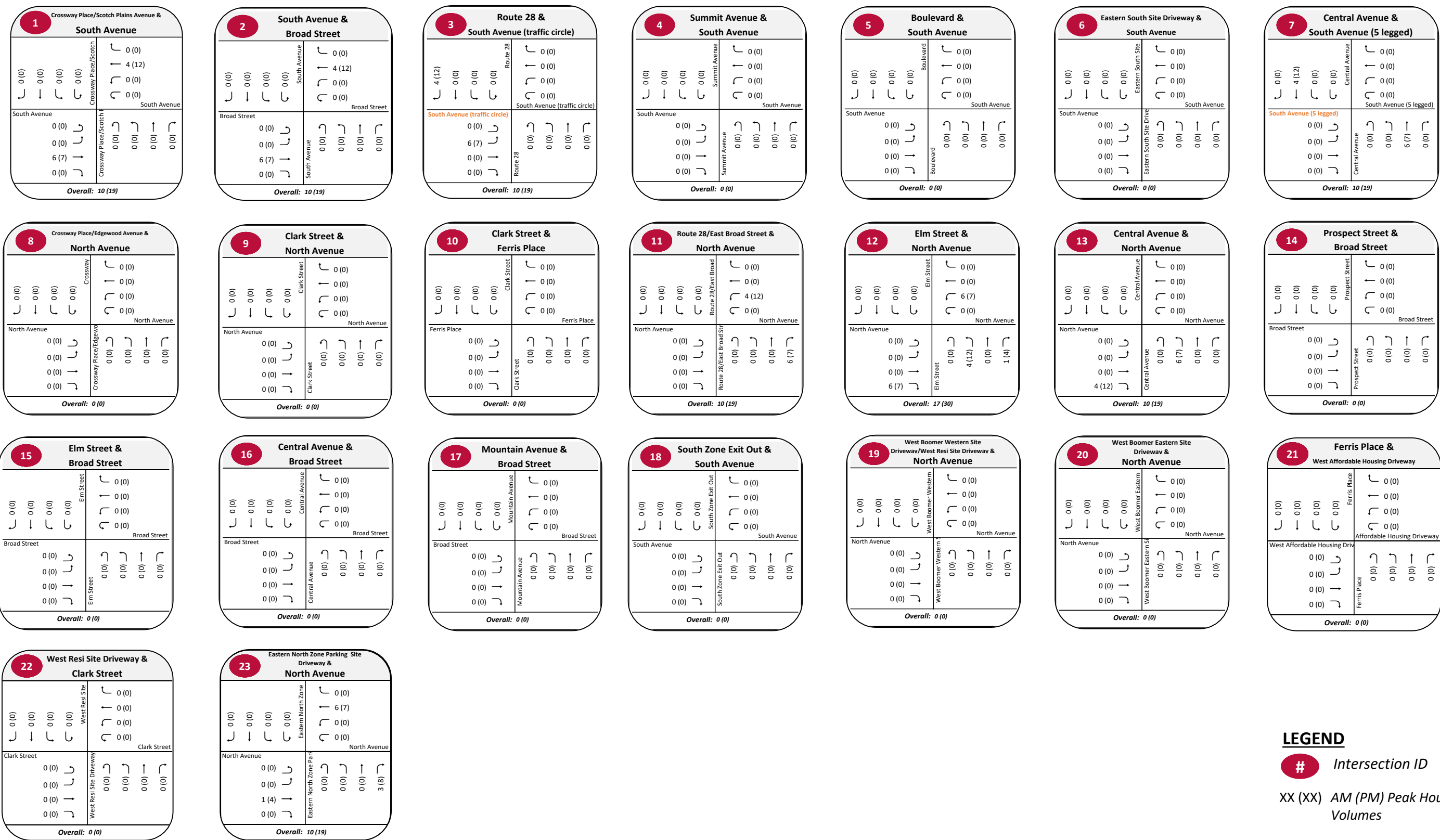
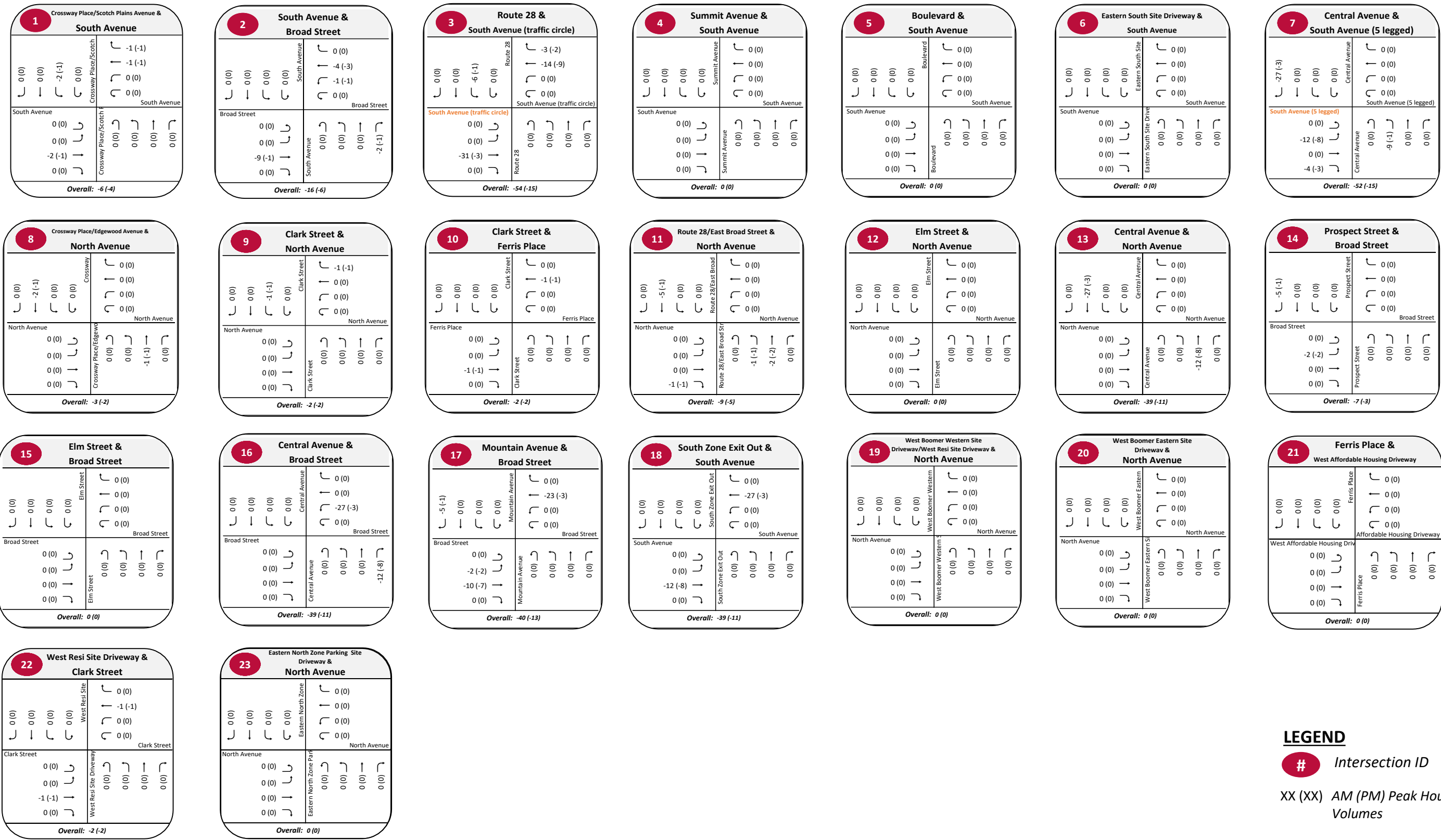




Figure 15. Commuter Lot South Zone Trip Assignment (Weekday AM and PM)



**LEGEND**

# Intersection ID

XX (XX) AM (PM) Peak Hour Volumes

Figure 16. West Affordable Distribution (Int. ID #21)

