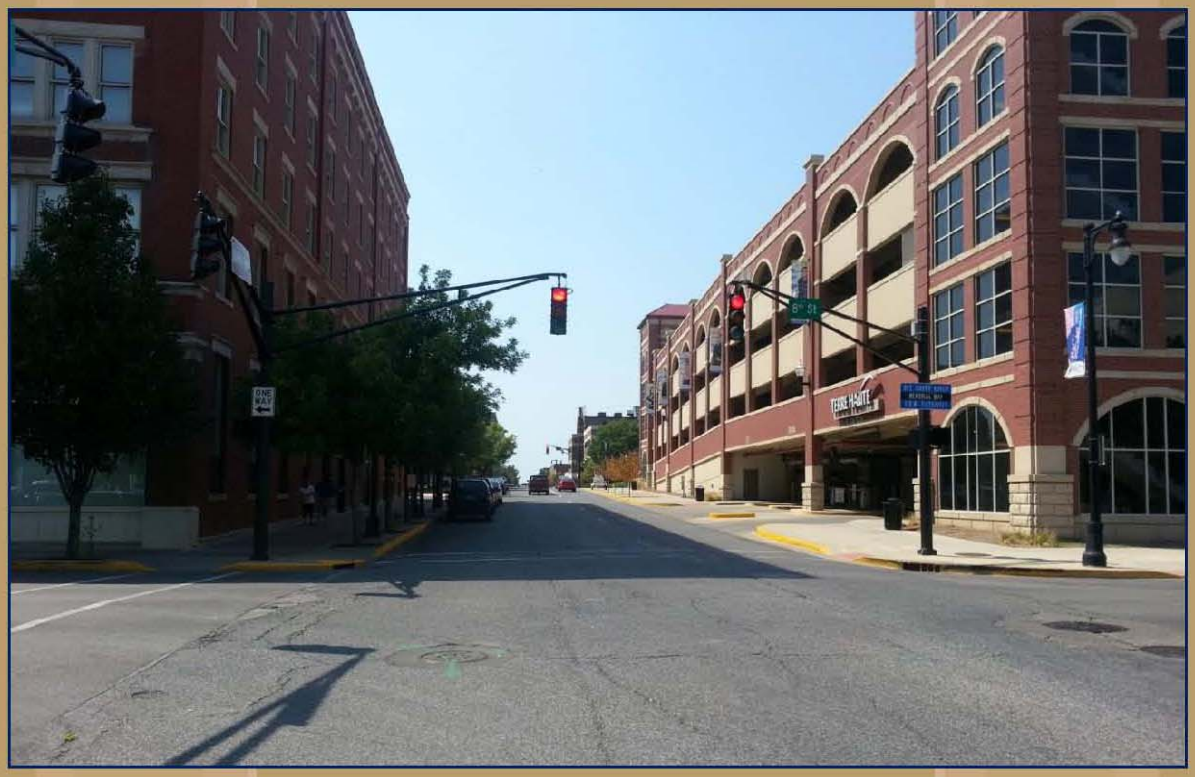
Terre Haute Downtown Traffic Study



submitted to:
City of Terre Haute

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November 12
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Executive Summary

This traffic operations study investigates the possibility of converting one-way streets to two-way streets in downtown Terre Haute. The study area is bounded by US 41 (3rd Street) to the west, Cherry Street to the north, 9th Street to the east, and Poplar Street to the south. The following three alternatives were analyzed:

- Alternative 1 (existing condition);
- Alternative 2 (Cherry Street only); and
- Alternative 3 (Cherry Street, Ohio Street, Walnut Street, 8th Street, and 9th Street).

Converting Cherry Street from one-way to two-way would provide another southbound US 41 to eastbound left turn into the downtown area. It would also provide an additional direct route to ISU. This study does not address or estimate any potential economic development benefits resulting from the actions identified in Alternatives 2 and 3. When deciding on the ultimate course of action, these potential benefits will be weighed against the cost and the decrease in traffic operations associated with any one-way street to two-way street conversion.

One-way streets in a central business district (CBD) environment are an efficient way to move traffic. Converting from one-way to two-way has a ripple effect on the surrounding street network. A combination of travel demand modeling, capacity analysis, and microsimulation were used to forecast these impacts. When compared to Alternative 1 (existing condition), Alternative 2 increases delay and overall travel time for motorists travelling through the study area. However, these increases are not so much that they make traffic operations unacceptable. Alternative 3 increases delay and overall travel time above and beyond the increase associated with Alterative 2, to an unacceptable level.

Alternative 2 would cost approximately $557,000 to implement, and based on additional costs associated with the user's time, fuel, vehicle maintenance, etc., would increase the user cost to the motoring public by approximately $530,000 during the 10-year period from 2012 to 2022.

Alternative 3 would cost approximately $1,951,000 to implement and would increase the motoring public's user cost by approximately $760,000 during the 10-year period from 2012 to 2022.

Considering the impact on traffic operations, the recommendation is Alternative 1. It is recommended that Cherry Street, and other the other streets studied, remain one-way streets.

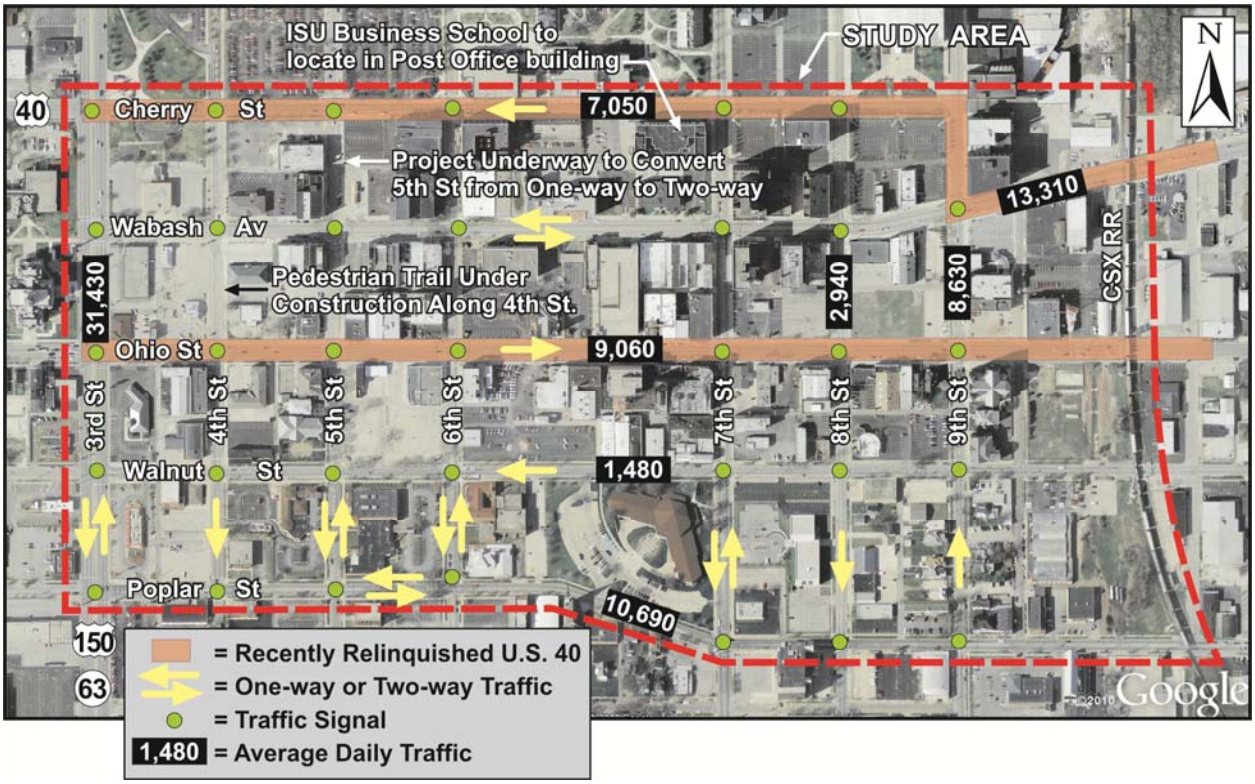
1. Introduction

1.1 Study Area and Existing Conditions

The study area (Figure 1) is bounded by US 41 (3rd Street) to the west, Cherry Street to the north, 9th Street to the east, and Poplar Street to the south. Terre Haute's central business district (CBD) is located within the study area and contains restaurants, retail, hotels, offices, parking facilities, and facilities associated with Indiana State University (ISU). Downtown Terre Haute has experienced revitalization over the past few decades. Currently, the roadway network within the study area contains many one-way streets, including:

- Cherry Street (one-way westbound);
- Ohio Street (one-way eastbound);
- Walnut Street (one-way westbound);
- 4th Street (one-way southbound);
- 8th Street (one-way southbound); and,
- 9th Street (one-way northbound).

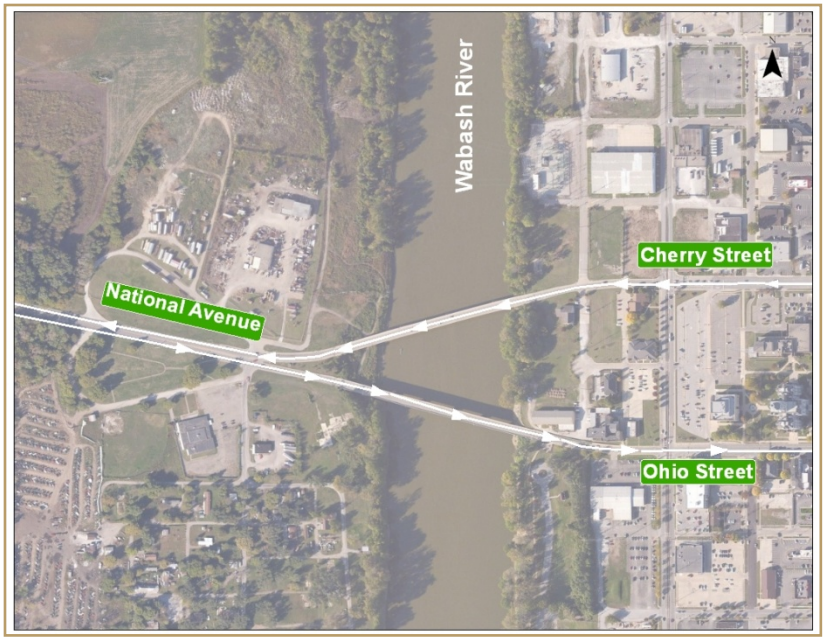
Figure 1
Existing Conditions Map



Wabash Avenue is a two-way street with one lane in each direction, left turn lanes at signalized intersections, and on-street parking on both sides. Poplar Street is a two-way street with one lane in each direction and left turn lanes at signalized intersections. US 41 is a state route with three through lanes in each direction, left turn lanes at designated signalized intersections, and a raised curb median. In October 2012, 5th Street was officially converted from one-way northbound with on-street parking to a two-way street. Sixth Street is a two-way street with one lane in each direction, no left turn lanes, and adjacent on-street parking along each side for most of the corridor. Seventh Street is a two-way street with one lane in each direction, left turn lanes at signalized intersections, and adjacent on-street parking along each side for most of the corridor. All of the intersections within the study area are signalized, with the exception of the intersection of Cherry Street and 9th Street in the northeast corner of the study area.

In 2011, the Indiana Department of Transportation (INDOT) relinquished US 40, from US 41 to SR 46, to the City of Terre Haute. This relinquishment included portions of Cherry Street, 9th Street, and Ohio Street in downtown, and Wabash Avenue from east of downtown to US 46. All of the signalized intersections along US 41 within the study area fall under INDOT's control. West of US 41, one-way westbound Cherry Street and one-way eastbound Ohio Street carry US 40 (National Avenue). This one-way pair connects directly into one-way bridge structures over the Wabash River (Figure 2), and converting these segments from one-way to two-way is not an option.

Figure 2
Wabash River Crossing



1.2 Study Goal

Cherry Street through downtown Terre Haute is currently a westbound, one-way street. The ISU campus is primarily located north of Cherry Street between US 41 and 9th Street; however, campus growth is occurring within the study area. The former post office on the southwest corner of Cherry Street and 7th Street now houses the ISU School of Business. There is potential for future student housing in downtown near the School of Business. This study was initiated to investigate the possibility of converting Cherry Street from a one-way westbound facility to a two-way street. Converting Cherry Street would provide another southbound US 41 to eastbound left turn into the downtown area. It would also provide an additional direct route to ISU.

Converting Cherry Street to two-way would have a ripple effect on other streets within the downtown grid. The goal of this study is to analyze the impacts of converting Cherry Street on traffic operations within the study area. The study will also analyze converting multiple one-way streets within the study area to two-way streets. The study will investigate the impacts on roadway capacity, parking, pedestrians and bicyclists, transit, and safety.

1.3 Previous Planning Efforts

This study is an engineering study, primarily focusing on traffic operations. Previous planning studies address cultural, livability, and aesthetic issues in greater detail. The *2009 Downtown Vision Plan* indicates that consideration should be given to additional on-street parking. That planning study also calls for investigating the possibility of converting existing one-way streets, and in particular Cherry Street, to two-way streets. The *ISU Master Plan* indicates ISU's desire to improve vehicular and pedestrian circulation. The *ISU Master Plan* recommends reviewing one-way streets, and in particular Cherry Street, for the possibility of conversion to two-way streets. ISU desires a pedestrian-friendly, walkable environment and encourages implementation of "Complete Streets." Of particular concern to ISU is a welcoming entry to campus and clearly defined path to desired destinations, particularly for first-time visitors.

2. Description of Alternatives

2.1 Alternative 1 – Existing Conditions

The existing conditions are referred to as Alternative 1 throughout this study.

2.2 Alternative 2 – Converting Cherry Street to Two-way

This alternative includes converting Cherry Street, from US 41 to 8th Street, from a one-way street to a two-way street. Appendix A contains schematic diagrams for the existing Cherry Street lane configuration. Appendix A contains schematic diagrams for the Alternative 2 conversion, as well as typical cross sections for the potential converted streets within the study area. Alternative 2 would convert the existing two westbound lanes, with adjacent on-street parking lane along the south side, into a two-way street with one lane in each direction, with left lanes at signalized intersections and designated mid-block drive entrances. The conversion would fit within the existing curb lines. No roadway widening or curb reconstruction would occur because the right-of-way impacts would be prohibitive.

The portion of Cherry Street between 8th Street and 9th Street would remain a one-way westbound street. The intersection of 9th Street and Cherry Street is currently free-flow, with a stop condition only for the Clabber Girl exit drive, and would not be changed by this alternative.

Alternative 2 requires the elimination of the existing on-street parking along the south side of Cherry Street. Per engineering design standards, the spacing of the signalized intersections along Cherry Street is too close to allow the through lanes to taper in and out in a manner that would allow some of the on-street parking spaces to remain. The intersection at Cherry Street and US 41 Street would be modified to add a southbound left turn lane within the existing raised median to accommodate left turns onto Cherry Street. Any modifications to the Cherry Street and US 41 intersection must be coordinated with the Indiana Department of Transportation (INDOT).

2.3 Alternative 3 – Converting Cherry, Ohio, Walnut, 8th, and 9th Streets to Two-way

This alternative would convert Cherry Street, Ohio Street, Walnut Street, 8th Street, and 9th Street from one-way streets to two-way streets. Cherry Street would be converted from US 41 all the way to 9th Street, instead of ending at 8th Street as with Alternative 2. The remainder of Cherry Street would have the same configuration as Alternative 2,

including the addition of the southbound US 41 to eastbound Cherry Street left turn lane. The intersection of 9th Street and Cherry Street would be modified to include a traffic signal. Any modifications to the Cherry Street and US 41 intersection must be coordinated with INDOT.

For Ohio Street between US 41 and 9th Street, the existing three eastbound lanes, with adjacent on-street parking lanes on each side, would be converted to two through lanes, one in each direction, with left turn lanes provided at signalized intersections and designated mid-block drive entrances. No on-street parking would be eliminated. All modifications would be made within the existing curb line because widening of the street and reconstruction of the curb would require additional right-of-way and be cost prohibitive. Any modifications to the Ohio Street and US 41 intersection must be coordinated with the Indiana Department of Transportation INDOT.

For Walnut Street between US 41 and 9th Street, the existing two westbound lanes would be converted to two through lanes, one in each direction, with no provision made for separate left turn lanes along the corridor. Existing on-street parking along Walnut Street would remain. All modifications would be made within the existing curb line because widening of the street and reconstruction of the curb would require additional right-of-way and be cost prohibitive.

For 8th Street and 9th Street between Poplar Street and Cherry Street, the existing two one-way lanes would be converted to two through lanes, one in each direction, with no provision made for separate left turn lanes. All existing on-street parking would remain. All modifications would be made within the existing curb line because widening of the street and reconstruction of the curb would require additional right-of-way and be cost prohibitive.

3. Traffic Analysis Methodology

3.1 Travel Demand Modeling

The Terre Haute Metropolitan Planning Organization's (MPO's) travel demand model, based on the *TransCAD* software platform, was used as the basis for the analysis in this study. The MPO's model, like most regional travel demand models, is comprised of links representing roads and nodes representing intersections. Not all roads and alleys are contained within the model. The road network information contained within the model includes traffic volumes (either counts or forecasts), number of lanes, direction of travel, posted speed, intersection control, functional classification of the road, etc. The local metropolitan planning organization, West Central Indiana Economic Development District, provided 2011 traffic count data for the roads in the study area.

The first step was to expand the model to include links for roads and alleys that were not represented in the existing model. The model was also broken down into additional zones within the study area to provide additional detail. These zones contain socioeconomic data, such as census data, employment data, land use, etc., which enable the model to populate the road network. This allows the model to provide more detail regarding anticipated traffic movements. The model was then calibrated to the previously mentioned traffic data.

Once calibrated, the model was used to test the alternatives. To test Alternative 2, the links in the model comprising Cherry Street were changed from one-way westbound to two-way. The model assumes that motorists will travel from point A to point B on the routes that require the least amount of time. The model redistributes traffic across the entire network based on the changes made in Alternative 2. Converting Cherry Street from one-way to two-way would provide a shorter trip for some eastbound motorists, but it would provide a less efficient trip for westbound vehicles. Some vehicles would continue to use Cherry Street while others would seek new routes.

The model does not provide all of the answers but it is the best tool available for forecasting how traffic will react to conditions that do not currently exist. For instance, Cherry Street is currently not a two-way street so it is not possible to take traffic counts on Cherry Street and adjoining streets to determine the volume of traffic for that potential future configuration. The model is the best way to estimate this. The model was also run for Alternative 3.

3.2 Capacity Analysis

Traffic forecasts from the model for each alternative were input into *Synchro 7*. *Synchro 7* is traffic capacity software, based on the equations contained in the *Highway Capacity Manual* (HCM), which is used to analyze road networks with a series of signalized intersections. The signal hardware and phasing plans were based on signal inventory information received from the City of Terre Haute. The signal cycle lengths and phasing splits were individually optimized for all scenarios. The key metric provided by *Synchro 7* is the average delay per vehicle at each intersection. This average delay is reported as seconds per vehicle and is also converted into a measure called level of service (LOS). LOS ranges from A to F, with A representing free flow conditions and F representing gridlock. LOS D represents a scenario wherein an intersection is operating at its capacity. As more vehicles are added to the intersection, if no additional capacity improvements are made, the traffic operations will begin to break down.

While *Synchro 7* captures the average delay at each of the individual intersections, it does not do a good job of calculating overall travel time through a roadway network. Sometimes the geometry of the road corridor can create motorist delays that increase travel time. For example, a single left turning vehicle can stack up, or queue, a line of vehicles behind it while it waits for a gap in the oncoming traffic to make the left turn. If a separate left turn lane is provided, this movement would not impact the through traffic movement, but if it is not provided, delay could increase significantly. Microsimulation is the preferred method for measuring performance of a road network.

3.3 Microsimulation

Network-wide performance was analyzed in *SimTraffic* using microsimulation. *SimTraffic* is a software package that operates on the *Synchro 7* platform. This means that as data is entered into the *Synchro 7* model, it is automatically used by *SimTraffic*. Microsimulation is different than capacity analysis in that it physically simulates vehicles on the model network and tracks each vehicle through the network, recording items for each vehicle such as travel distance, travel time, delay, emissions, etc. This is very valuable because the results for each of these individual vehicles can be summed and averaged. Typically ten separate microsimulation runs are prepared and the results are averaged to minimize any fluctuations from the random sample of vehicles. The microsimulation was run for the peak hour for this study. It is a valuable tool for comparing how different alternatives impact the traffic operations across the entire study area. This is necessary for identifying any unintended consequences that an alternative creates in another part of the study area.

3.4 Traffic Operations

When streets are converted from one-way to two-way streets, new turning movements are introduced to the intersection. These new turning movements create additional conflict points between motorists, and motorists and pedestrians. It is generally preferable, for capacity and safety reasons, to reduce conflict points. There are three types of conflict points: diverging, merging, and crossing. Right-angle crashes or left turn crashes, which typically constitute a higher percentage of severe crashes, have an increased likelihood due the exposure at crossing conflict points. The diagrams below (Figures 3 through 5) compare the intersection of two one-way streets, a one-way street and a two-way street, and two two-way streets.