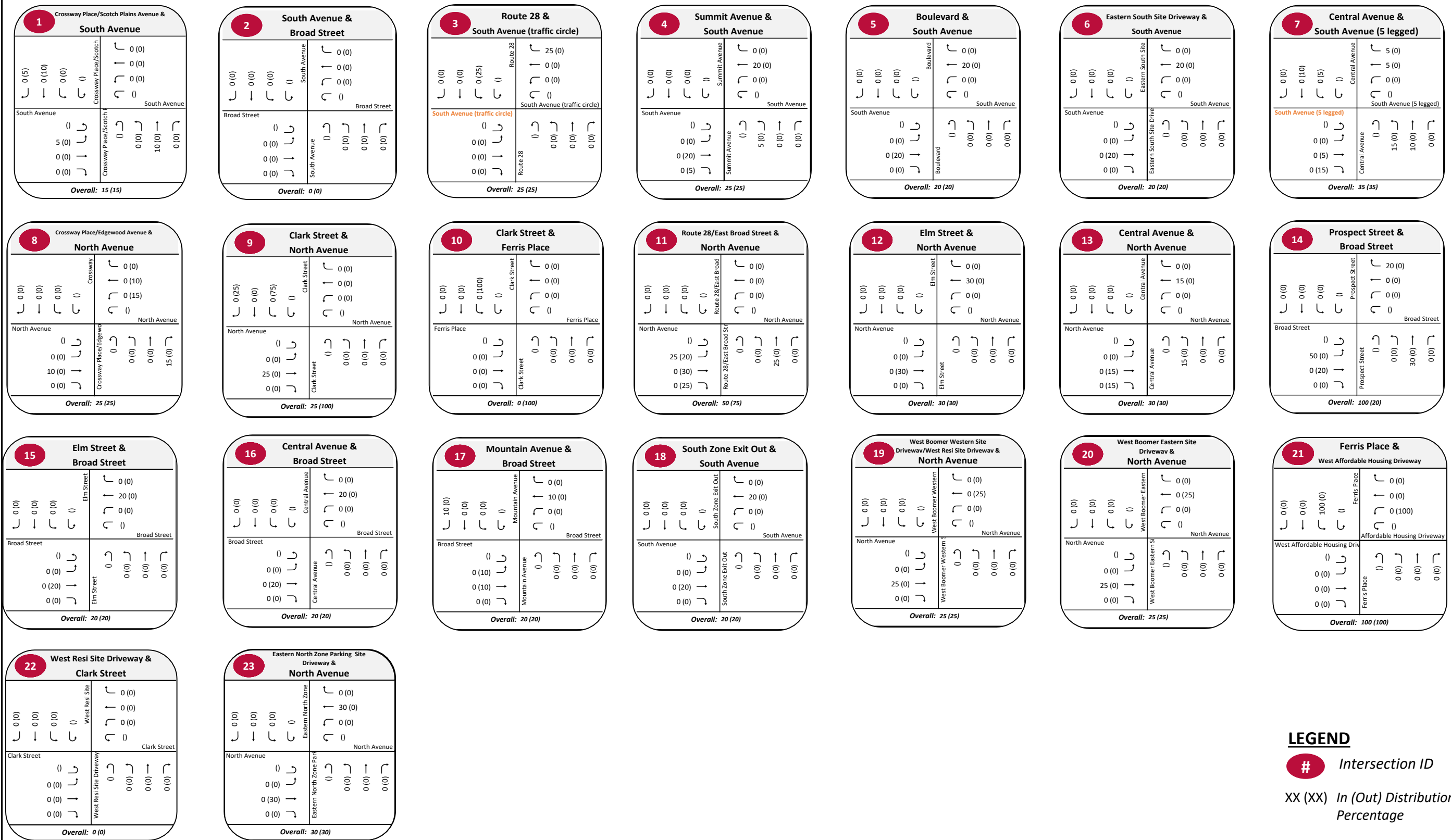




Figure 17. West Affordable Trip Assignment (Int. ID #21) (Weekday AM and PM)

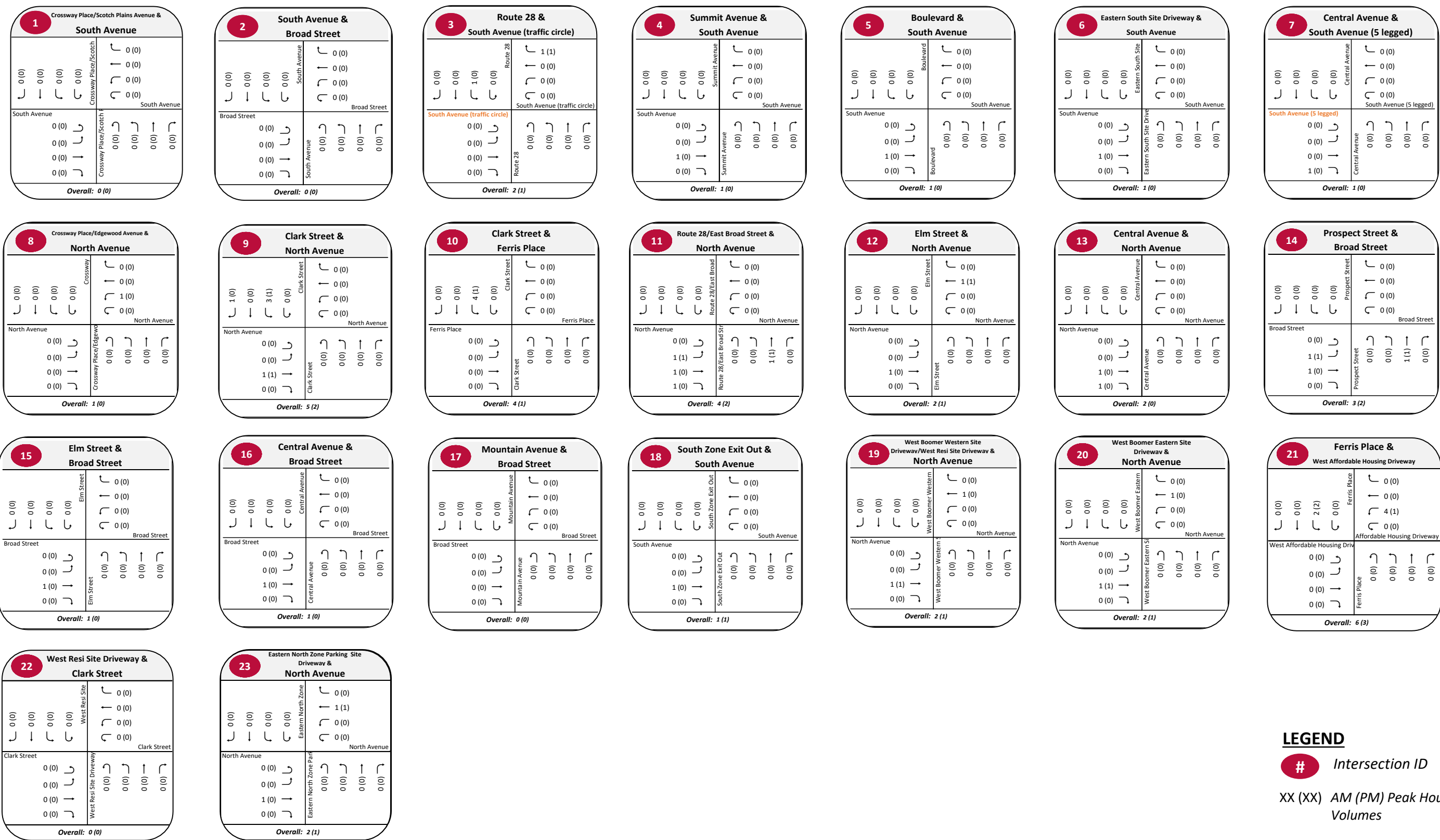


Figure 18. West Affordable Trip Assignment (Int. ID #21) (Saturday Midday)