Figure 3 - Conflict Diagram
Two One-way Streets

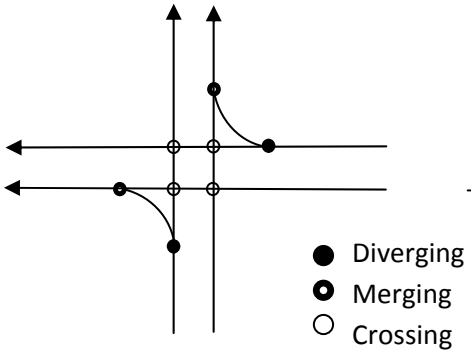


Figure 4 - Conflict Diagram
One-way Street and Two-way Street

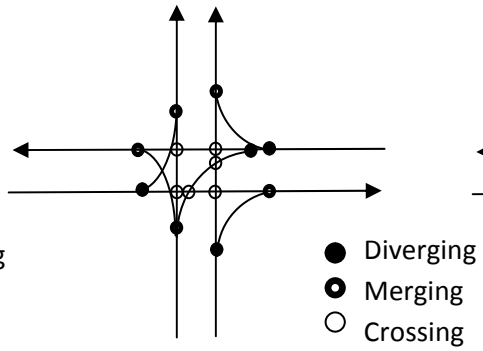
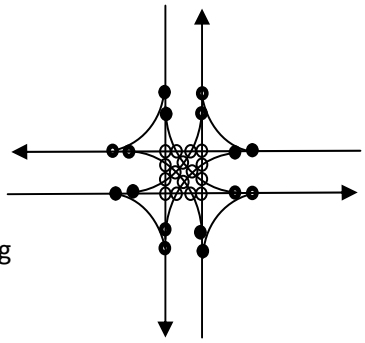


Figure 5 - Conflict Diagram
Two Two-way Streets



Converting to a two-way street would change the signal timing and potentially the signal phasing. Adding a phase to the existing phasing plan would lower the overall intersection efficiency. Signals on one-way streets could be coordinated to control vehicle progression and control speeds, while signals on two-way streets are more difficult to coordinate for progression.

4. Traffic Analysis Findings

4.1 Signalized Intersection *Synchro 7* Analysis

Intersection LOS exhibits and *Synchro 7* reports are located in Appendix D. Alternative 1, existing conditions, did not produce significant delays. All intersections within the study area were LOS A or LOS B, with one intersection, the intersection of Ohio Street and 7th Street, currently experiencing LOS C. The existing intersections are experiencing an acceptable amount of delay.

Alternative 2, converting Cherry Street to a two-way street, generally increased delay and lowered the level of service across the board for the intersections within the study area. The largest impacts were along Cherry Street, where delay doubled in many cases. Two intersections moved from LOS A to LOS B, one intersection remained at LOS B, and three intersections moved from LOS B to LOS C. While increases in the average delay and reductions in the LOS are not desirable, it is important to note that the intersections are still anticipated to operate at an acceptable level with Alternative 2.

One-way traffic through signalized intersections is very efficient because there are no opposing left turns requiring green time to make a movement. All of the green time can be provided unabated to the traffic along the one-way street. Left turning vehicles many times pose the greatest challenge to intersection capacity. This is what occurred with Alternative 2. The forecasted eastbound left turning vehicles along Cherry Street were not great in volume; however, they required green time from the signal, which resulted in an overall decrease in capacity at these intersections.

It is important to note that Alternative 2 was initially assumed to convert Cherry Street to a two-way street between 8th Street and 9th Street; however, this configuration required a traffic signal at the intersection of 9th Street and Cherry Street, which is currently free-flow. As a result, the model forecast a large increase in traffic through the intersection of Wabash Avenue and 9th Street, causing traffic operations to break down at that intersection. Alternative 2 was modified to discontinue the two-way conversion at 8th Street to allow it to be a more viable option.

Alternative 3 increased delay and lowered LOS more than Alternative 2. One intersection, Ohio Street and US 41, is forecast to experience LOS D, while three intersections (Cherry Street and 7th Street, Cherry Street and 9th Street, and Ohio Street and 9th Street) are forecast to experience LOS E. Alternative 3 does not provide acceptable LOS at the signalized intersections. Alternative 3's poor performance is based on the same concept discussed above for Alternative 2. One-way streets

typically move traffic more efficiently because green time does not need to be shared with opposing traffic, and in particular opposing left turning vehicles.

The introduction of westbound motorists onto Ohio Street created delay at the intersection of Ohio Street and US 41. Delay increased at the intersection of Cherry Street and US 41. Similar to Alternative 2, Alternative 3 would introduce a southbound left turn from US 41 onto Cherry Street, which does not currently exist. The conversion would increase delay on Ohio Street and Poplar Street, due to the reduction of through lanes on Ohio Street.

4.2 *SimTraffic* Microsimulation Analysis

SimTraffic microsimulation reports are located in Appendix E. It is important to look at how the entire road network within the study area, and not just the signalized intersections, is forecast to operate. Microsimulation is the preferred way to compare alternatives for items such as overall travel distance, travel time, average speed, and average delay. The results in Table 1 represent the averages from the microsimulation runs for all vehicles moving through the study area during the peak period.

Table 1
Network-wide Microsimulation Results

	Analysis Year	Travel Distance (mi)	Travel Time (hr)	Average Travel Distance (mi)	Average Travel Time (sec)	Average Speed (mph)	Average Delay (sec)
Alternative 1	2012	658	39.4	0.49	105	16.7	43.1
	2022	729	45.0	0.49	108	16.2	46.4
Alternative 2	2012	730	44.5	0.52	113	16.4	46.7
	2022	798	50.3	0.51	117	15.9	50.9
Alternative 3	2012	668	48.5	0.48	126	13.8	63.4
	2022	716	54.6	0.48	132	13.1	69.2

Alternative 1, existing conditions, has the lowest travel distance, travel time, and delay. This alternative also has the highest average speed.

Alternative 2, converting Cherry Street to a two-way street, has a higher average travel distance and travel time than Alternative 1. The average speed for Alternative 2 is slightly lower than Alternative 1, while the average delay is slightly greater.

Alternative 3 performs worse than Alternatives 1 and 2 on all metrics. The travel time, travel distance, and average delay are higher than Alternatives 1 and 2. The average

speed, 13.8 mph, is also lower than Alternatives 1 and 2. This indicates motorists would spend more time stopped at traffic signals, or in queues, not necessarily driving more slowly.

The microsimulation also forecasts some air quality emissions information (Table 2). These results are preliminary in nature. The emissions are a function of multiple factors, including delay and average travel speed. Alternative 1, existing conditions, performs better than Alternatives 2 and 3 for emissions. Air quality conformity analysis is required for many projects utilizing federal funding, prior to project development. This analysis is typically prepared by the MPO.

Table 2
Emissions Results

	Analysis Year	CO average	NO_X average
Alternative 1	2012	11.2 g	1.15 g
	2022	11.4 g	1.19 g
Alternative 2	2012	11.6 g	1.20 g
	2022	11.5 g	1.20 g
Alternative 3	2012	11.7 g	1.20 g
	2022	11.5 g	1.16 g

4.3 Comparison of Monetized Benefits/Dis-Benefits

The microsimulation results for items such as average travel distance, travel time, and delay are sometimes difficult to put into perspective, and they beg the question… “What does it mean if Alternative 2 adds an average of eight seconds for each motorist traveling through the study area, when compared to Alternative 1?” Eight seconds may seem inconsequential on the surface. In order to put the microsimulation results into perspective, the results were monetized.

Average travel time increases during the peak period for Alternatives 2 and 3 were modified to account for “study area-wide” volume projections. The “benefits,” or “dis-benefits” in the case of Alternatives 2 and 3, were monetized using standard INDOT procedures for this type of analysis. The increased travel time during the peak period was converted into dollars using hourly rates for personal trips versus commercial trips. Operating costs, such as fuel, oil changes, and routine vehicular maintenance, were calculated. Table 3 summarizes the estimated increase in costs over a 10-year period (2012-2022) to the motoring public for Alternatives 2 and 3.

Table 3
Summary of Monetized Dis-Benefits

	Alternative 1	Alternative 2	Alternative 3
10-Year (2012-2022) User Cost	$4,500,000	$5,034,000	$5,257,000
Increase in User Cost when Compared to Alternative 1	--	$534,000	$757,000

5. Community Considerations

5.1 Safety

Analysis was performed on crashes within the study area from 2008-2010. There were a total of 608 crashes during the three-year analysis period. The analysis was performed on a per-intersection basis, as the vast majority of the crashes occurred at or near an intersection. The intersections with the most crashes were the Cherry Street/US 41 and Wabash Avenue/US 41 intersections. This is a reasonable finding because these are two of the more high-volume intersections with the most potential conflict points due to two-way traffic. Table 4 summarizes the total crashes at each intersection and the percent of those crashes that result in injury. Refer to Appendix F for a detailed crash data table and crash exhibits.

Table 4
Crash Data Analysis Summary

	3rd Street/ US 41		4th Street		5th Street		6th Street		7th Street		8th Street		9th Street	
Cherry Street	66	27%	10	20%	8	--	4	--	13	23%	8	63%	6	33%
Wabash Avenue	19	37%	23	22%	21	24%	14	21%	28	29%	14	14%	17	18%
Ohio Street	66	26%	5	2%	9	11%	12	50%	15	13%	18	17%	12	8%
Walnut Street	22	32%	11	36%	7	29%	9	33%	26	23%	8	--	7	14%
Poplar Street	42	31%	8	38%	7	43%	10	40%	20	35%	11	45%	21	10%

Eleven of the crashes analyzed involved pedestrians or bicycles. These crashes were spread throughout the study area. Ten of the 11 crashes (91%) involved one vehicle, while one crash involved multiple vehicles. Nearly all of the crashes (82%) occurred during the day. The months with the highest number amount of crashes were July and November.

When comparing the safety of a one-way corridor to a two-way corridor, the available research does not provide clear consensus. One-way streets have fewer potential conflict points; however, many times one-way streets promote higher speeds along the corridor, which could decrease safety. The speed along the one-way street is controlled by the inter-connection of the signals and the timing of the green lights. Depending on how signal timing is implemented in the field, one-way streets could discourage high speed travel just as easily as they could encourage it.

This study will not attempt to determine whether one-way or two-way streets are safer; however, this study provides the opportunity to compare the crash history on adjacent corridors, one a one-way facility (Cherry Street), and the other a two-way facility (Wabash Avenue). Even though Cherry Street and Wabash Avenue currently carry similar traffic volumes, Cherry Street had 115 crashes during the three-year analysis period, while Wabash Avenue had 141 crashes. When the intersections along US 41 are taken out of the comparison, Cherry Street had 49 crashes, compared to 122 crashes on Wabash Avenue. The lower crash rate at the US 41/Wabash Avenue intersection compared to the US 41/Cherry Street intersection is likely due to Wabash Avenue forming a "T" intersection with US 41. This eliminates many of the potential conflict points from this intersection.

5.2 Pedestrians and Non-motorized Vehicles

Existing research also provides no clear consensus on whether one-way streets or two-way streets are better in terms of pedestrian safety. Pedestrian safety appears to be site-specific. Pedestrian and bicycle operations are measured differently than vehicular LOS. Vehicular LOS is based on incurred delay, a quantity, while the pedestrian and bicycle accommodations are based on the quality perceived by the user. *ARTPLAN*, a recently added module in the 2010 Federal Highway Administration (FHWA) sponsored *Highway Capacity Software* (HCS), is a tool that forecasts quality of service (QOS) for multimodal facilities.

A facility's QOS for pedestrians increases with the presence of continuous sidewalks and barriers that separate the sidewalk from the roadway (on-street parking or landscaping). Vehicles completing turns that conflict with pedestrians decrease the QOS. A facility's quality of service for bicyclists increases with the presence of bike lanes or wide paved shoulders, while narrow or nonexistent shoulders decrease the QOS. Adjacent vehicular traffic volumes and speeds impact the quality of service. High speeds and volumes decrease the QOS. The QOS scores are rated from A to F, with QOS A being good and QOS F being poor (Table 5).

Table 5
QOS Rating System

QOS Rating	QOS Scores
A	Less than 1.5
B	1.5 to 2.5
C	2.5 to 3.5
D	3.5 to 4.5
E	4.5 to 5.5
F	Greater than 5.5

Cherry Street was analyzed via *ARTPLAN* as it currently exists (Alternative 1) and as a two-way street (Alternative 2). The existing condition features pertinent to the analysis were the presence of continuous sidewalks, speed limit, presence of on-street parking, and existing turning movement counts. The two-way street scenario features pertinent to the analysis were the presence of continuous sidewalks, speed limit, absence of on-street parking, and estimated turning movement counts. The estimated turning movement counts are the same as the counts used for capacity analysis to determine the motorists' LOS. The two-way street scenario QOS is decreased by the removal of on-street parking, which acts as a buffer for pedestrian comfort. The two-way street QOS is decreased by the increase in traffic and additional conflicting turning movements which were not present before the conversion. Table 6 summarizes the bicyclist and pedestrian QOS results for both scenarios. The QOS score for both bicyclists and pedestrians is slightly better (more desirable) for Alternative 1 than for Alternative 2.

Table 6
Cherry Street Multimodal QOS Summary

	Bicyclist QOS		Pedestrian QOS	
	Score	QOS Rating	Score	QOS Rating
Alternative 1 Cherry Street One-Way	3.44	C	2.26	B
Alternative 2 Cherry Street Two-Way	4.40	D	3.19	C

5.3 Parking

In downtown Terre Haute, on-street parking and parking garages are available. On-street parking exists along the following streets studied for two-way conversion.

- Cherry Street (south side only);
- Wabash Avenue (north and south sides);
- Ohio Street (north and south sides);
- Walnut Street (north and south sides);
- 8th Street (east and west sides); and,
- 9th Street (east and west sides).

As discussed in Chapter 2 of this study, Alternative 1 has no impact to on-street parking. Alternative 2 would require removal of the on-street parking along the south side of Cherry Street from US 41 to 8th Street, which amounts to a loss of 40 parking spaces. It also would require the removal of the newly constructed sidewalk "bump-out"

in front of the ISU School of Business. Alternative 3 would require removal of on-street parking along Cherry Street from US 41 to 9th Street, as well as the sidewalk bump-out, which amounts to a loss of 50 parking spaces. Alternative 3 would not require removal of on-street parking from Ohio Street, Walnut Street, 8th Street, or 9th Street.

5.4 Transit/Bus

The Cherry Street Multimodal facility is located on Cherry Street between 8th Street and 7th Street (Figure 6). The facility serves as a parking garage, the Terre Haute Transit Utility transit center, and the Greyhound bus service stop location. The parking garage has a 636-vehicle capacity and is used by ISU students, faculty, and staff. The west side of 8th Street, which is currently one-way southbound, is equipped with four bus bays. Alternatives 2 and 3 would provide more direct access to the transit center than Alternative 1.

Figure 6
Cherry Street Multimodal Facility

6. Cost Estimate

Planning-level cost estimates were prepared for this study. Cost estimate information is contained in Appendix G. Major roadway items and traffic items quantities were calculated and smaller items were accounted for via contingencies. All alternatives are limited to the existing right-of-way, so no right-of-way costs or curb reconstruction costs are included in the estimate. The center curb removal and reconstruction to accommodate the southbound left turn lane at intersection of US 41 and Cherry Street is included in the cost estimate. Surface milling and resurfacing were assumed for each alternative. Pavement markings and traffic signal improvements are also included. Radio interconnects for all signals are included in the cost, assuming the existing traffic controllers can accommodate interconnection. Miscellaneous items, such as maintenance of traffic, construction engineering, mobilization and demobilization, and utility relocations, are included. The recent 5th Street one-way to two-way conversion project, completed in October 2012, was used as a check for reasonableness. This cost estimate covers work associated with converting streets from one-way to two-way only. It does not include aesthetic or context sensitive items such as landscaping, pedestrian improvements, etc.

Alternative 1 has no cost because it calls for the existing conditions to remain.

Alternative 2, converting Cherry Street from one-way to two-way, is estimated to cost approximately $557,000.

Alternative 3, converting Cherry Street, Ohio Street, Walnut Street, 8th Street, and 9th Street from one-way to two-way, is estimated to cost approximately $1,951,000.

7. I-70 Detour and Intelligent Transportation Systems

7.1 Analysis Description

A goal of this study is to analyze impacts of Alternatives 1, 2, and 3 on the official local detour route through downtown Terre Haute to be used in the case of closure on I-70 (Figure 7). The current detour route uses the existing Cherry Street and Ohio Street one-way pair through downtown. Each alternative was analyzed with the current detour route. The assumptions and analysis performed are for illustrative purposes.

Figure 7- Emergency Detour Signage at the Intersection of Cherry Street and 9th Street

There are a variety of potential detour route scenarios. The location of the blockage on I-70 causing closure could be east of or west of US 41, which would affect detour traffic patterns significantly. The blockage could affect eastbound traffic, westbound traffic, or both eastbound and westbound traffic. The analysis in this study assumes a hypothetical I-70 closure scenario which occurs during the PM peak hour and results in 50 percent of all trucks on the interstate using the designated detour route.

7.2 Methodology

The analysis period was the PM peak hour. The heavy vehicle percentage (36%) was calculated using INDOT historical traffic counts. The detour route, which goes through downtown, is not an optimal route for personal vehicles (cars, SUVs, and trucks). Other routes, such as Margaret Avenue, are likely to be used by much of the local traffic. For simplicity's sake, the analysis assumes that personal vehicles will not use the detour through downtown. For the analysis, it was assumed that 50 percent of the heavy vehicles will use the detour route through downtown.

The detour events were analyzed using the traffic simulation software *SimTraffic*. The methodology used is nearly identical to the peak hour capacity analysis performed; however, the measures of performance are different. A detour event is inherently different than the typical peak hour due to the rarity of the event. LOS E or F is

expected during a detour event, but would not be acceptable for a typical peak hour for normal conditions. The queue penalty is a performance measure from traffic simulation. It is important to complete simulation analysis to capture queue overflow, which is not captured by HCM signal analysis. The queue penalty is a measure of how many vehicles are affected by queue blocking. The value is calculated for each lane by multiplying the proportion of the time a queue is blocked and the volume of the lane. The average delay per vehicle was calculated via microsimulation.

7.3 Findings

The existing condition, Alternative 1, performs the best in this hypothetical scenario. Operationally, a one-way pair is ideal for an emergency detour route. Alternative 2, which converts Cherry Street to a two-way street, removes one westbound through lane. Alternative 3, which converts both Cherry Street and Ohio Street, removes one westbound through lane and one eastbound through lane. Table 7 summarizes the results.

Table 7
I-70 Detour Network Results

	Alternative 1 Existing Conditions	Alternative 2 Convert Cherry St	Alternative 3 Convert Cherry St, Ohio St, Walnut St, 8th St and 9th St
Average Delay (sec/veh)	58.4	61.6	83.0
Queue Penalty	156	408	727

7.4 Intelligent Transportation Systems Opportunities

Intelligent Transportation Systems (ITS) infrastructure could help alleviate the major delays that occur during I-70 closure. In the event of a blockage on I-70, variable message boards would guide motorists. Guiding motorists through the detour can reduce congestion during the detour event. Variable message boards could be placed at the following locations:

- East of SR 46 for westbound I-70;
- West of National Avenue for eastbound I-70;
- East of US 41 on Cherry Street; and,
- West of US 41 on Ohio Street.