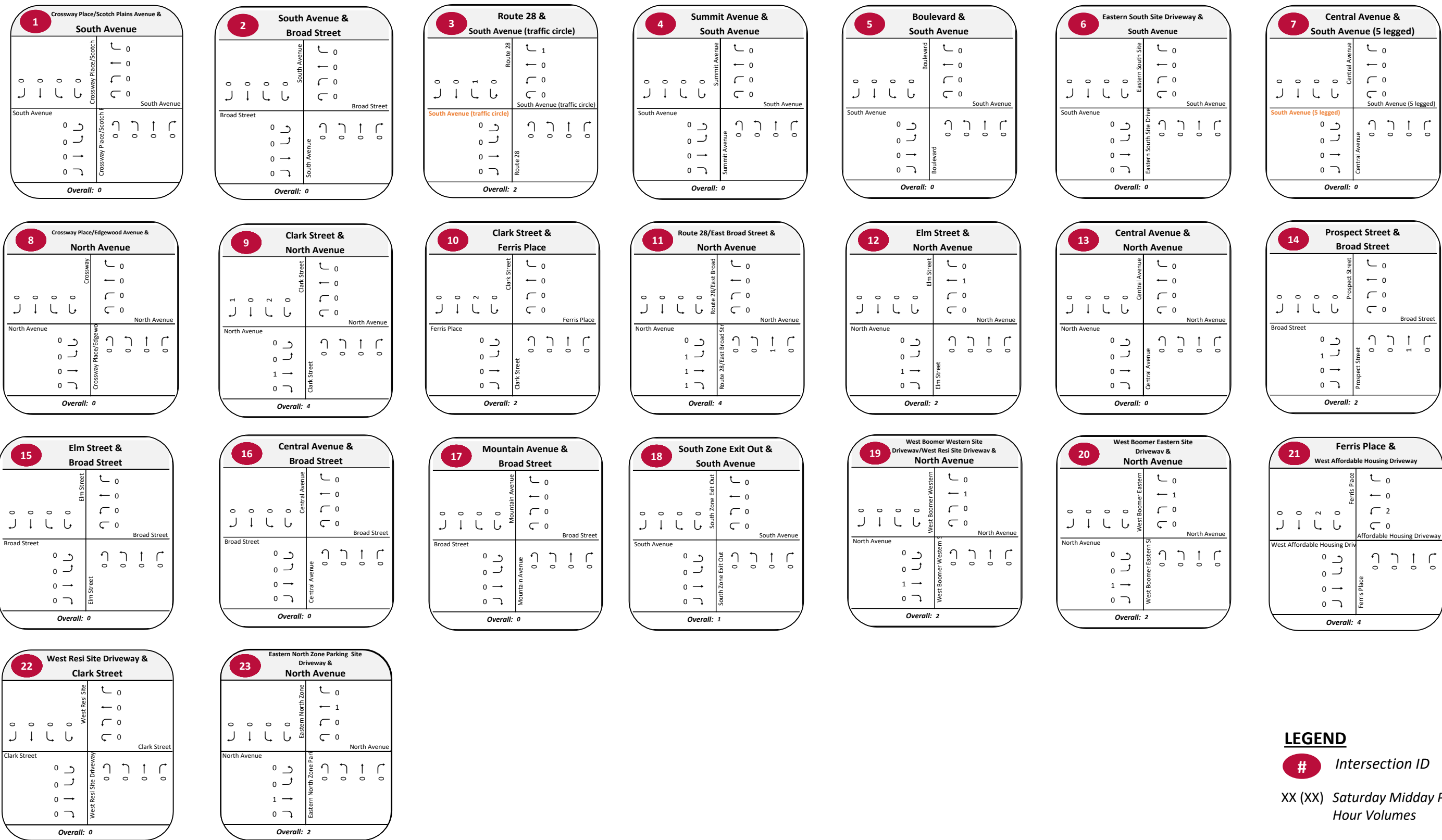


Figure 19. West Office Trip Distribution (Int. ID #19 & 20)

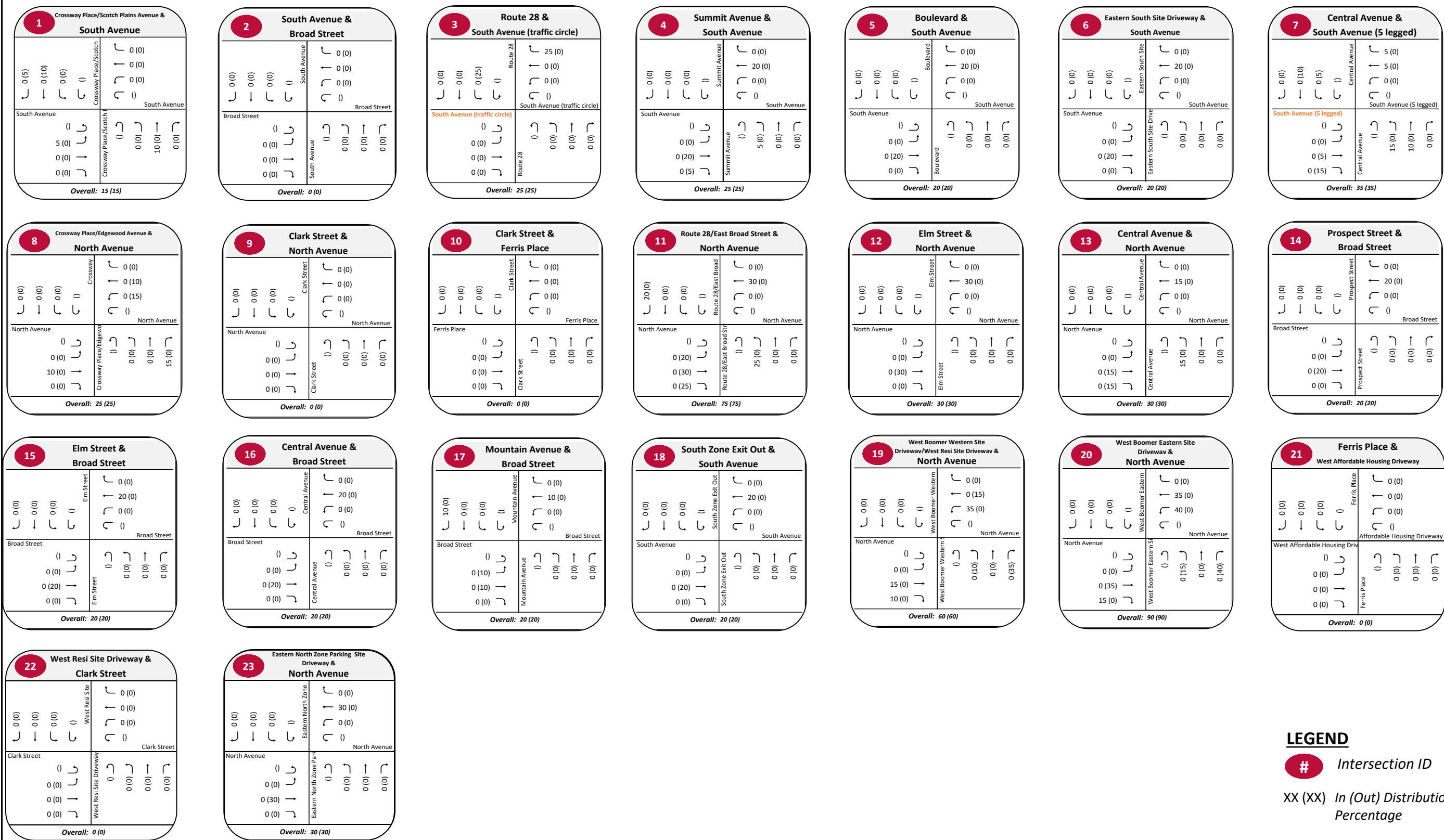
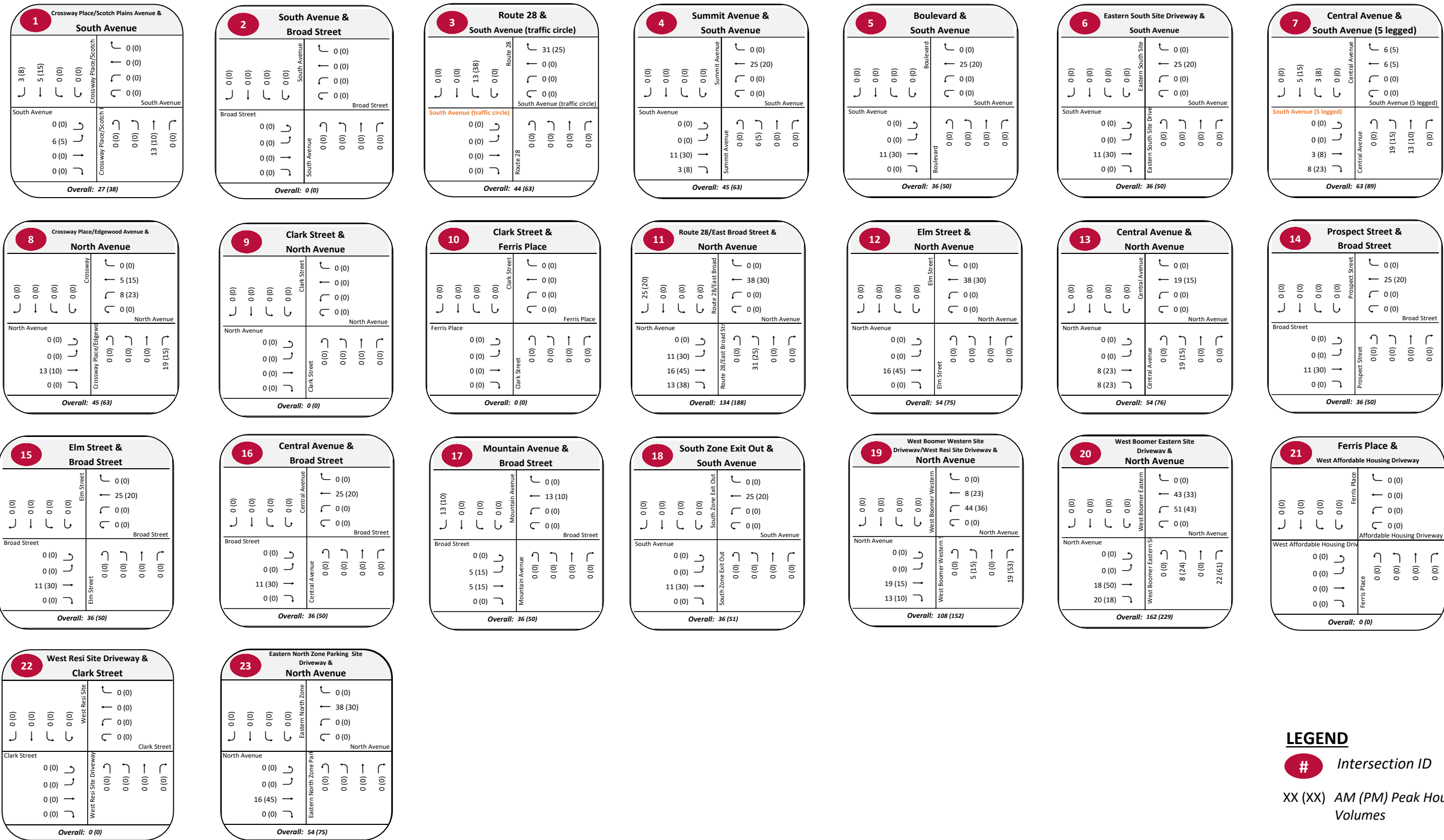


Figure 20. West Office Trip Assignment (Int ID. #19 & 20) (Weekday AM and PM)





**Figure 21. West Office Trip Assignment (Int. ID #19 & 20) (Saturday Midday)**



Figure 22. West Townhouses Distribution (Int. ID #22)

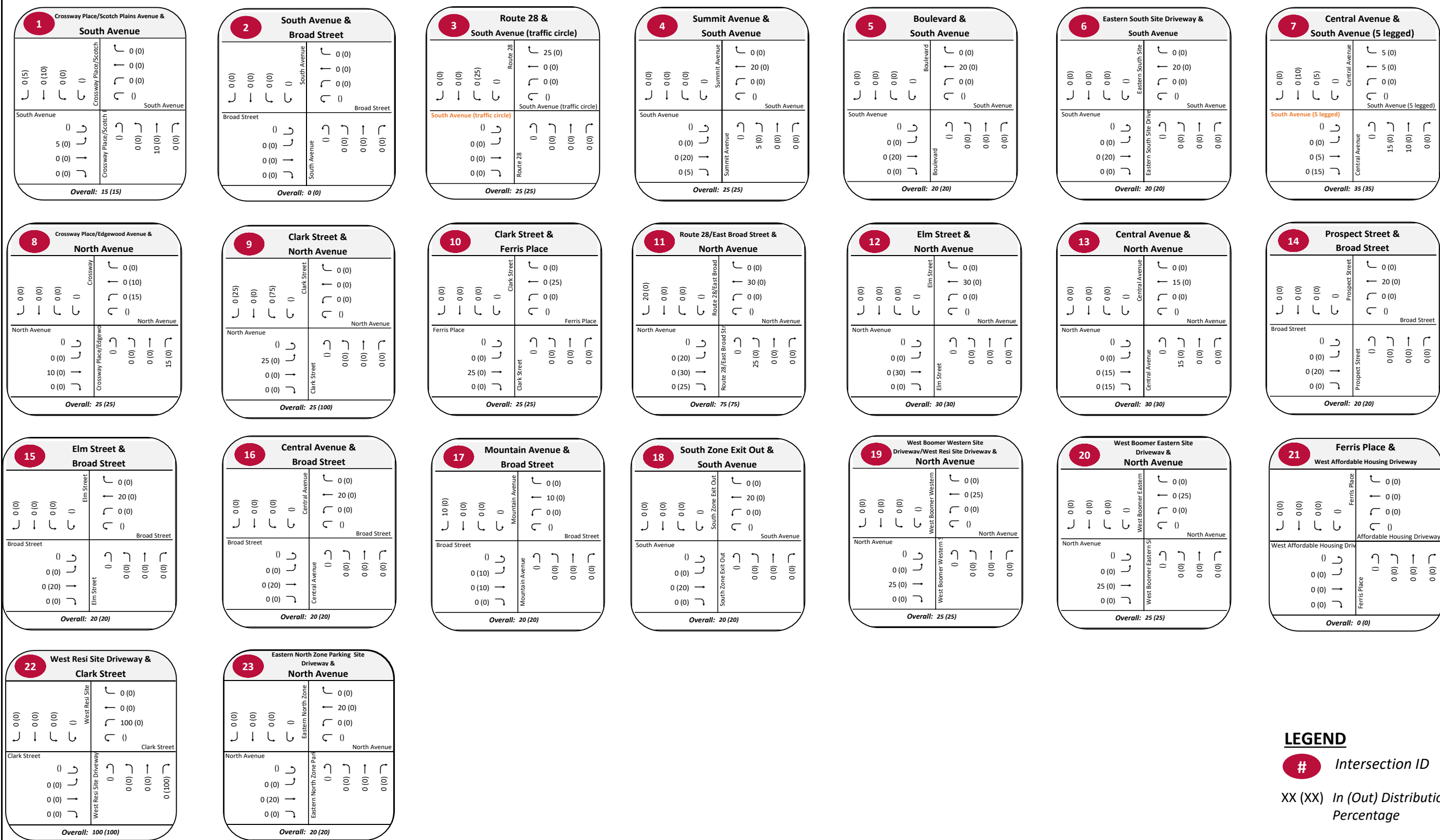
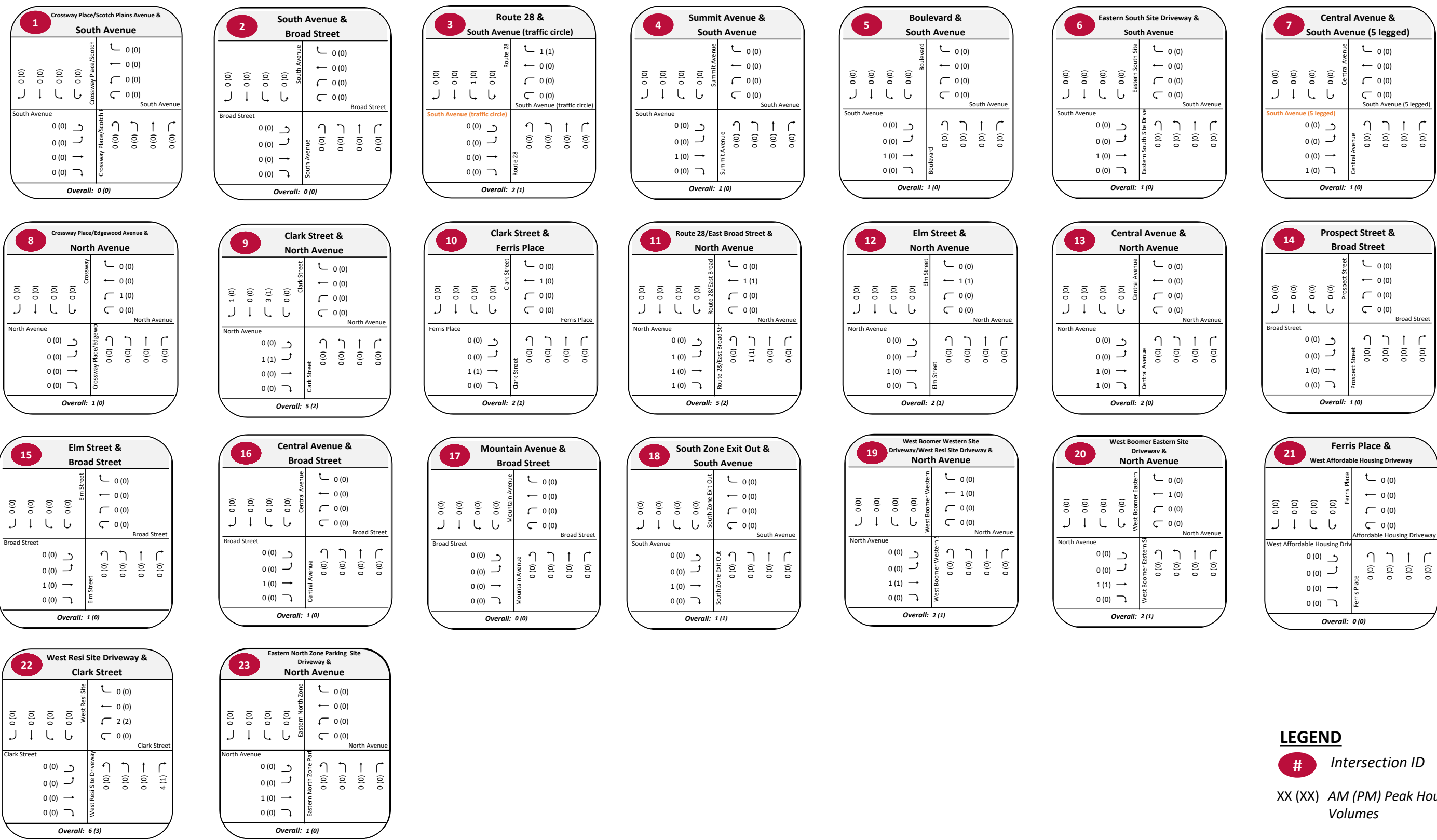




Figure 23. West Townhouses Trip Assignment (Int. ID #22) (Weekday AM and PM)



**LEGEND**

# Intersection ID

XX (XX) AM (PM) Peak Hour Volumes

Figure 24. West Townhouses Trip Assignment (Int. ID #22) (Saturday Midday)