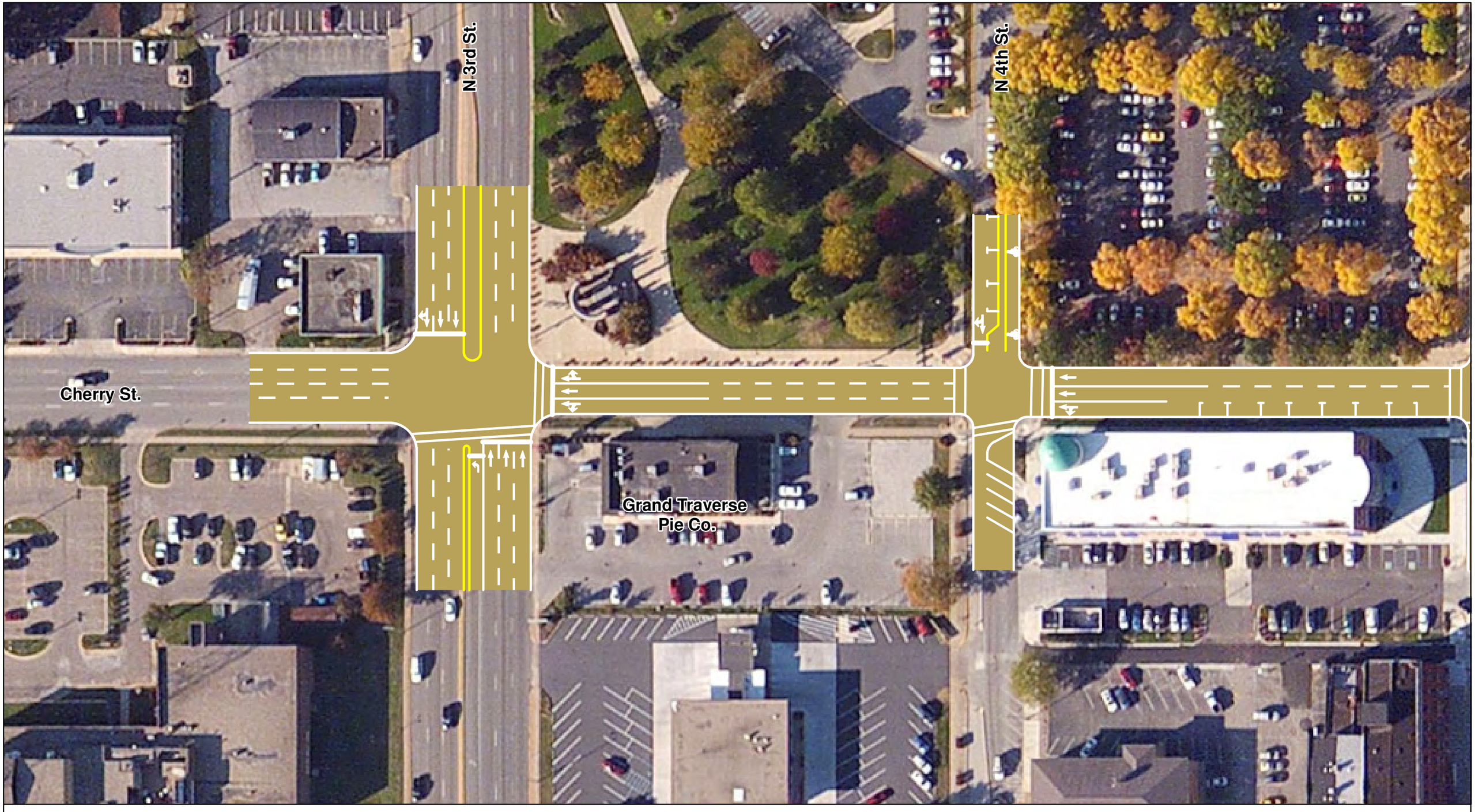
The variable message boards on I-70 would keep motorists informed with real-time information during a detour event. The variable message boards would route motorists

to a detour during closures or inform them of any delays. For example, in the event of a closure on westbound I-70 west of US 41, motorists would likely detour to northbound US 41 and US 40 (Cherry Street/National Avenue). Motorists could also be guided to detour at SR 46 rather than US 41. The variable message boards on Cherry Street and Ohio Street could be used to route motorists back to I-70 via US 41 or continue through downtown to access I-70 at SR 46. If there are delays ahead, the variable message boards could simply inform motorists of the delay, allowing them to make informed decisions. Motorists traveling on I-70 would benefit from the message boards because they have real-time information on closures and delays. The community would benefit from reduced congestion as motorists during a detour event are guided with real-time information to avoid potential conflicts in the downtown area.

Variable message boards have alternative uses that can benefit a larger audience. Amber alerts, weather information, or other emergency information can be displayed on the variable message boards.

Appendix A

Schematic Layouts on Aerial Backgrounds

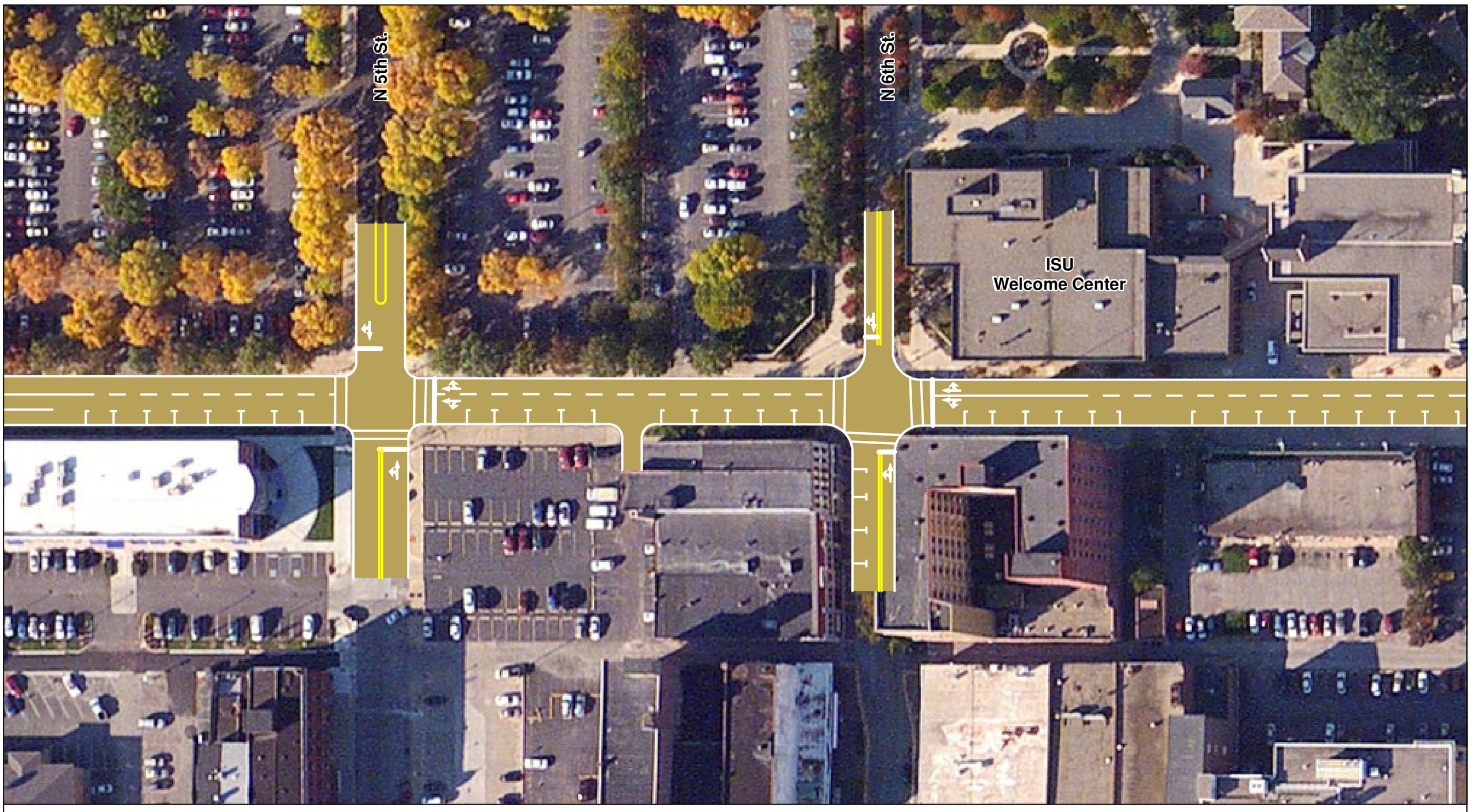


Terre Haute Downtown Traffic Study
Existing Conditions (Alternative 1)

N

0 25 50 100 150
Feet

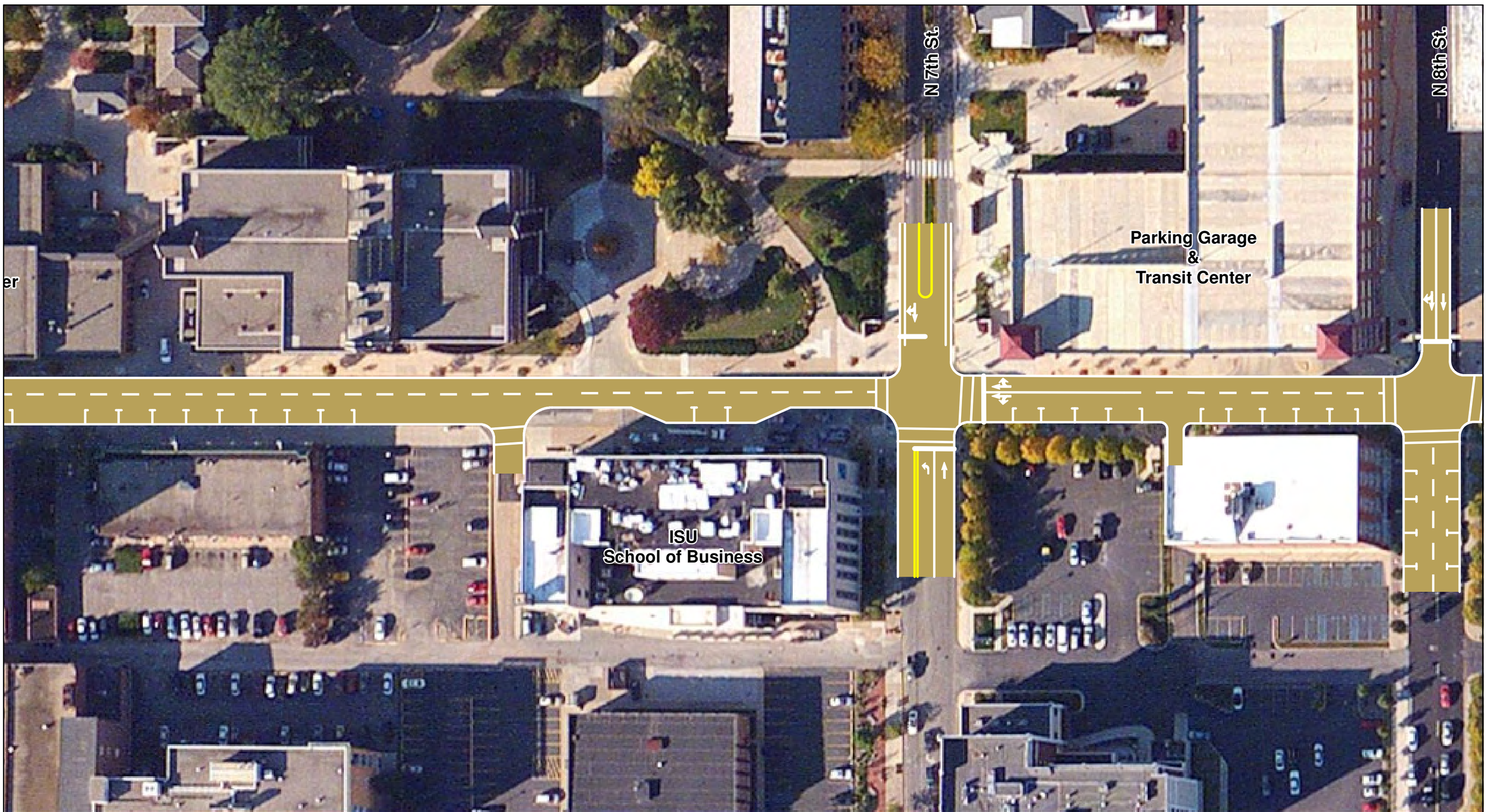
SHEET 1 OF 4



Terre Haute Downtown Traffic Study
Existing Conditions (Alternative 1)

N

0 25 50 100 150 Feet



Terre Haute Downtown Traffic Study
Existing Conditions (Alternative 1)

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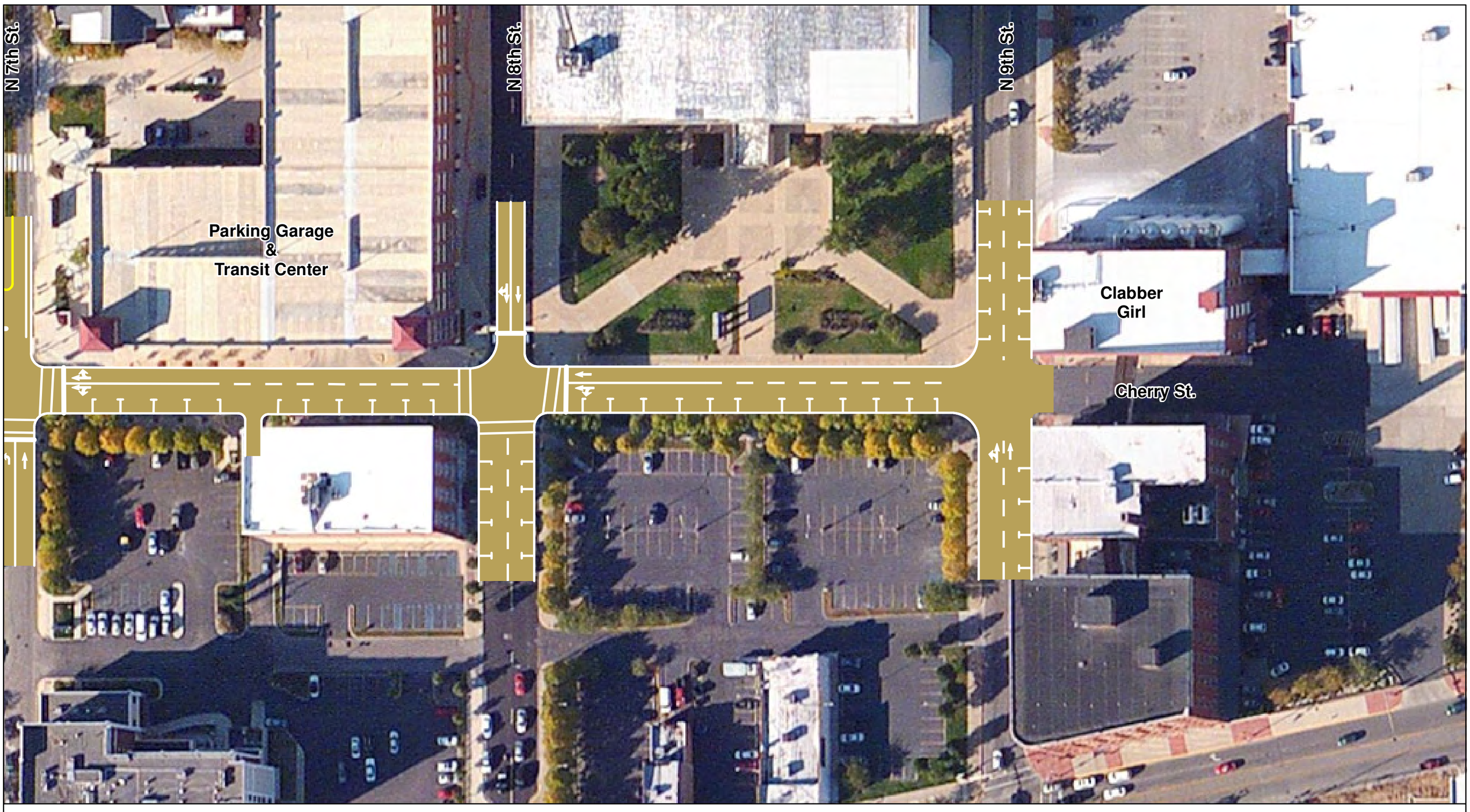
SHEET 3 OF 4



Terre Haute Downtown Traffic Study
Existing Conditions (Alternative 1)

N

0 25 50 100 150 Feet

SHEET 4 OF 4

Terre Haute Downtown Traffic Study
Alternative 2

N

0 25 50 100 150
Feet

SHEET 1 OF 4

N 5th St.

N 6th St.

ISU
Welcome Center

N

Terre Haute Downtown Traffic Study
Alternative 2

0 25 50 100 150
Feet

SHEET 2 OF 4

N 7th St.

N 8th St.

er

Parking Garage
&
Transit Center

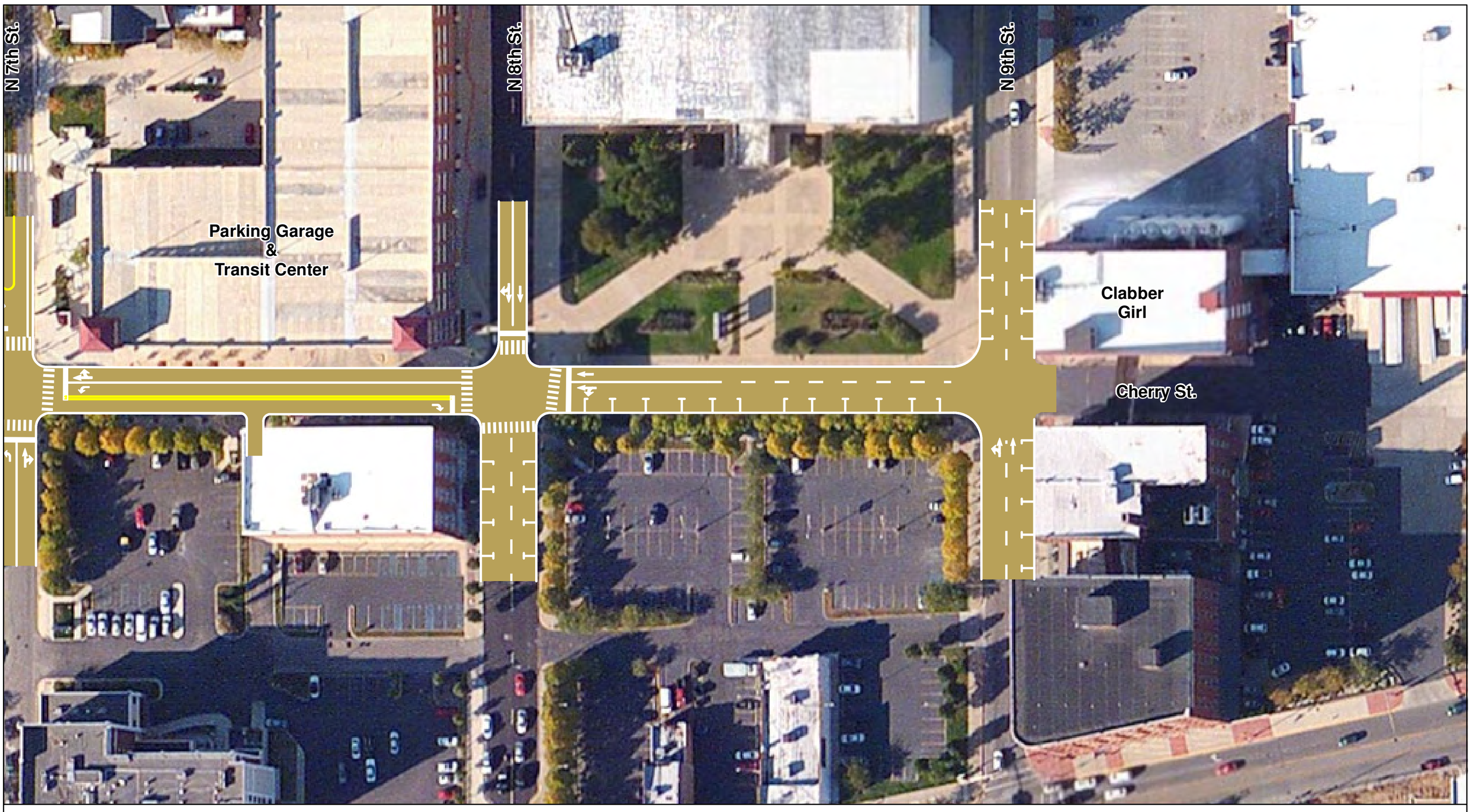
ISU
School of Business

N

Terre Haute Downtown Traffic Study
Alternative 2

0 25 50 100 150
Feet

SHEET 3 OF 4



Terre Haute Downtown Traffic Study
Alternative 2

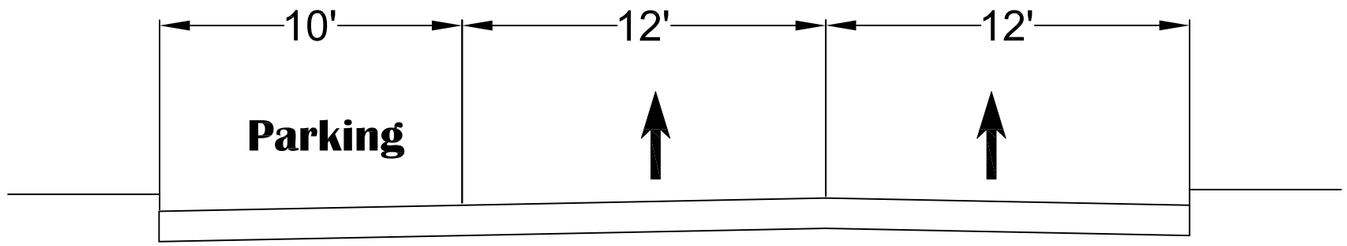
N

0 25 50 100 150
Feet

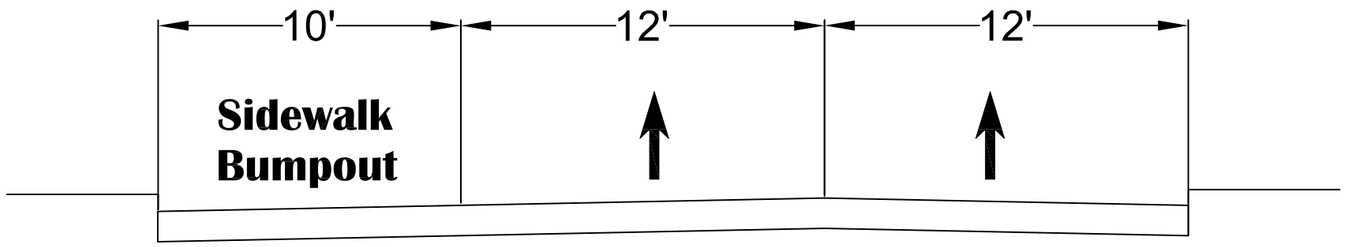
SHEET 4 OF 4

Appendix B

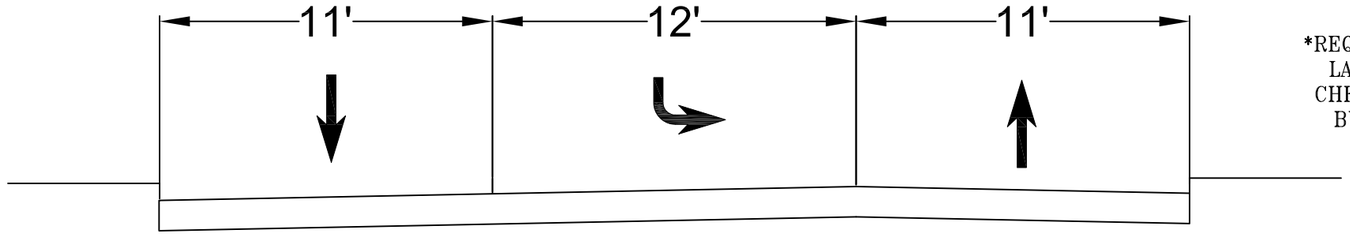
Typical Cross Sections



CHERRY STREET - EXISTING
ONE-WAY WESTBOUND
TYPICAL BETWEEN 4TH ST. AND 9TH ST.