Figure 25. North Loft Trip Distribution (Int. ID #12 & 23)

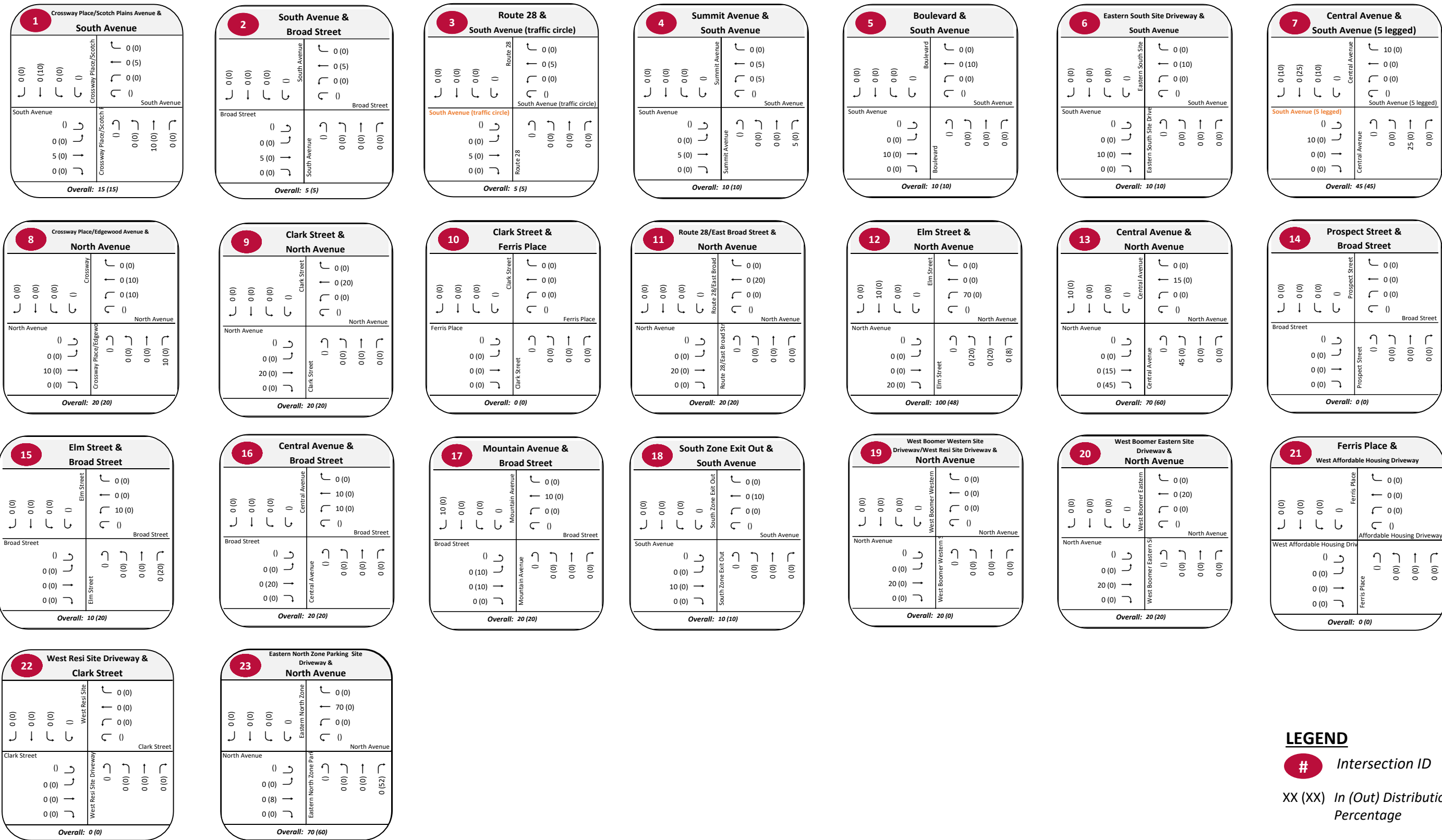
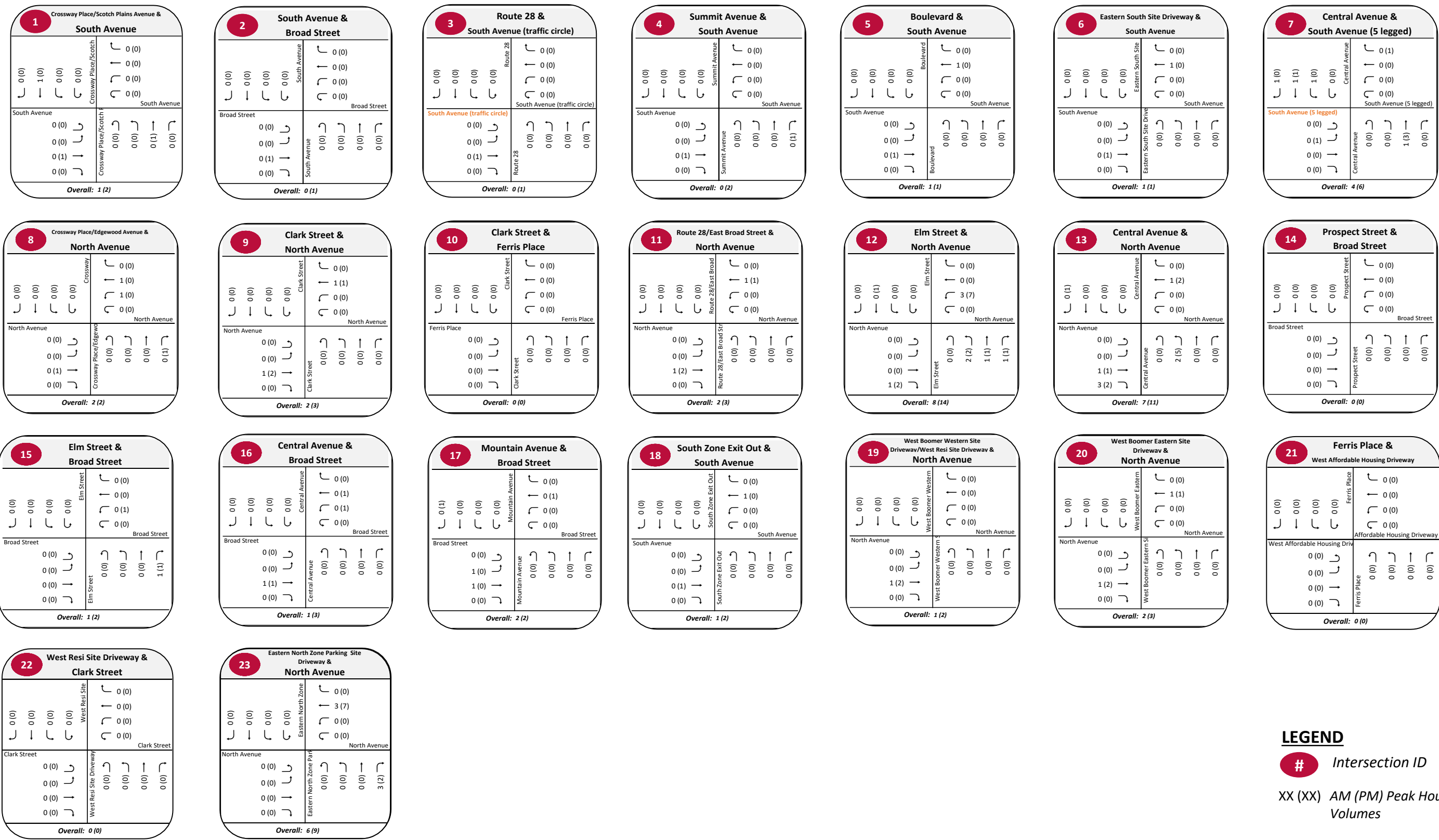


Figure 26. North Loft Trip Assignment (Int. ID #12 & 23) (Weekday AM and PM)



LEGEND

# Intersection ID

XX (XX) AM (PM) Peak Hour Volumes



Figure 27. North Loft Trip Assignment (Int. ID #12 & 23) (Saturday Midday)