CHERRY STREET - EXISTING
ONE-WAY WESTBOUND
TYPICAL IN FRONT OF ISU SCHOOL OF
BUSINESS, WEST OF 7TH ST.

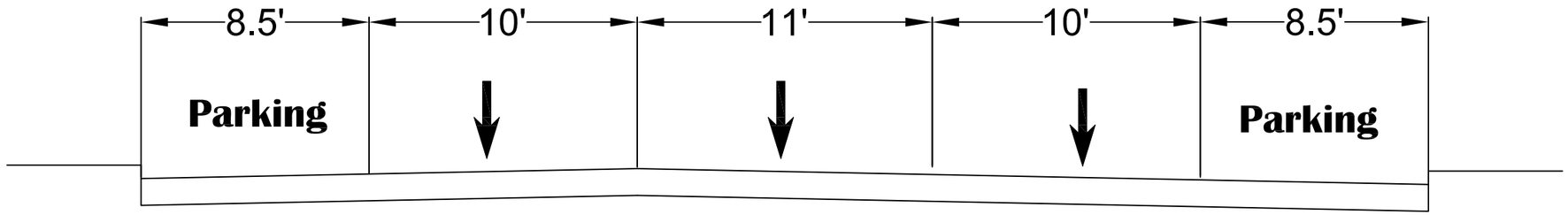


CHERRY STREET -
CONVERSION TO TWO-WAY*

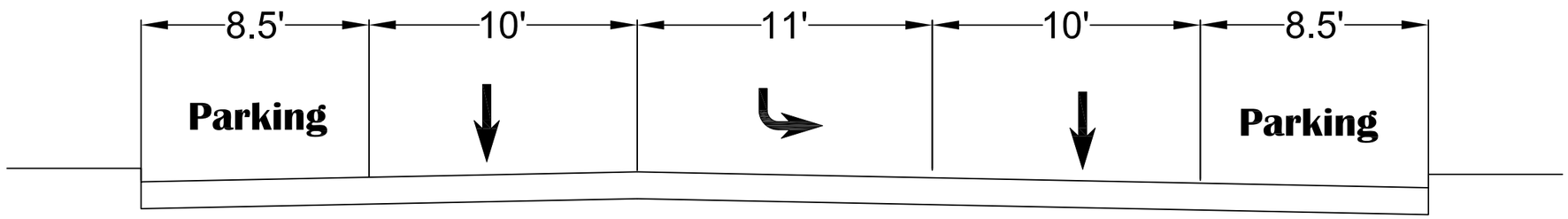
*REQUIRES REMOVAL OF PARKING LANE ALONG SOUTH SIDE OF CHERRY STREET AND SIDEWALK BUMPOUT IN FRONT OF ISU SCHOOL OF BUSINESS.

CITY OF TERRE HAUTE
TERRE HAUTE DOWNTOWN TRAFFIC STUDY
CHERRY STREET - CROSS SECTION VIEW
NEAR BUSINESS SCHOOL

SCALE: 1" = 5' SHEET 1 OF 5



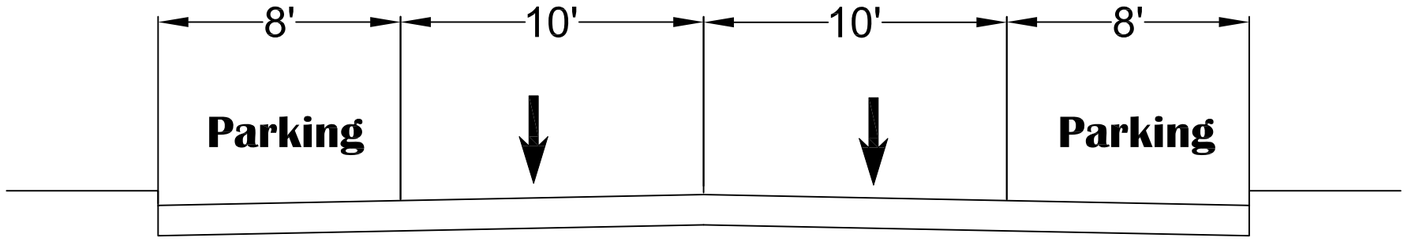
OHIO STREET - EXISTING
ONE-WAY EASTBOUND



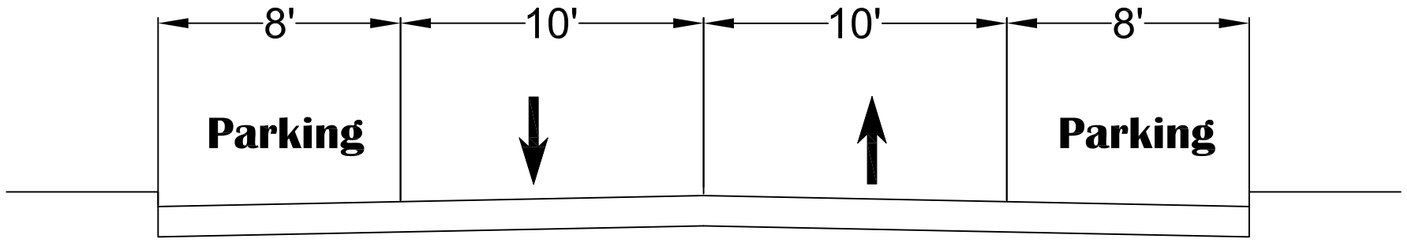
OHIO STREET -
CONVERSION TO TWO-WAY

CITY OF TERRE HAUTE
TERRE HAUTE DOWNTOWN TRAFFIC STUDY
OHIO STREET - CROSS SECTION VIEW
TYPICAL

SCALE: 1" = 5'



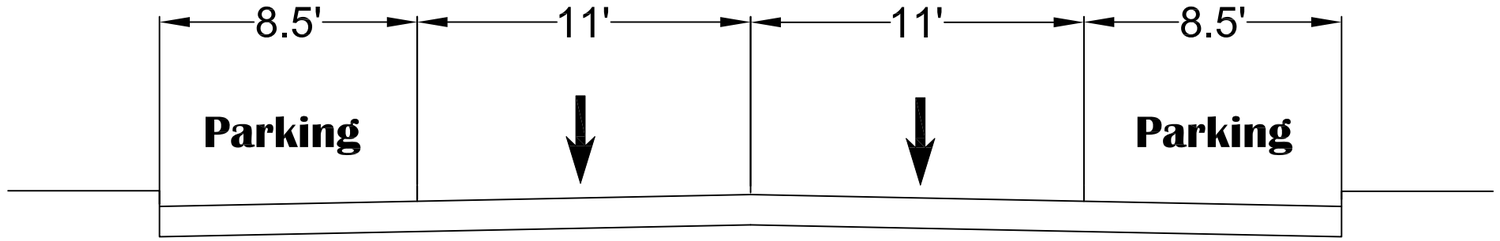
WALNUT STREET - EXISTING
ONE-WAY WESTBOUND



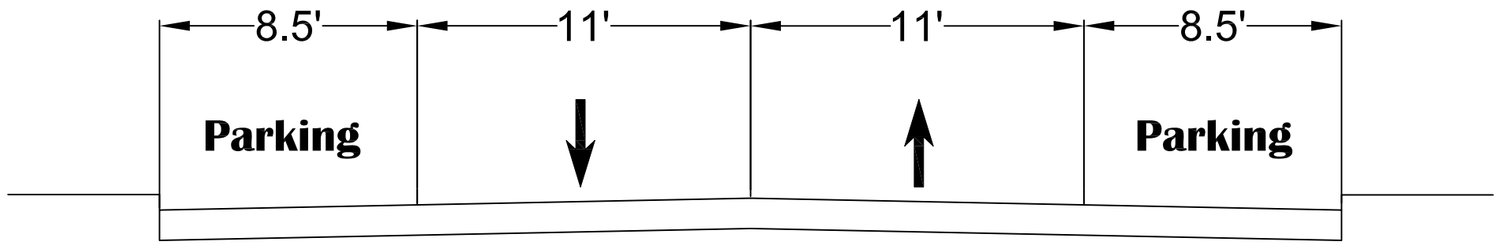
WALNUT STREET -
CONVERSION TO TWO-WAY

CITY OF TERRE HAUTE
TERRE HAUTE DOWNTOWN TRAFFIC STUDY
WALNUT STREET - CROSS SECTION VIEW
TYPICAL

SCALE: 1" = 5'



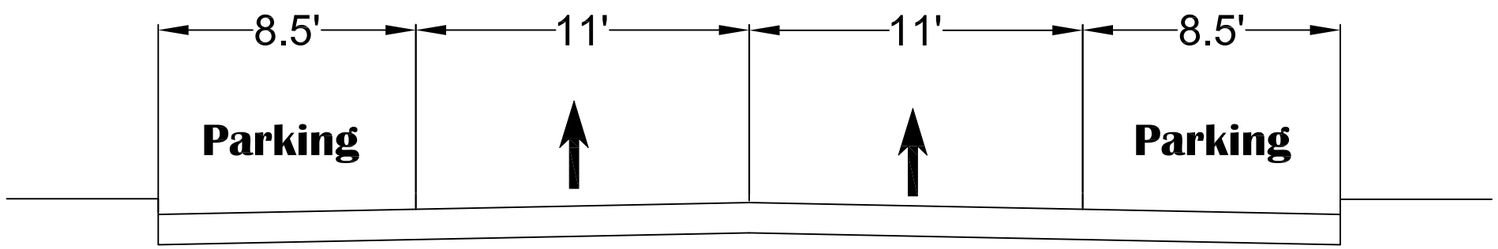
8TH STREET - EXISTING
ONE-WAY SOUTHBOUND



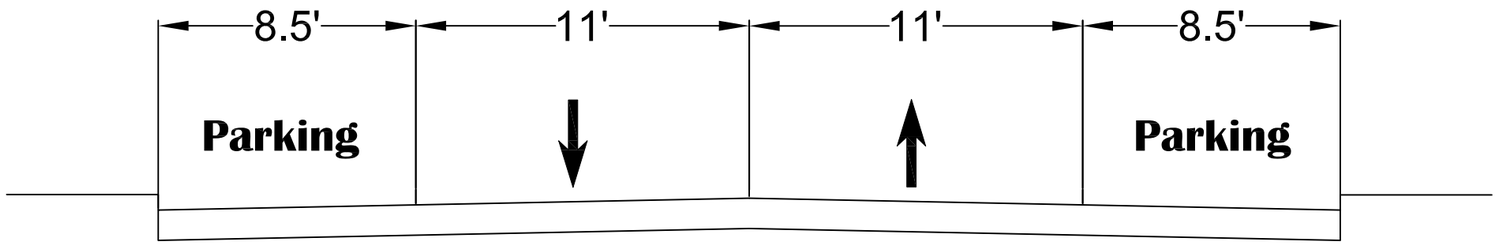
8TH STREET -
CONVERSION TO TWO-WAY

CITY OF TERRE HAUTE
TERRE HAUTE DOWNTOWN TRAFFIC STUDY
8TH STREET - CROSS SECTION VIEW
TYPICAL

SCALE: 1" = 5'



9TH STREET - EXISTING
ONE-WAY NORTHBOUND



9TH STREET -
CONVERSION TO TWO-WAY

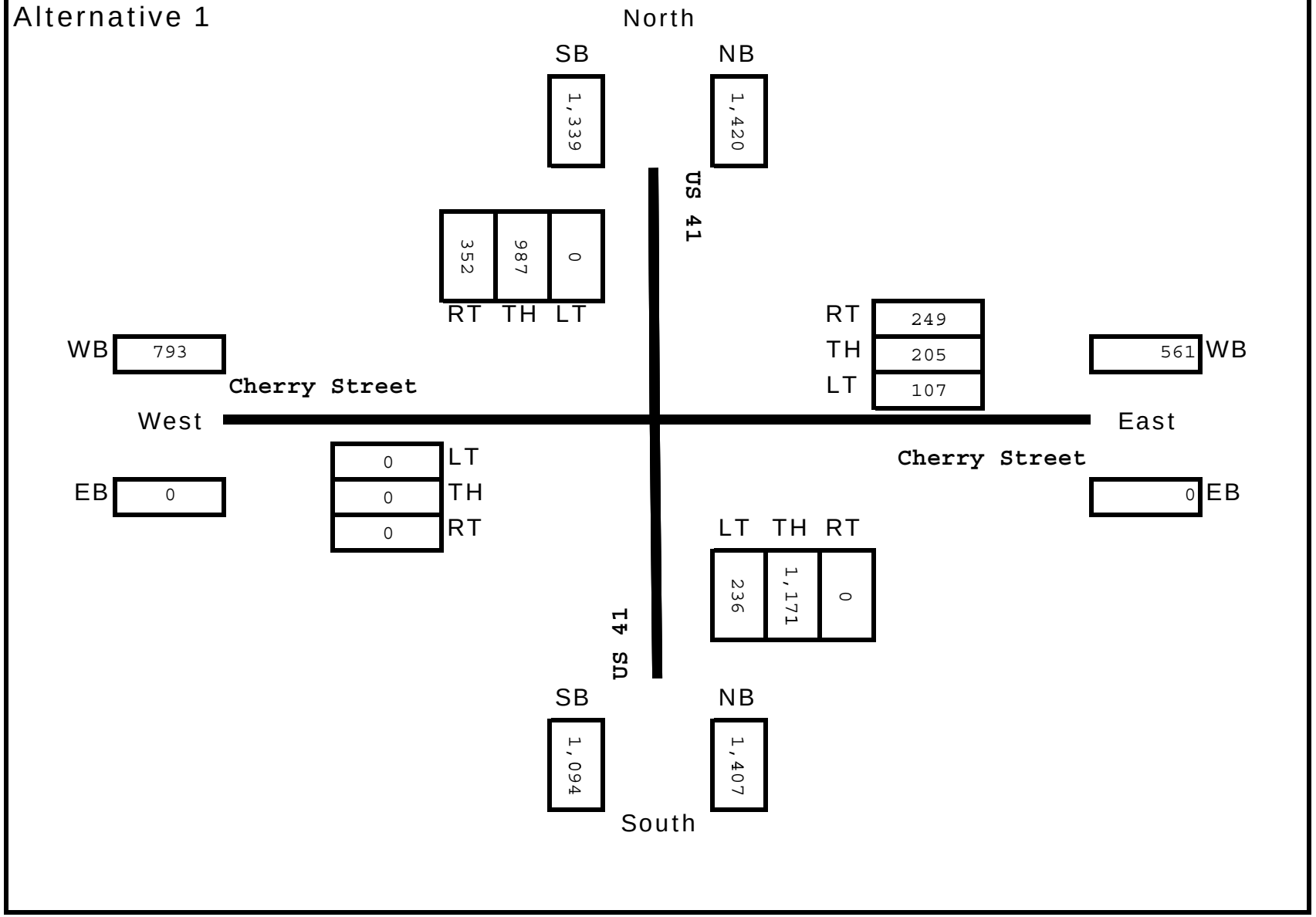
CITY OF TERRE HAUTE
TERRE HAUTE DOWNTOWN TRAFFIC STUDY
9TH STREET - CROSS SECTION VIEW
TYPICAL

SCALE: 1" = 5'