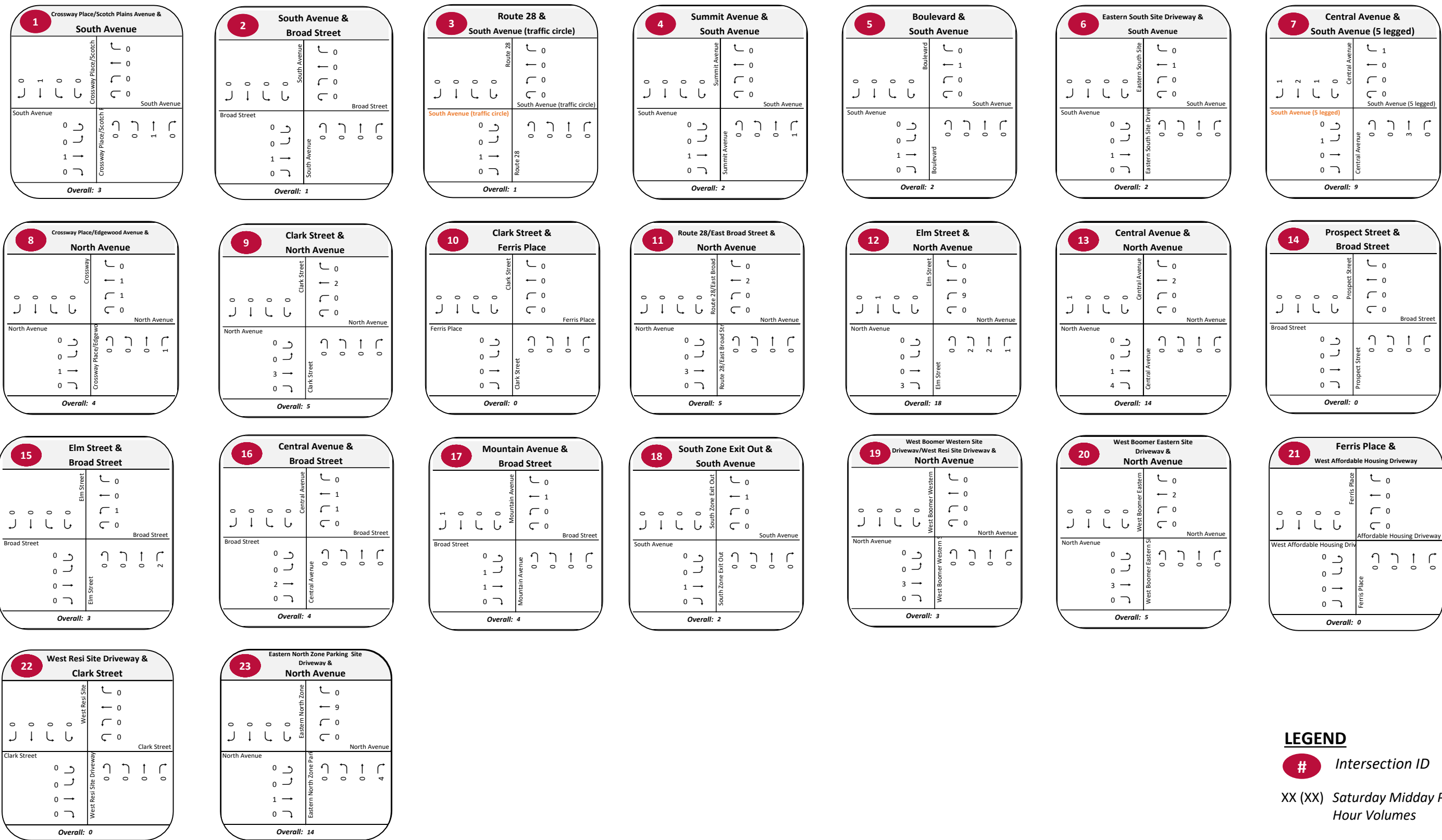


Figure 28. South Office/Retail Trip Distribution (Int. ID #4, 5, 6, & 18)

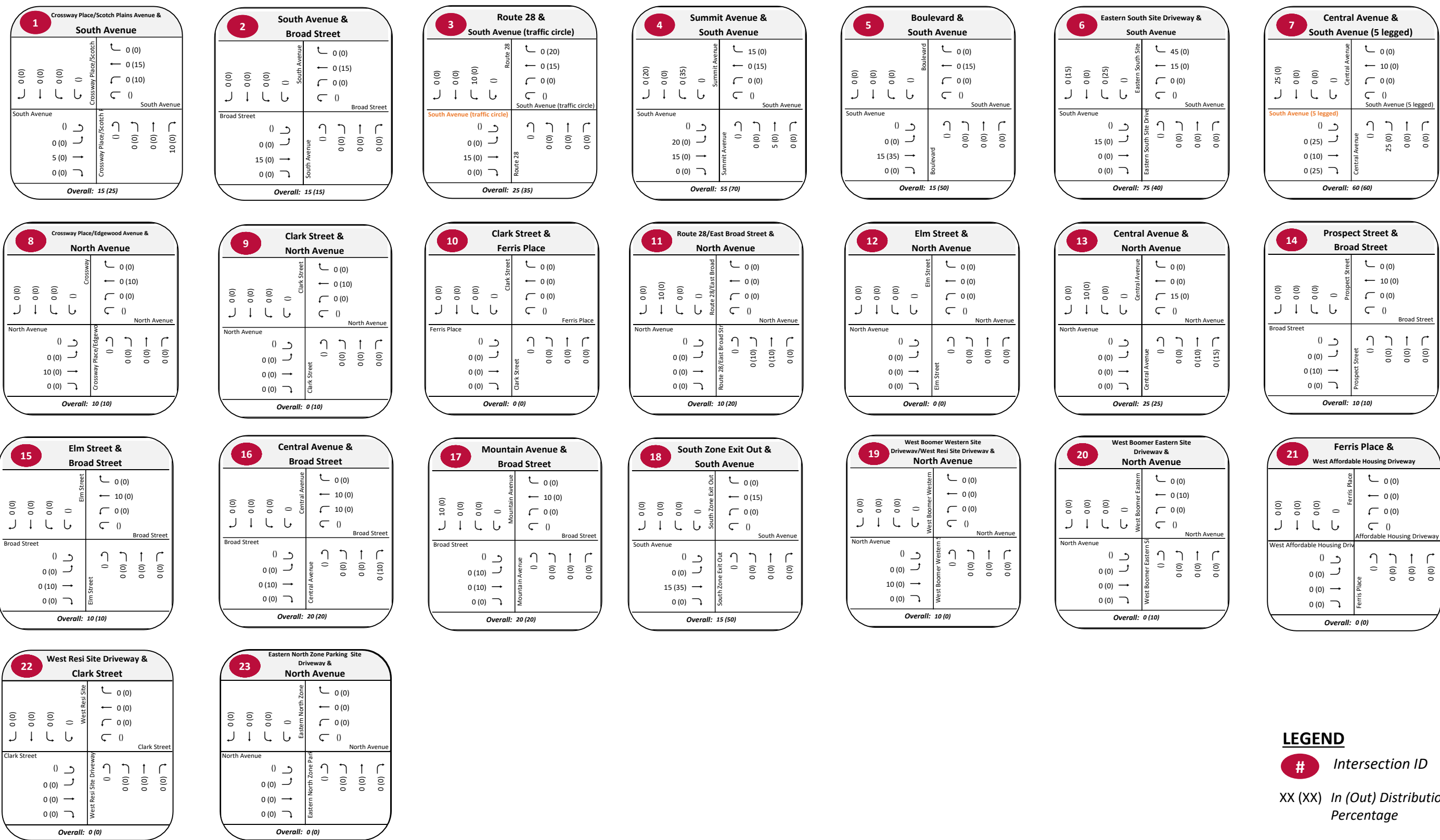




Figure 29. South Office/Retail Trip Assignment (Int. ID #4, 5, 6, & 18) (Weekday AM and PM)