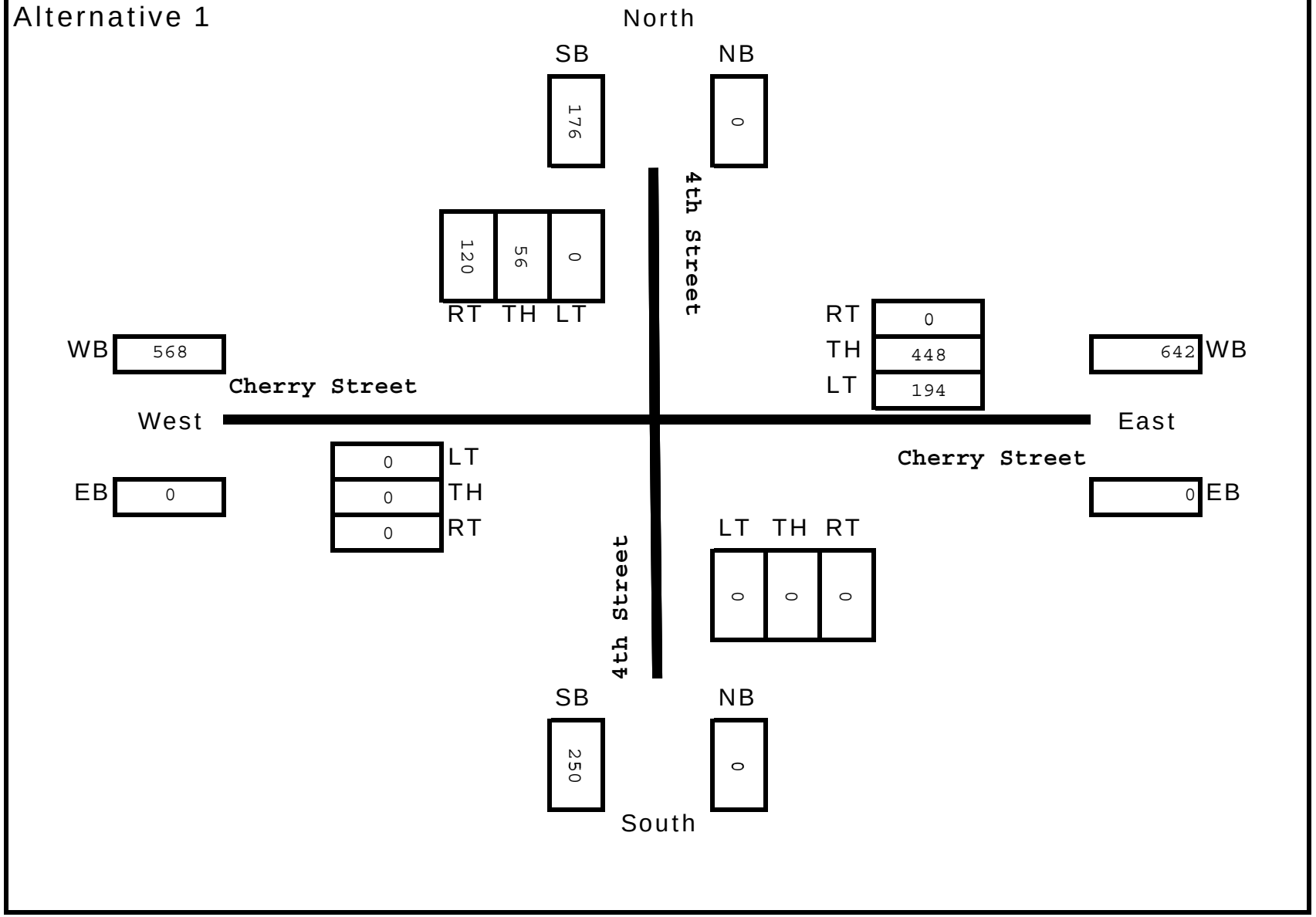
Appendix C

Traffic Data

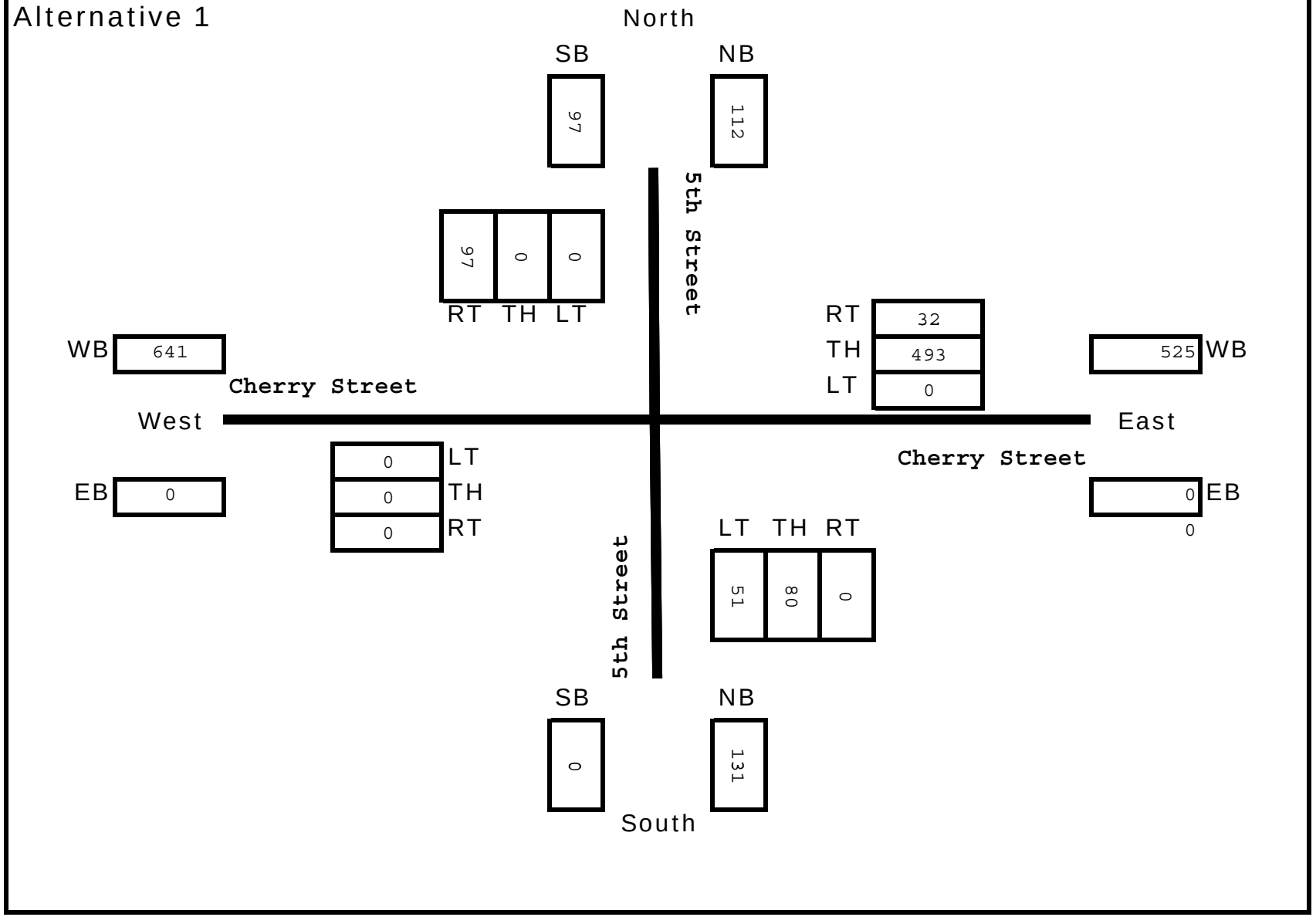
Cherry Street at US 41
PM Turning Movement Forecast
Year 2012
Alternative 1



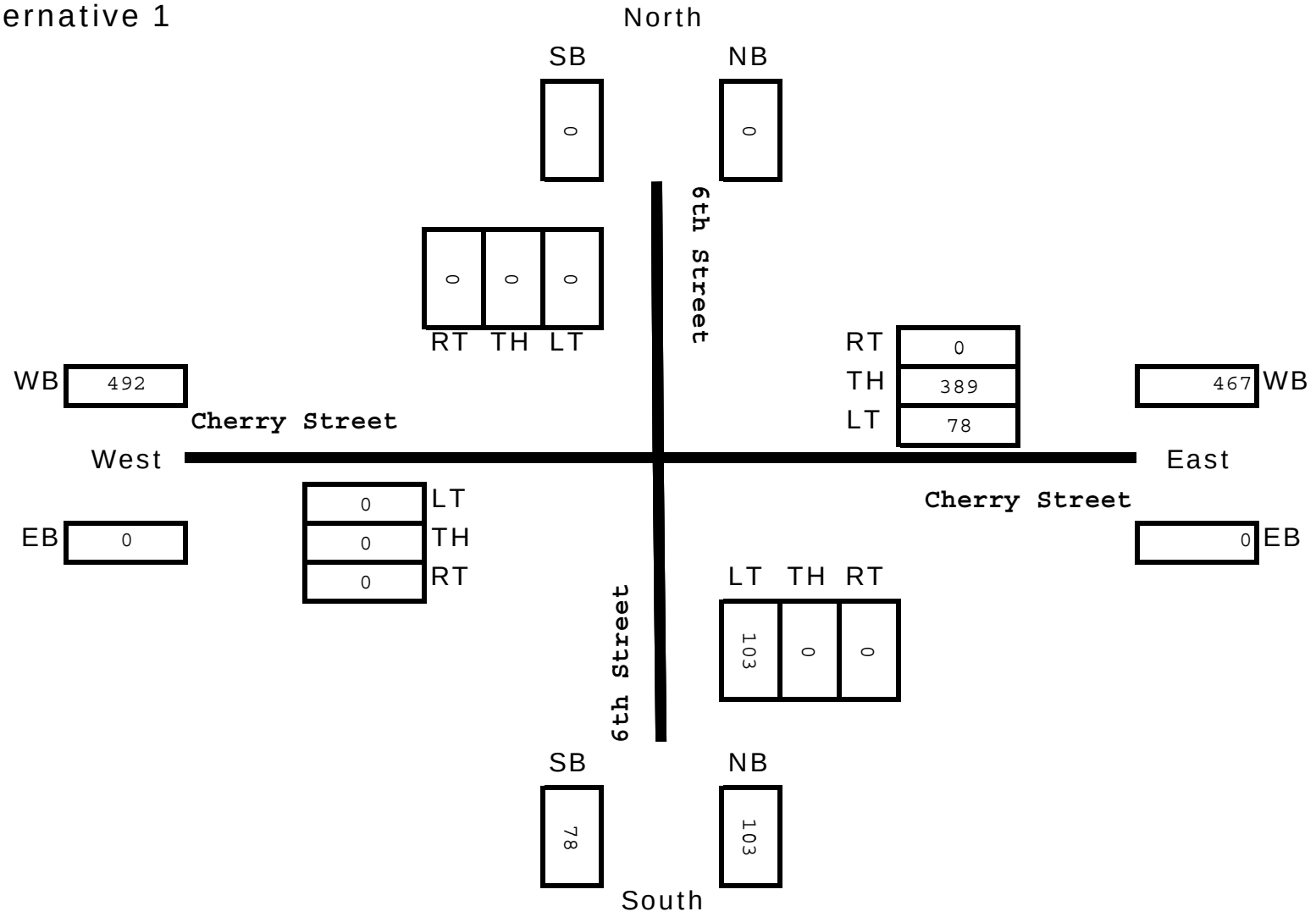
Cherry Street at 4th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



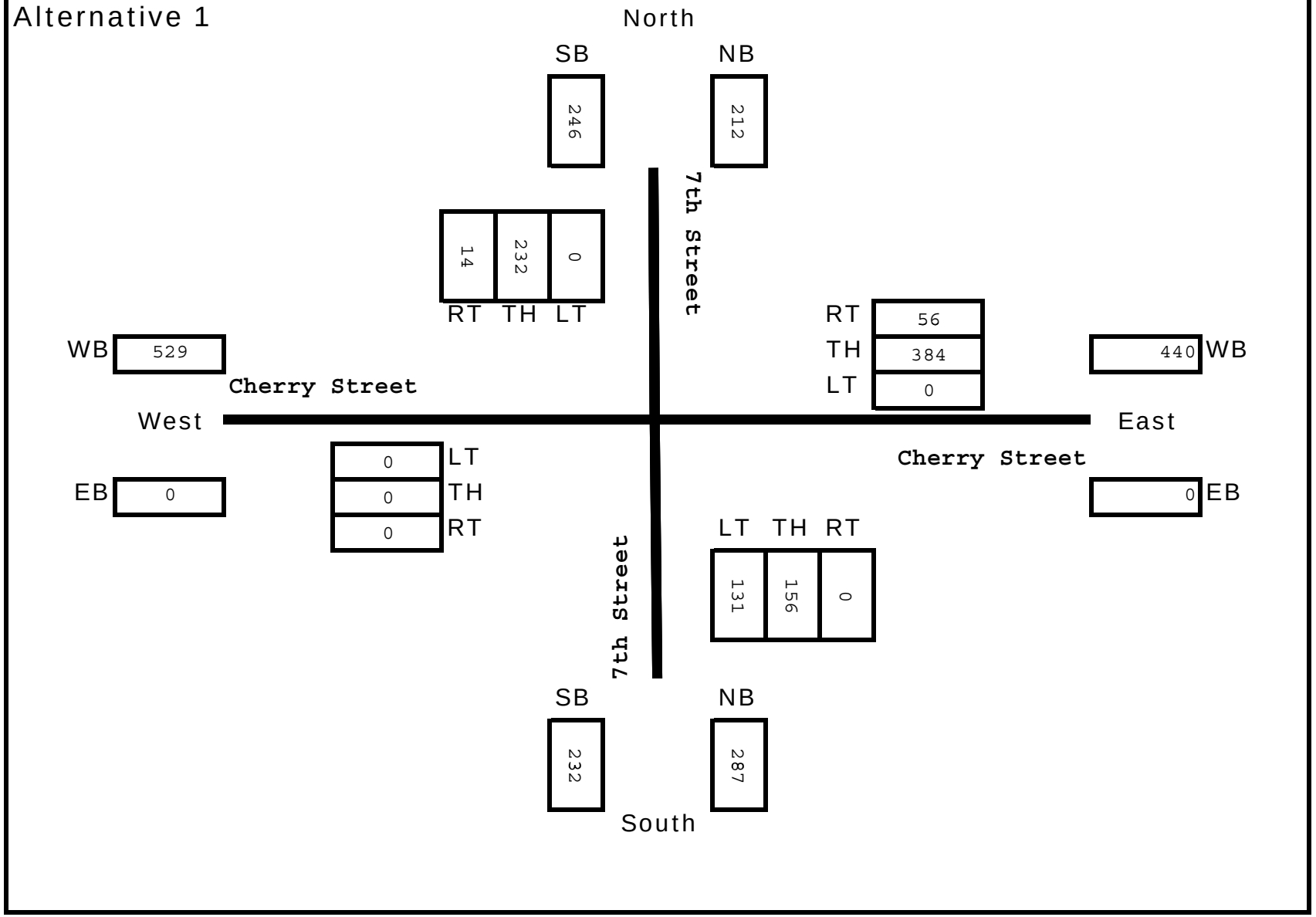
Cherry Street at 5th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



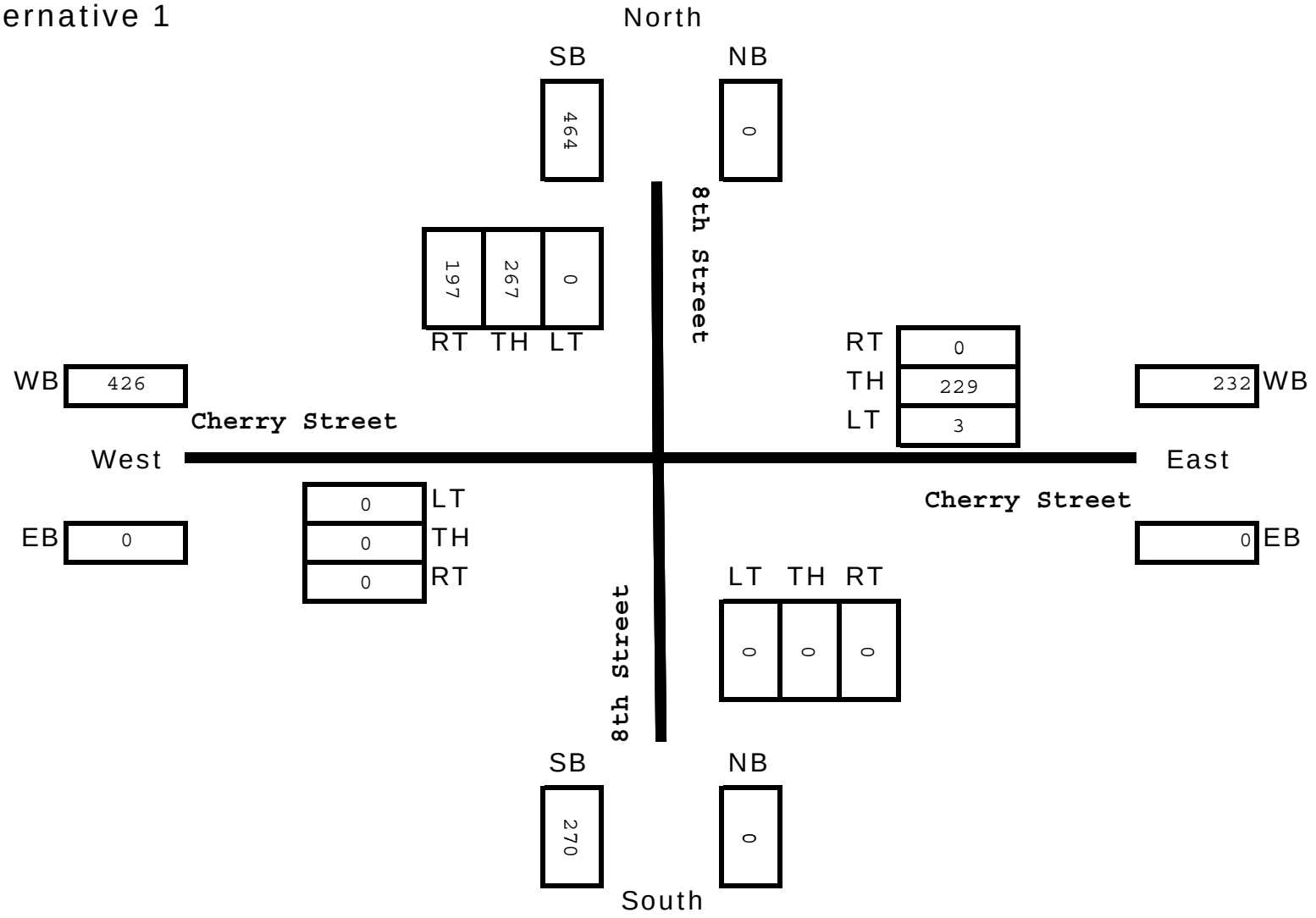
Cherry Street at 6th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



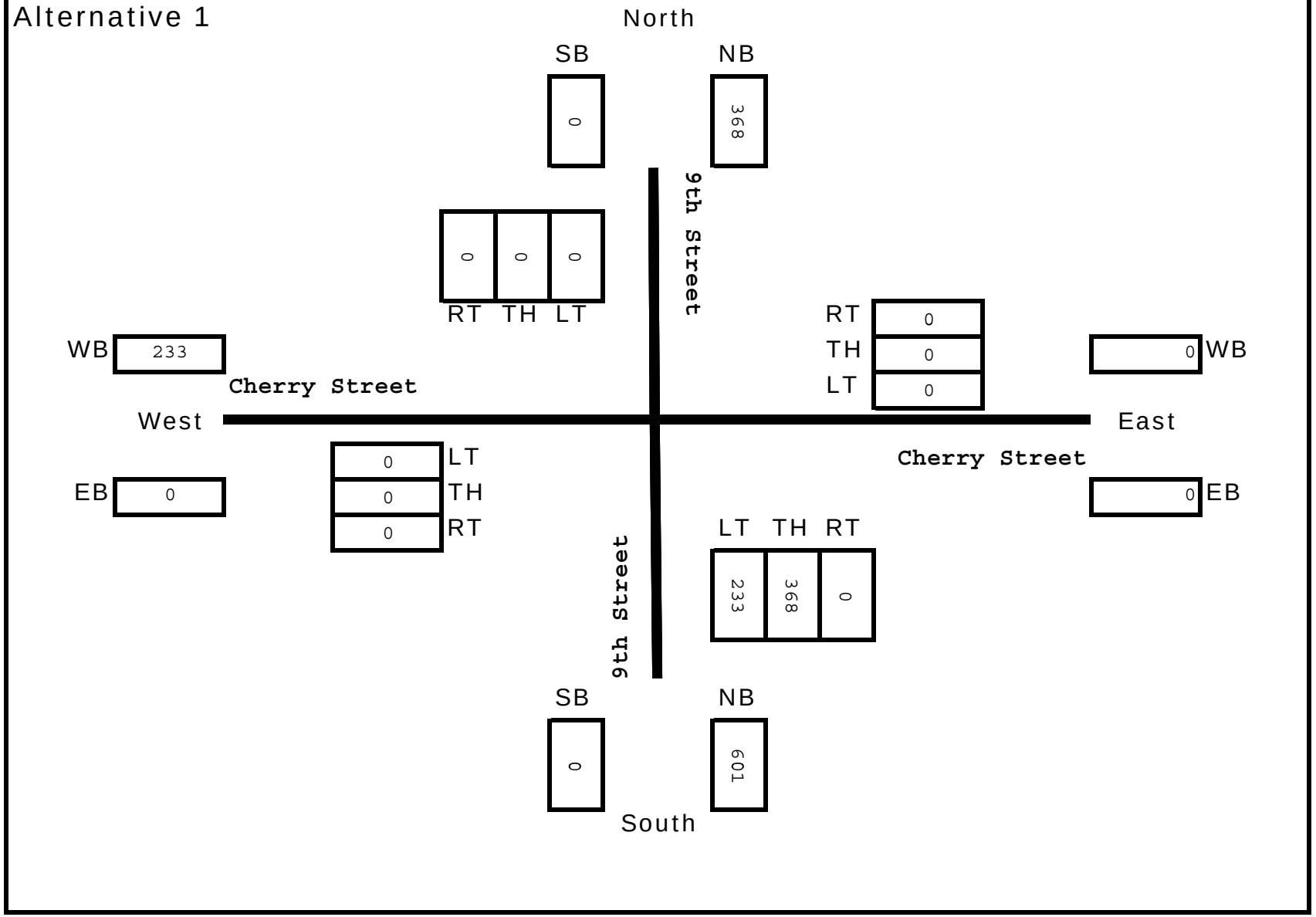
Cherry Street at 7th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



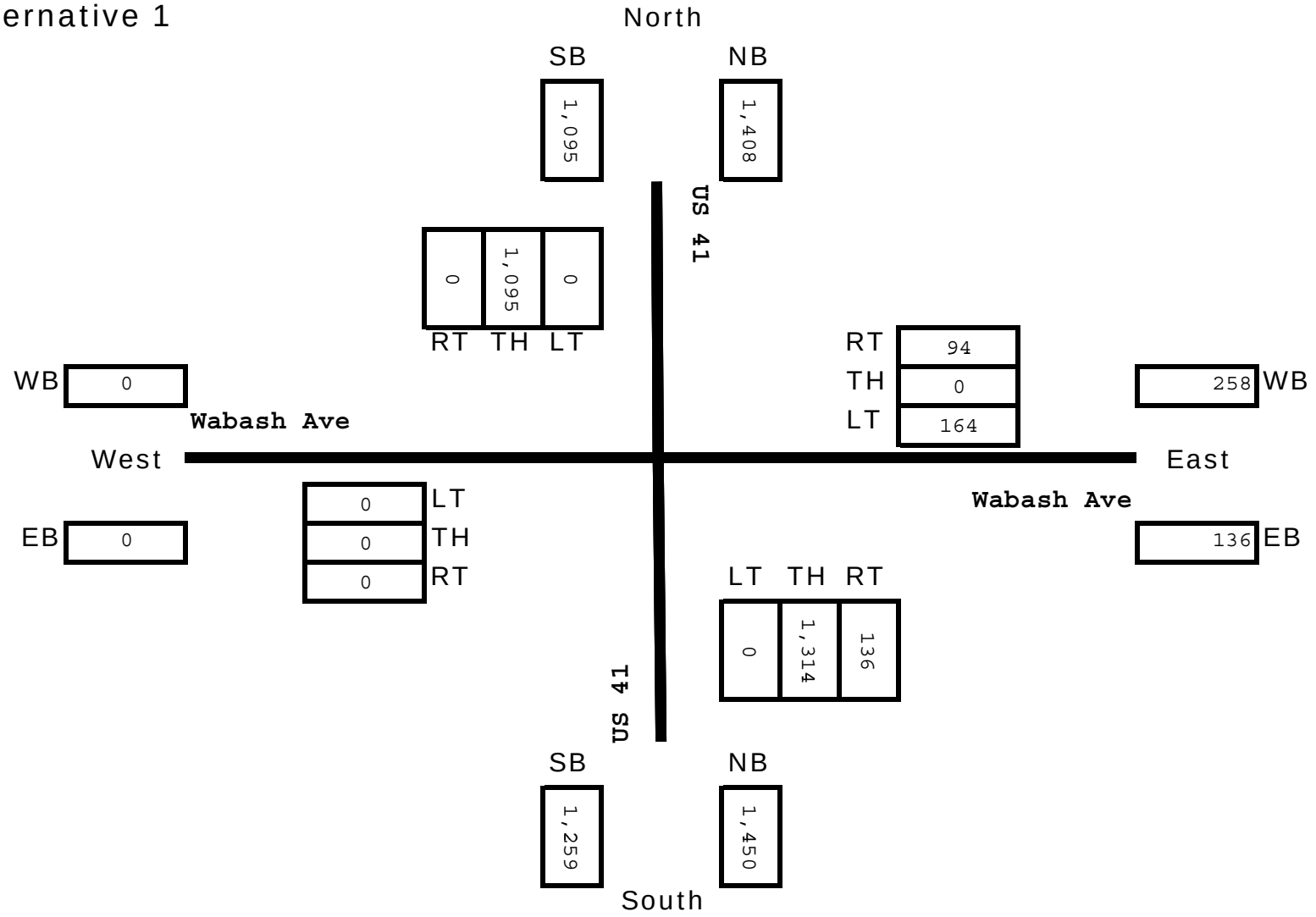
Cherry Street at 8th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



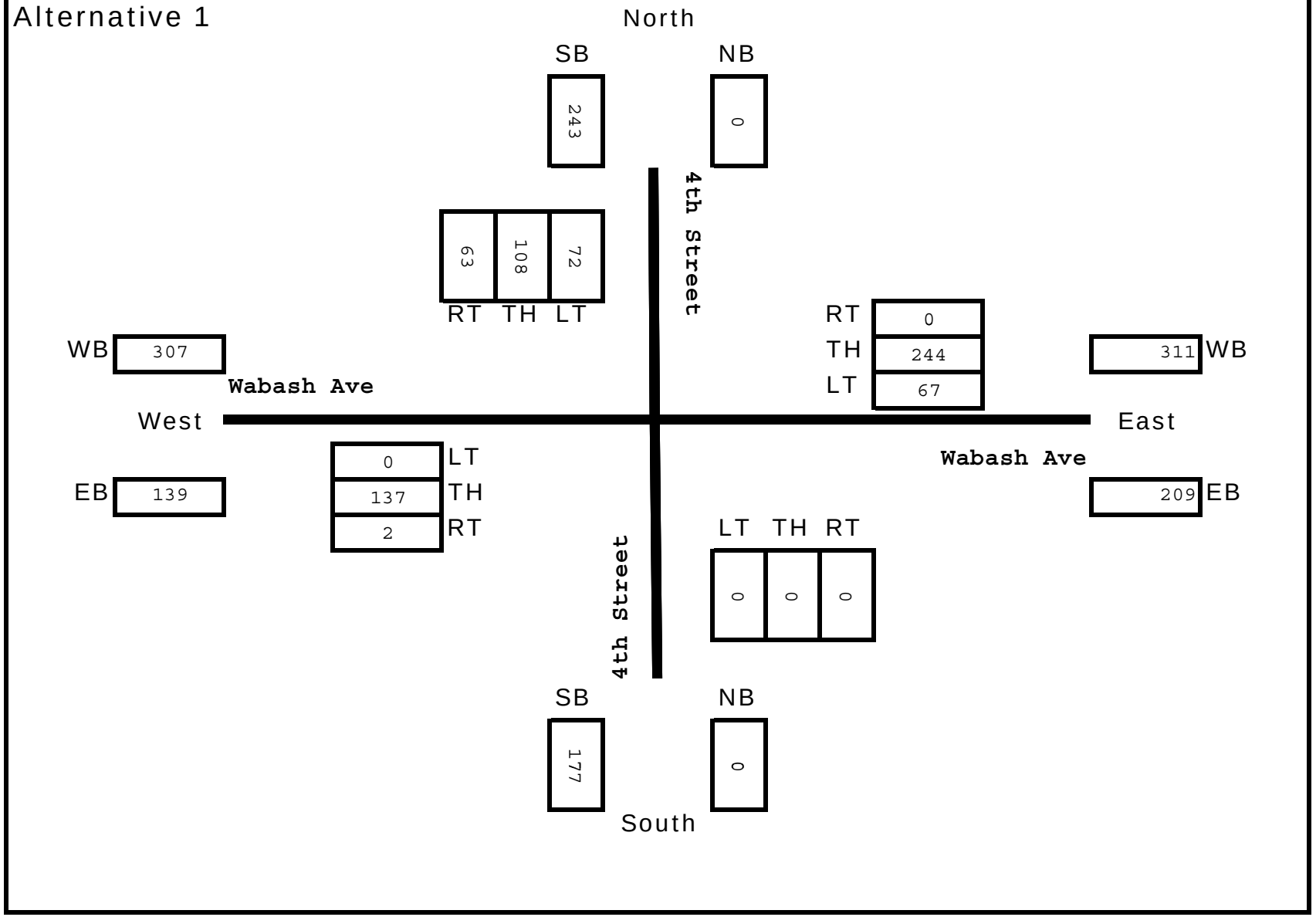
Cherry Street at 9th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



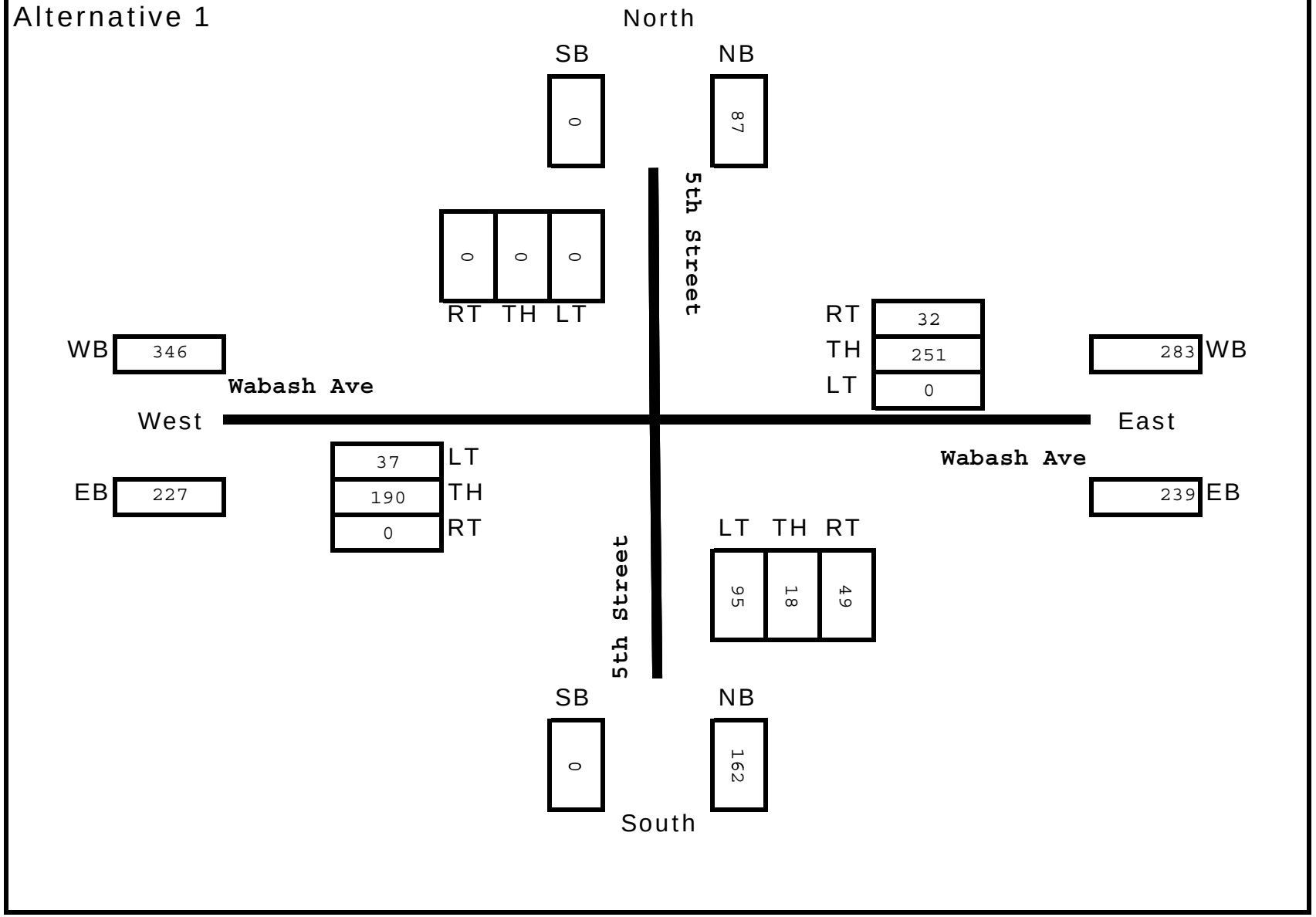
Wabash Ave at US 41
PM Turning Movement Forecast
Year 2012
Alternative 1



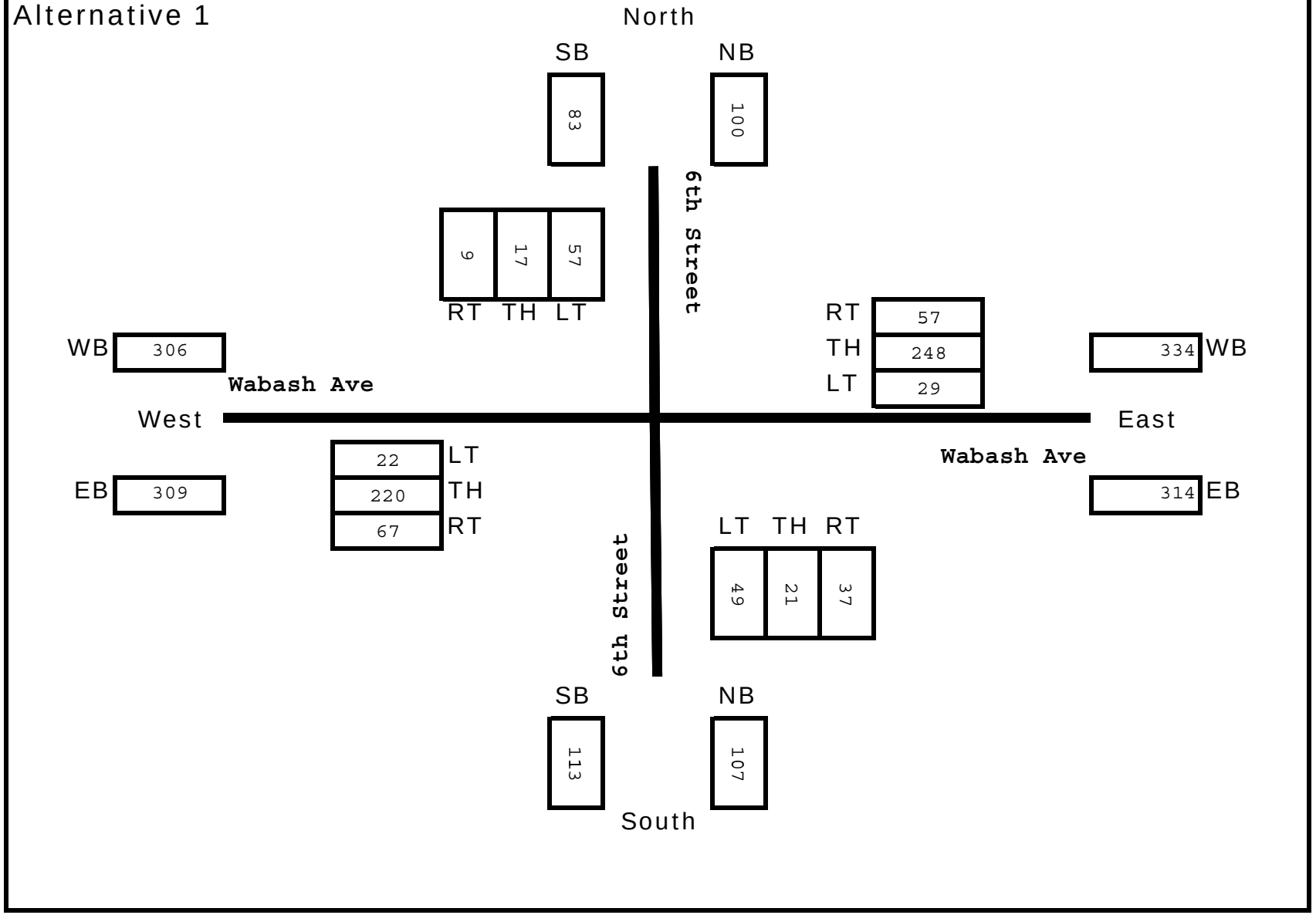
Wabash Ave at 4th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



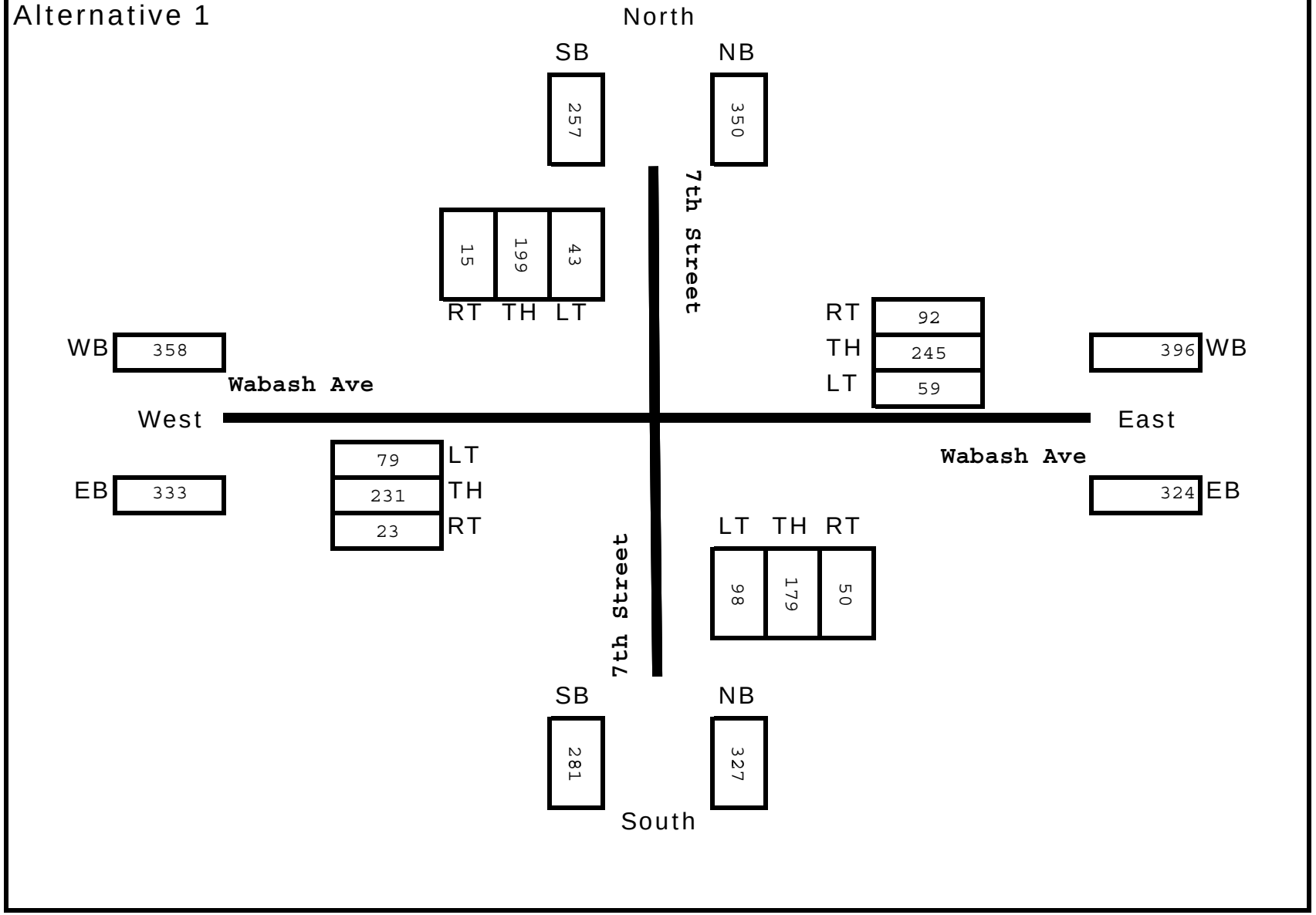
Wabash Ave at 5th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



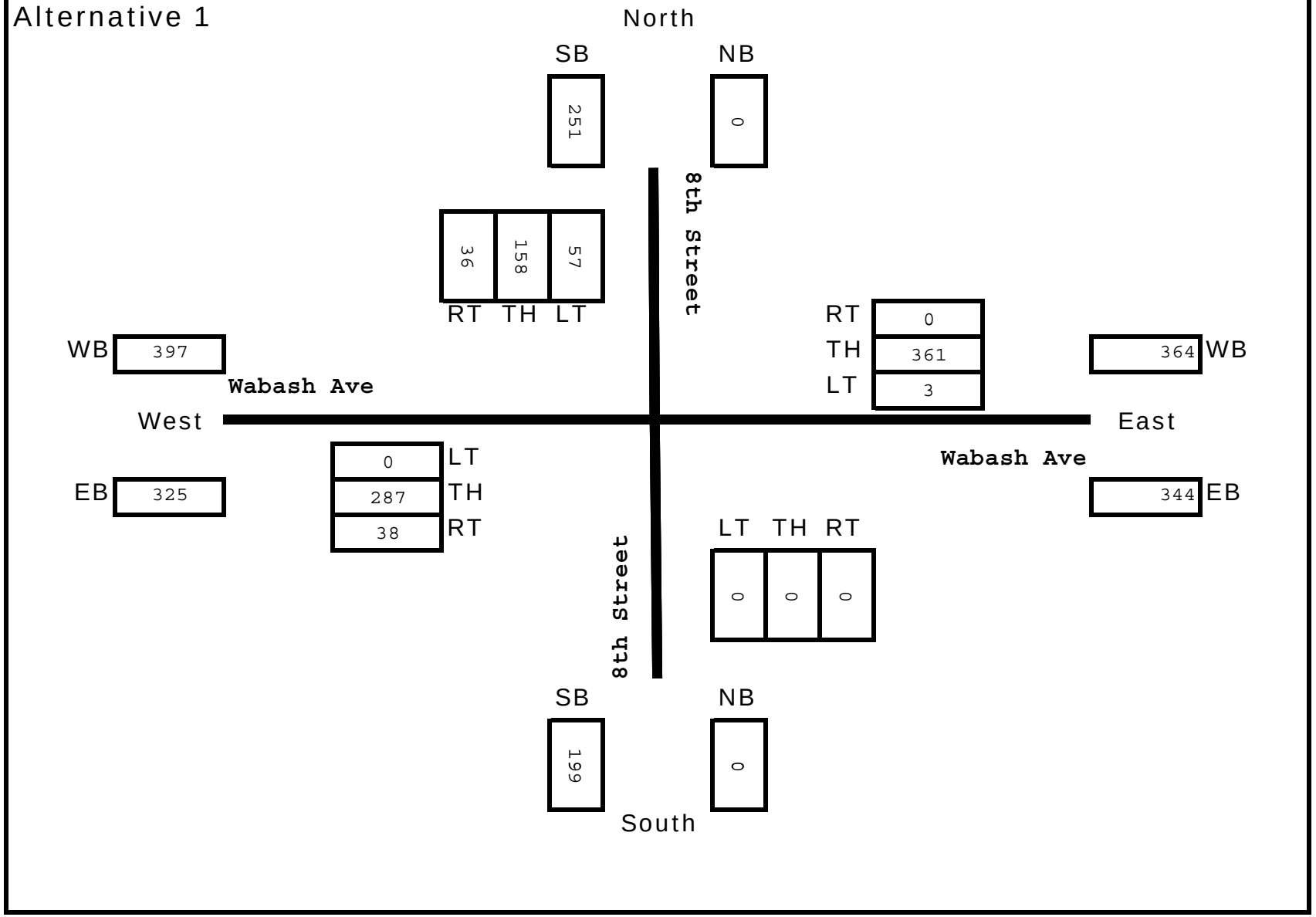
Wabash Ave at 6th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