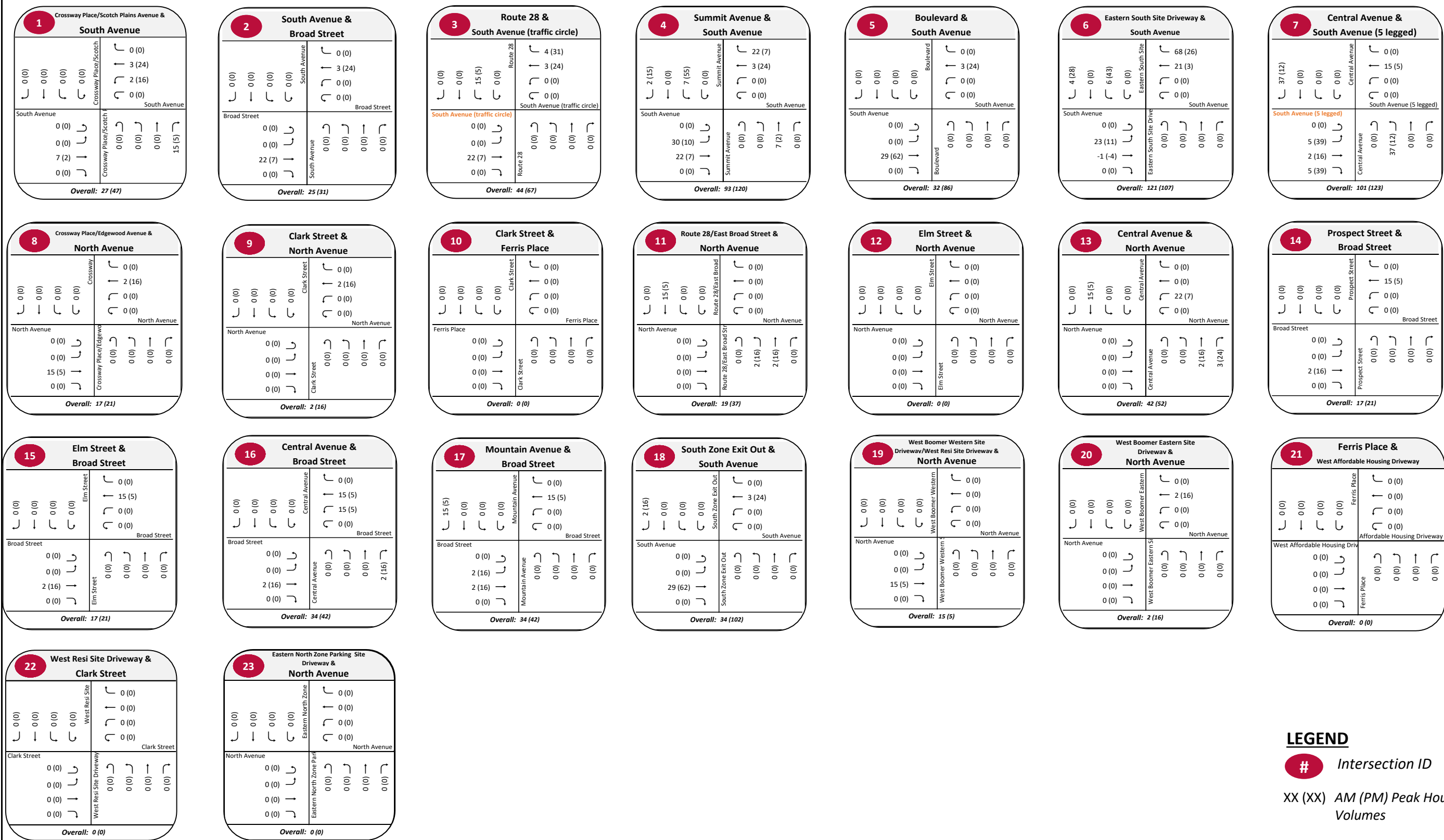


Figure 30. South Office/Retail Trip Assignment (Int. ID #4, 5, 6, & 18) (Saturday Midday)

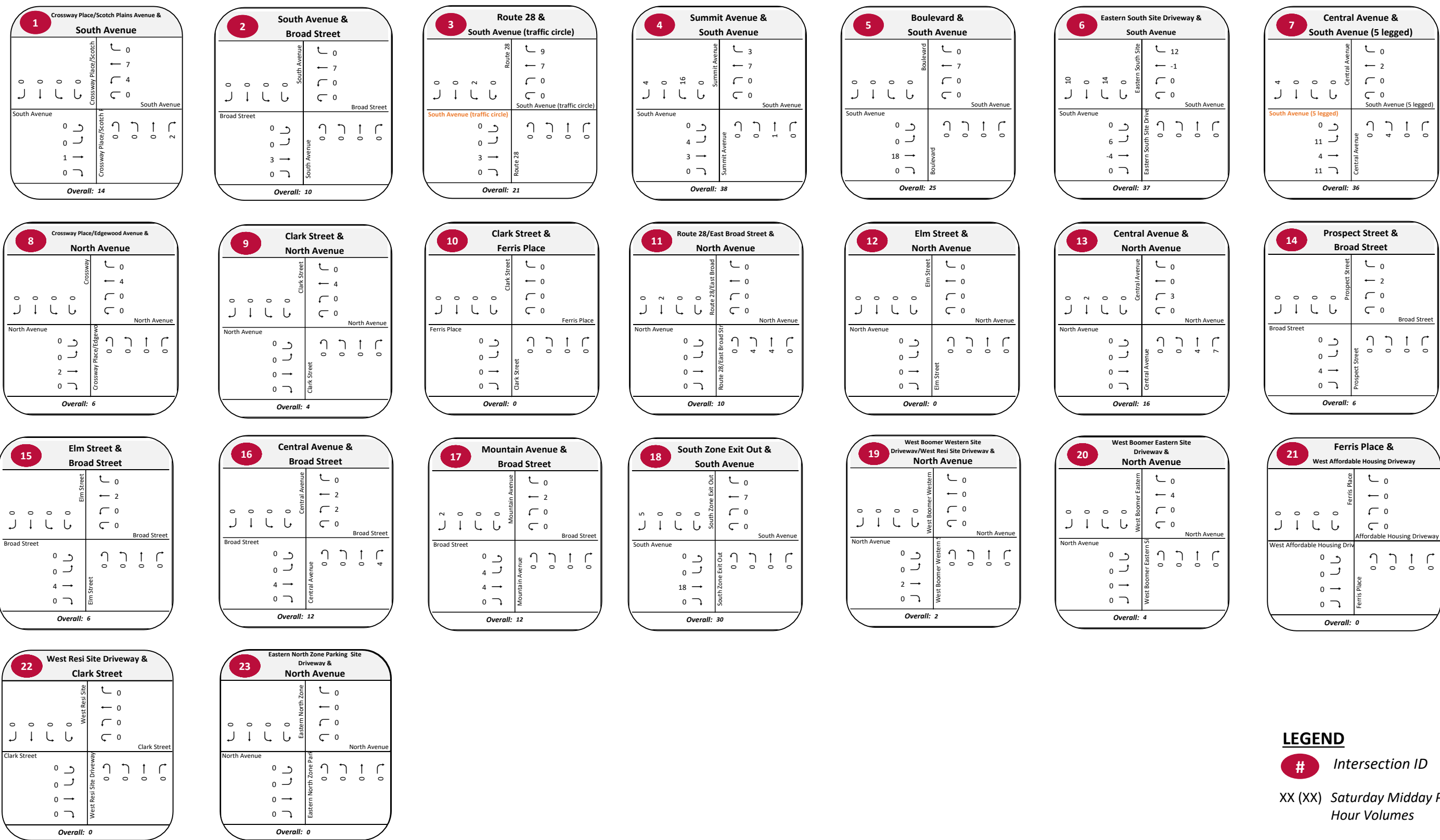


Figure 31. Site Generated Trip Assignment (Weekday AM and PM)

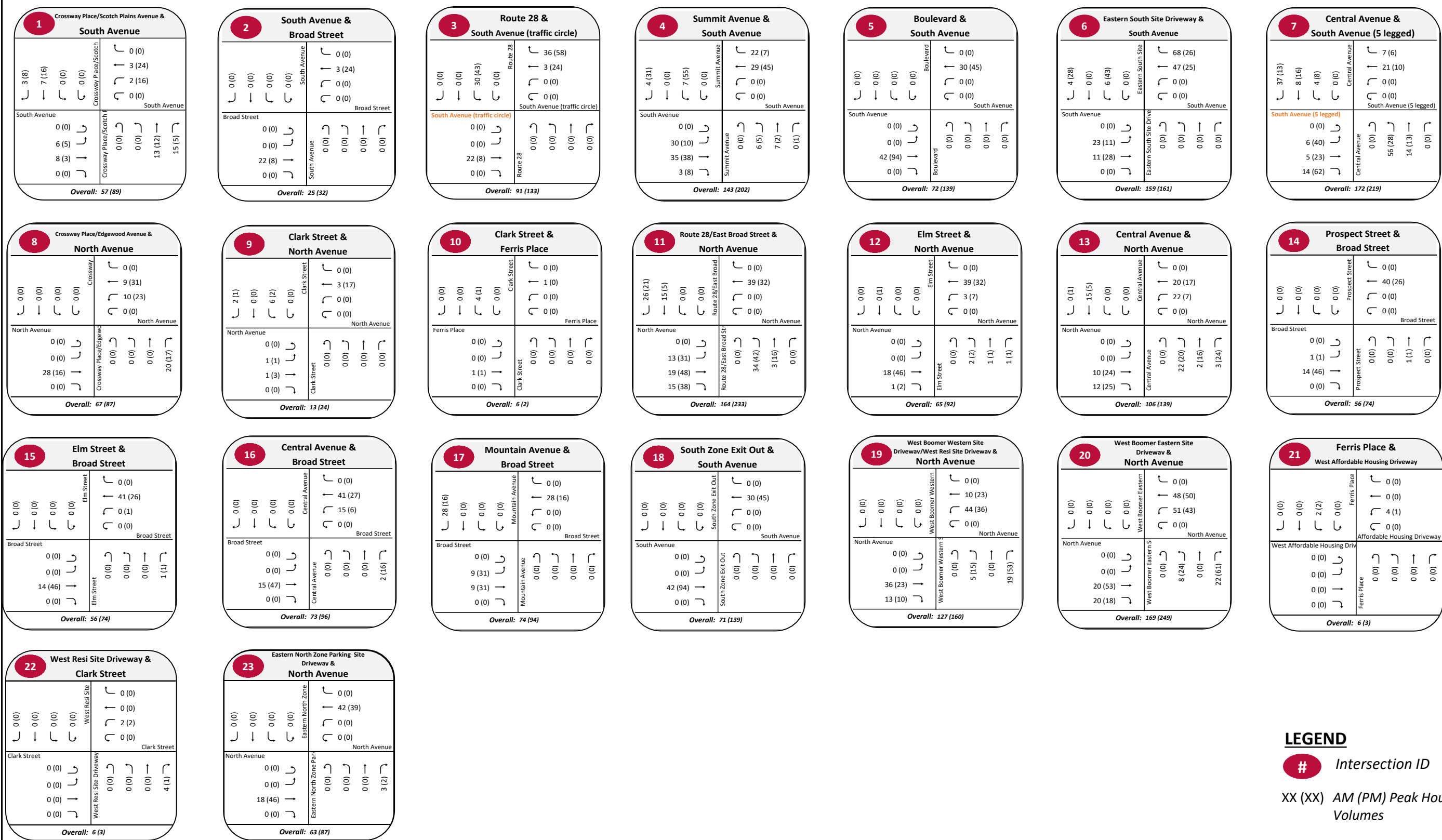


Figure 32. Site Generated Trip Assignment (Saturday Midday)