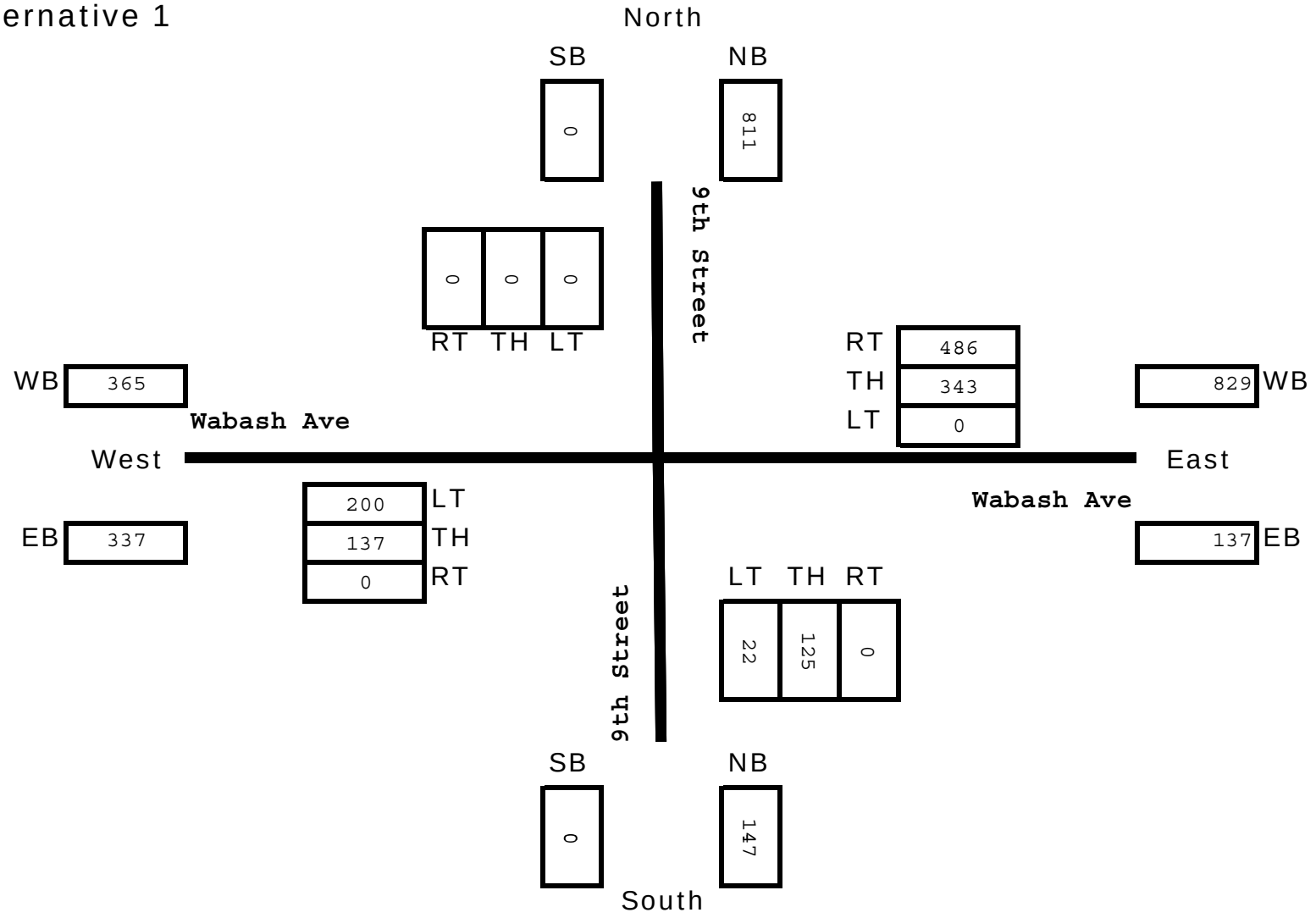
Wabash Ave at 7th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



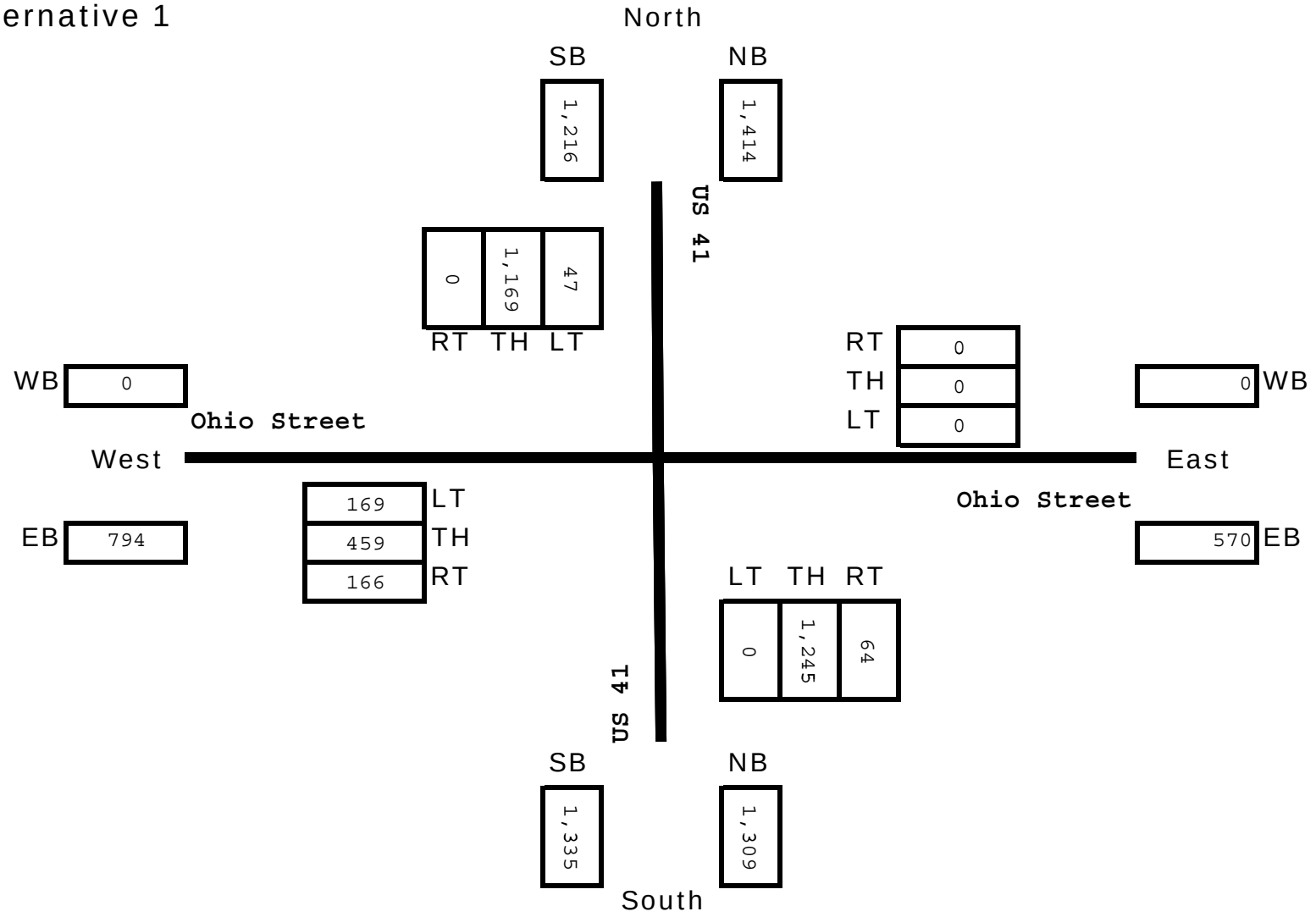
Wabash Ave at 8th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



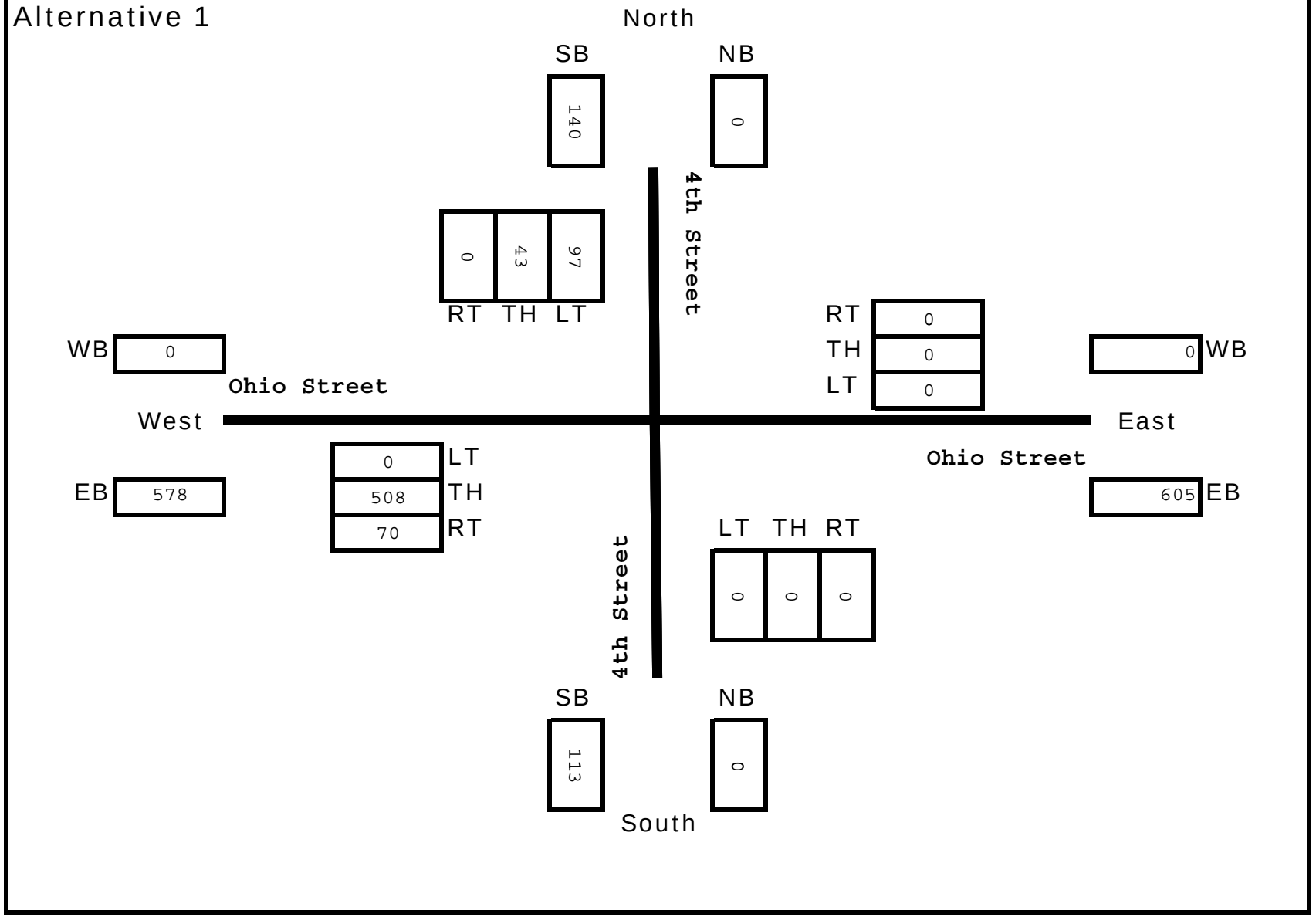
Wabash Ave at 9th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



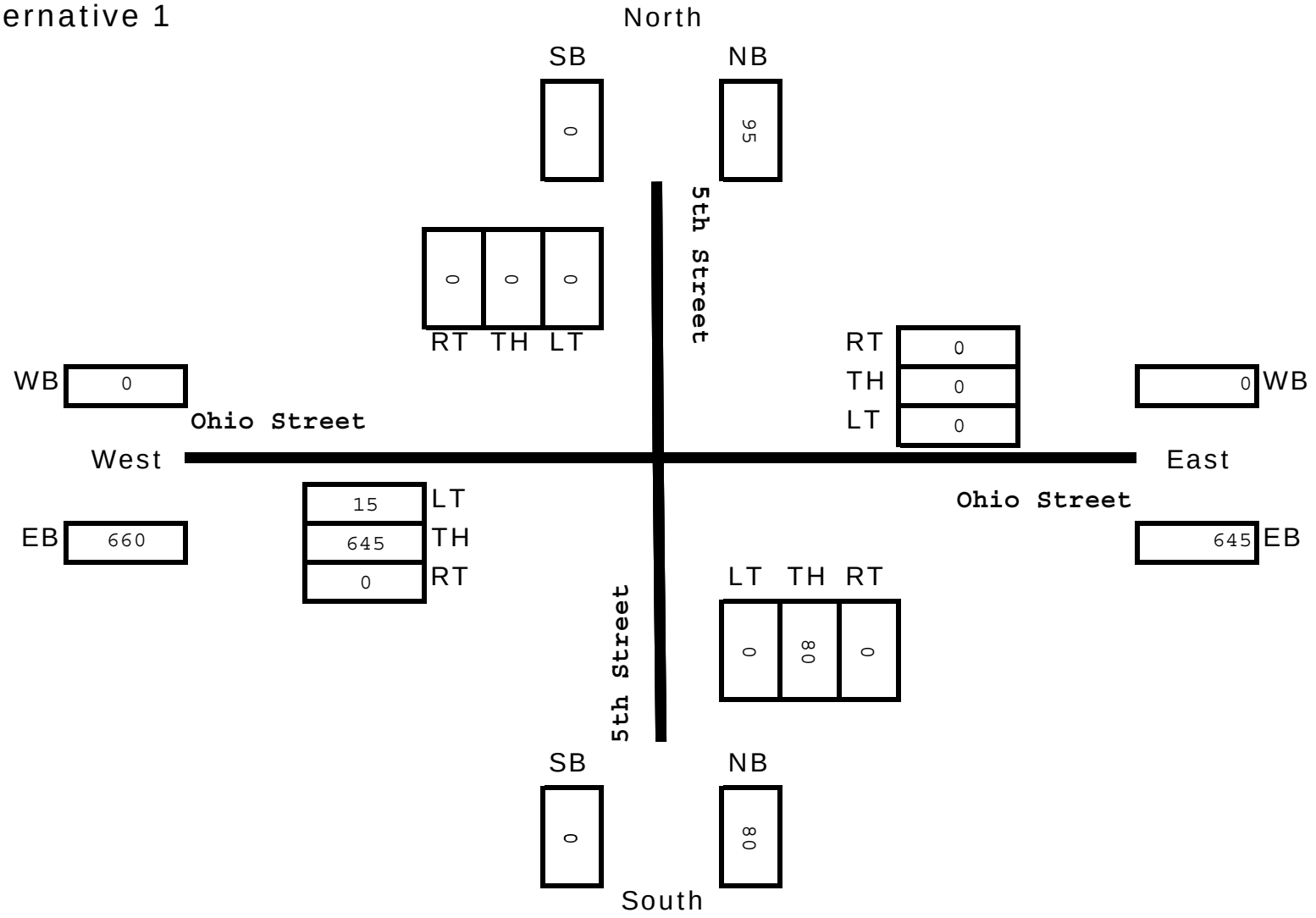
Ohio Street at US 41
PM Turning Movement Forecast
Year 2012
Alternative 1



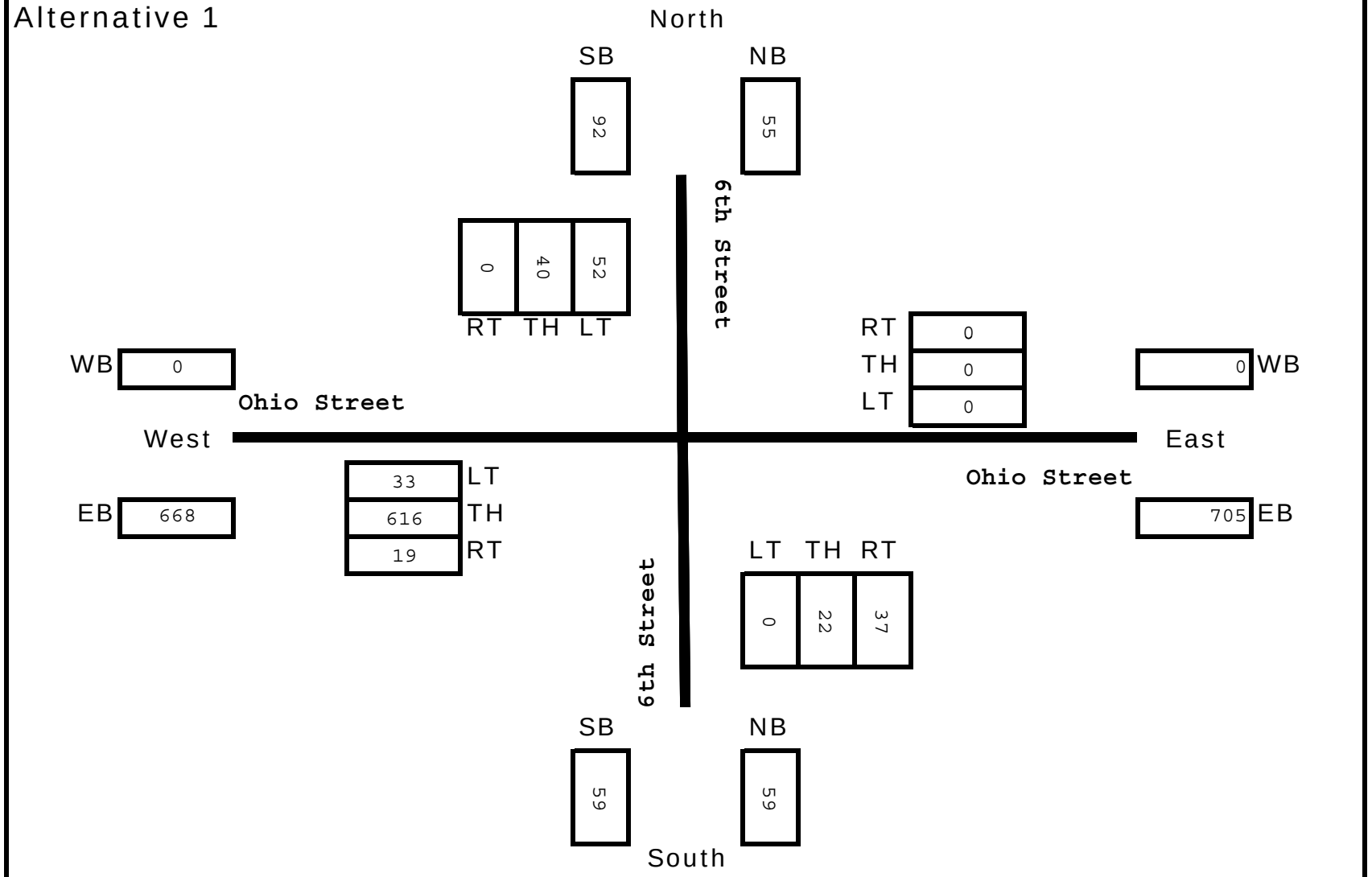
Ohio Street at 4th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



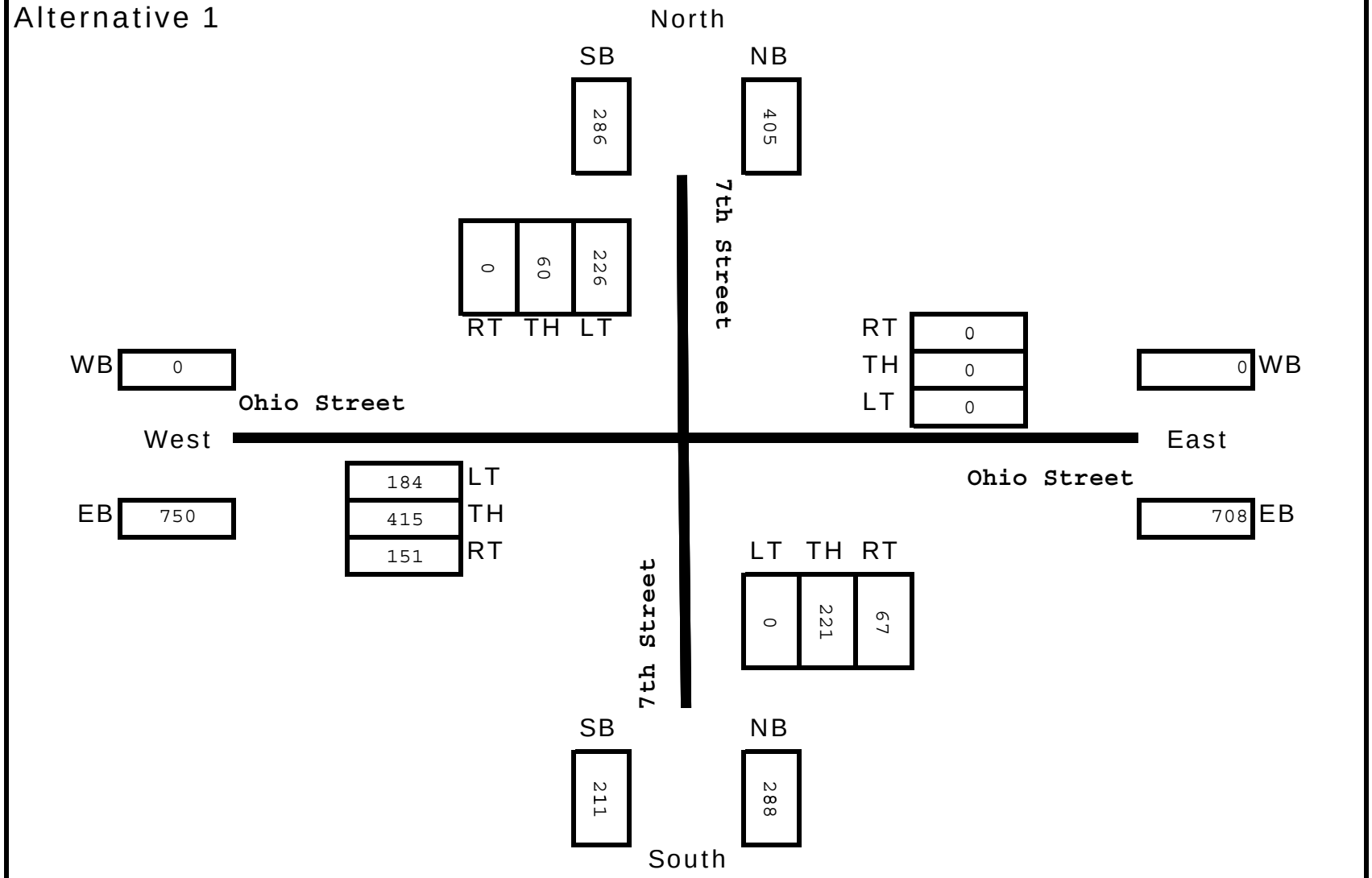
Ohio Street at 5th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