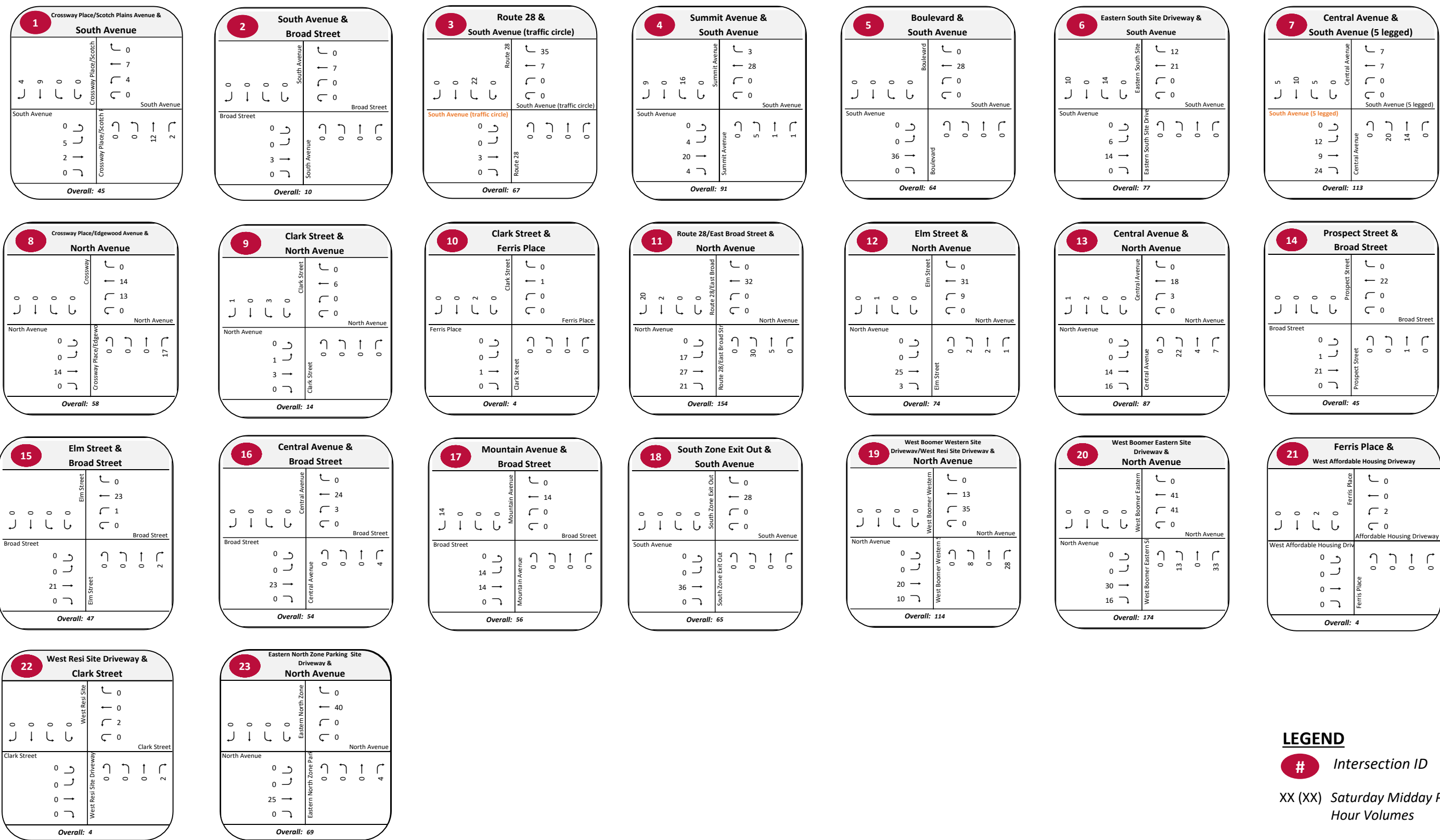
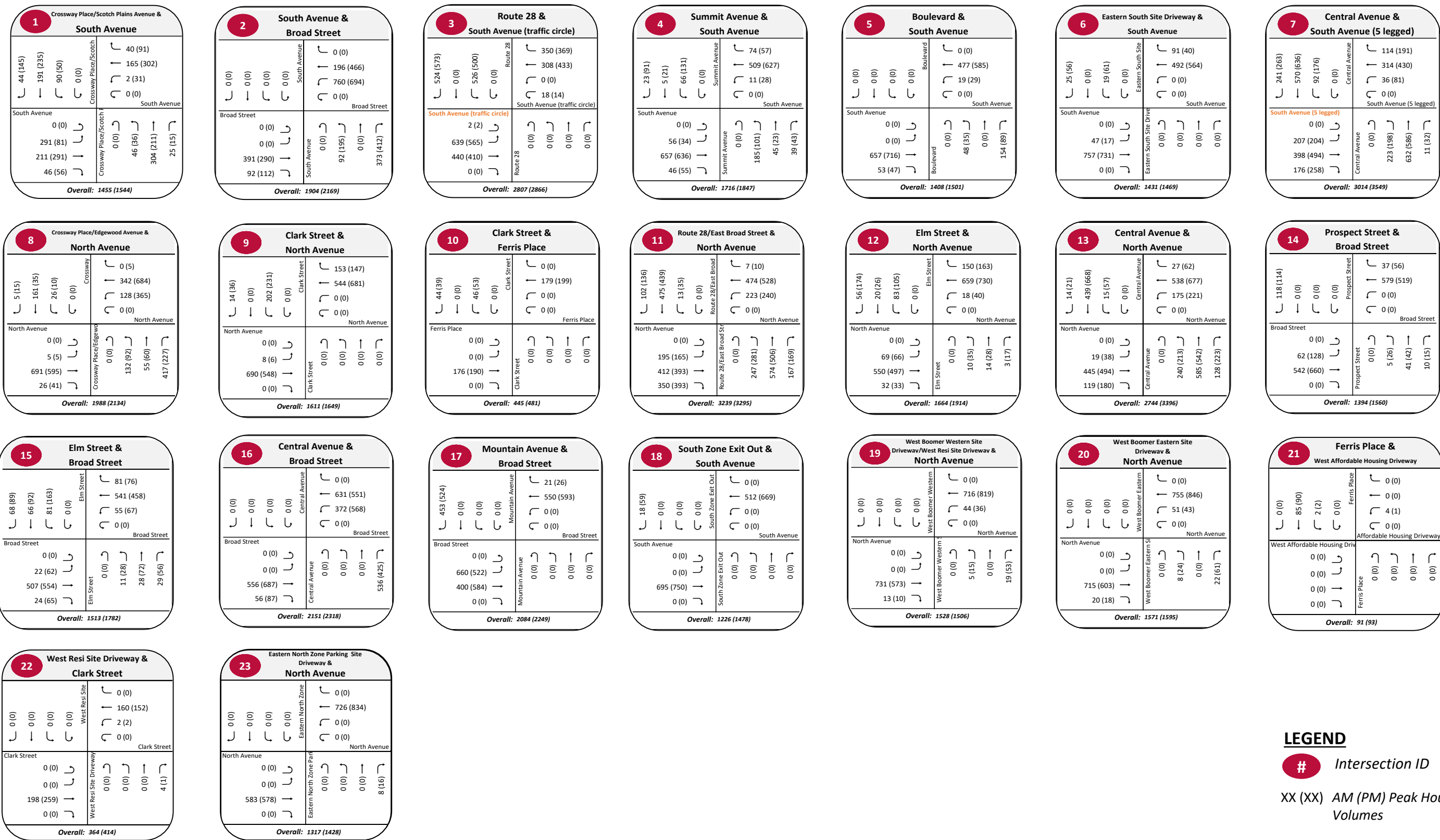




Figure 33. Build 2027 (Weekday AM and PM)



**LEGEND**

# Intersection ID

XX (XX) AM (PM) Peak Hour Volumes



Figure 34. Build 2027 (Saturday Midday)