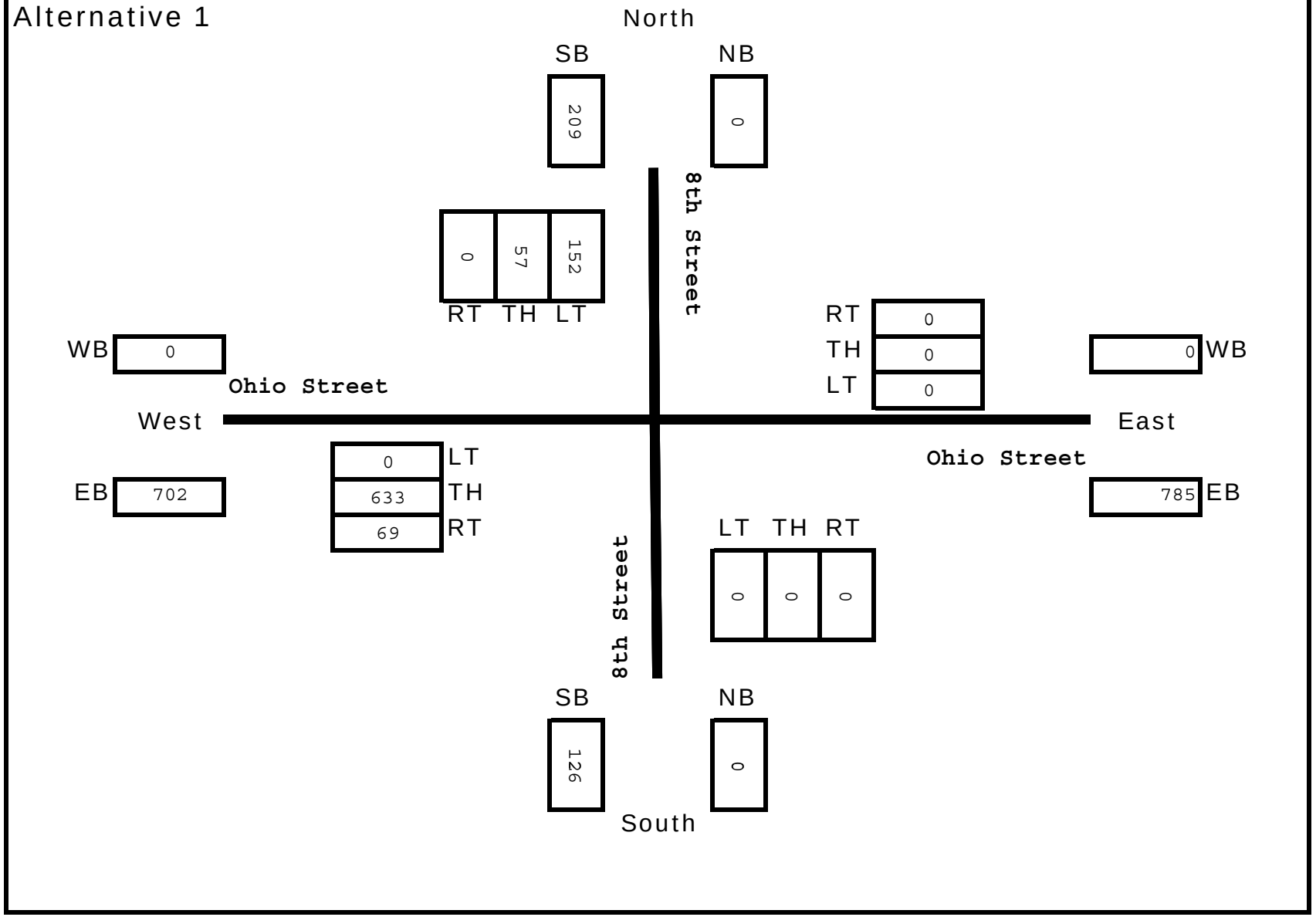
Ohio Street at 6th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



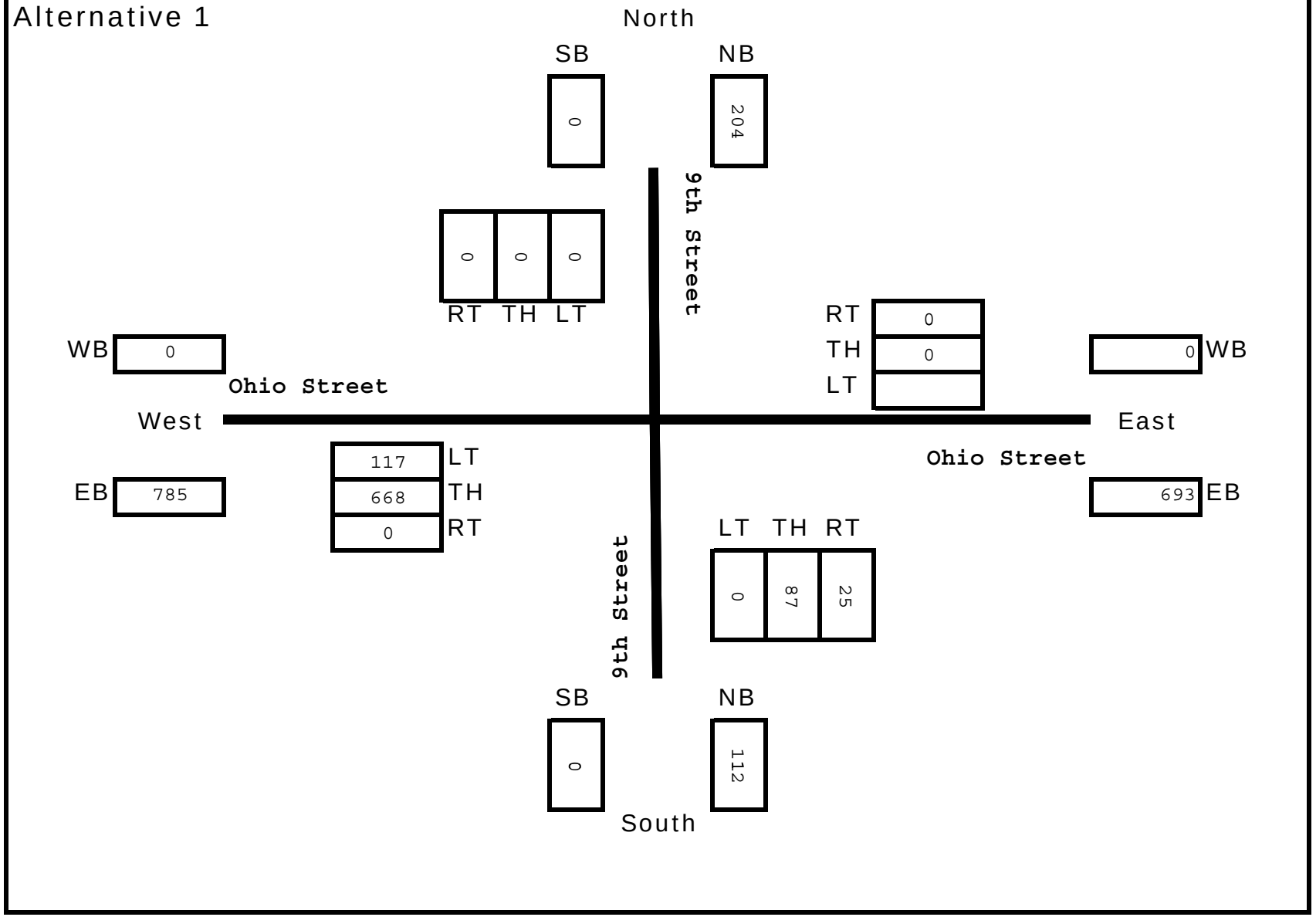
Ohio Street at 7th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



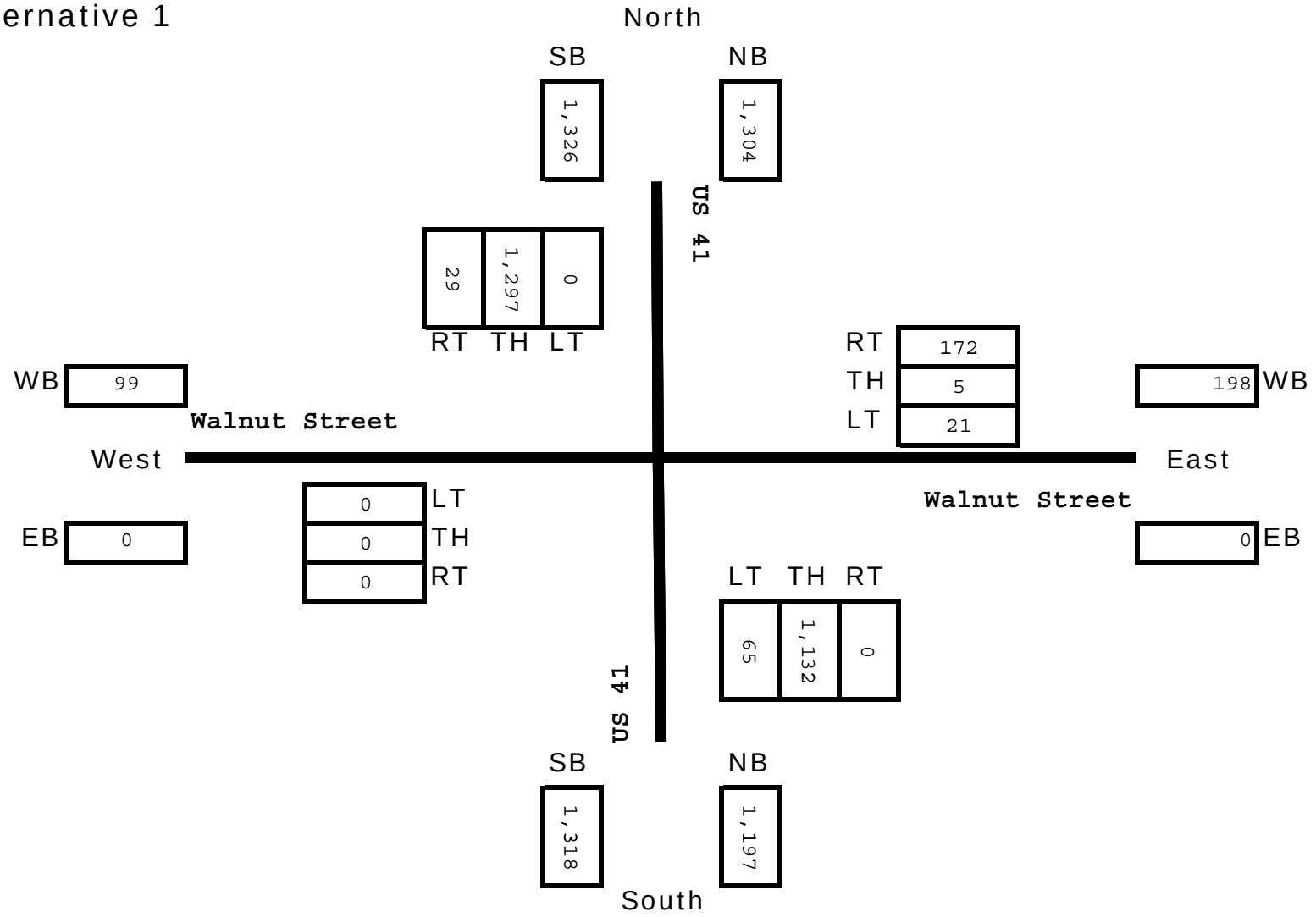
Ohio Street at 8th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



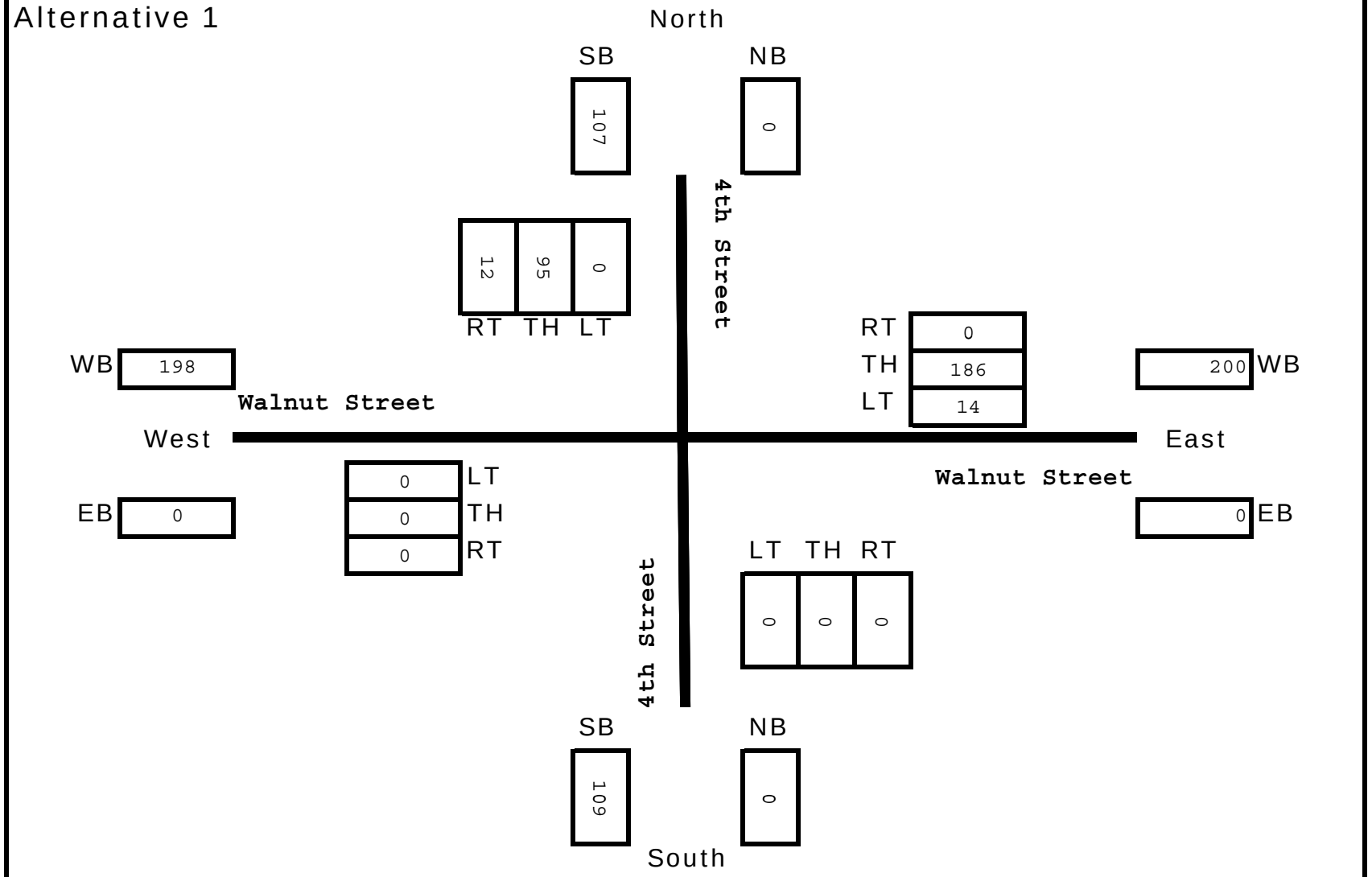
Ohio Street at 9th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



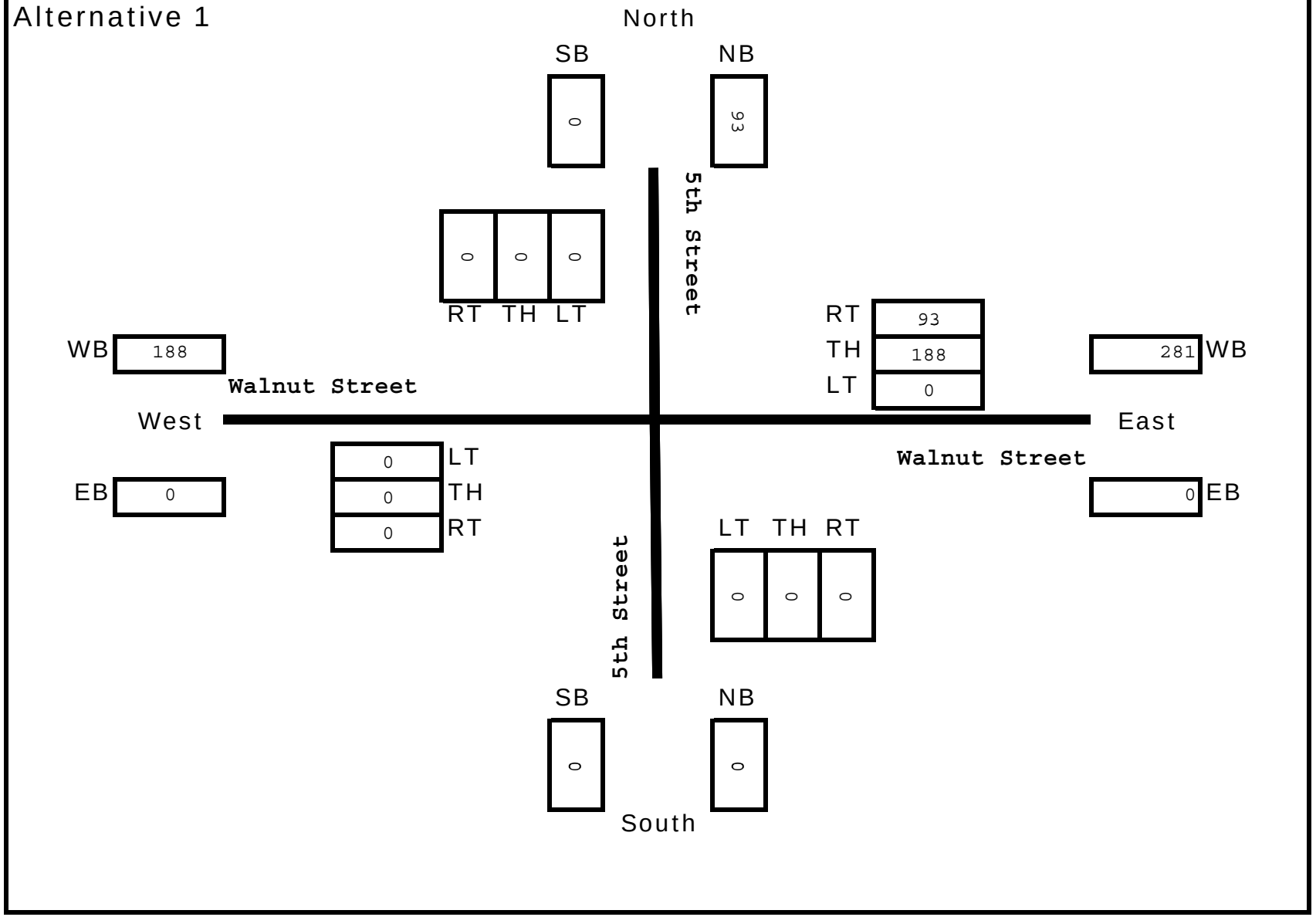
Walnut Street at US 41
PM Turning Movement Forecast
Year 2012
Alternative 1



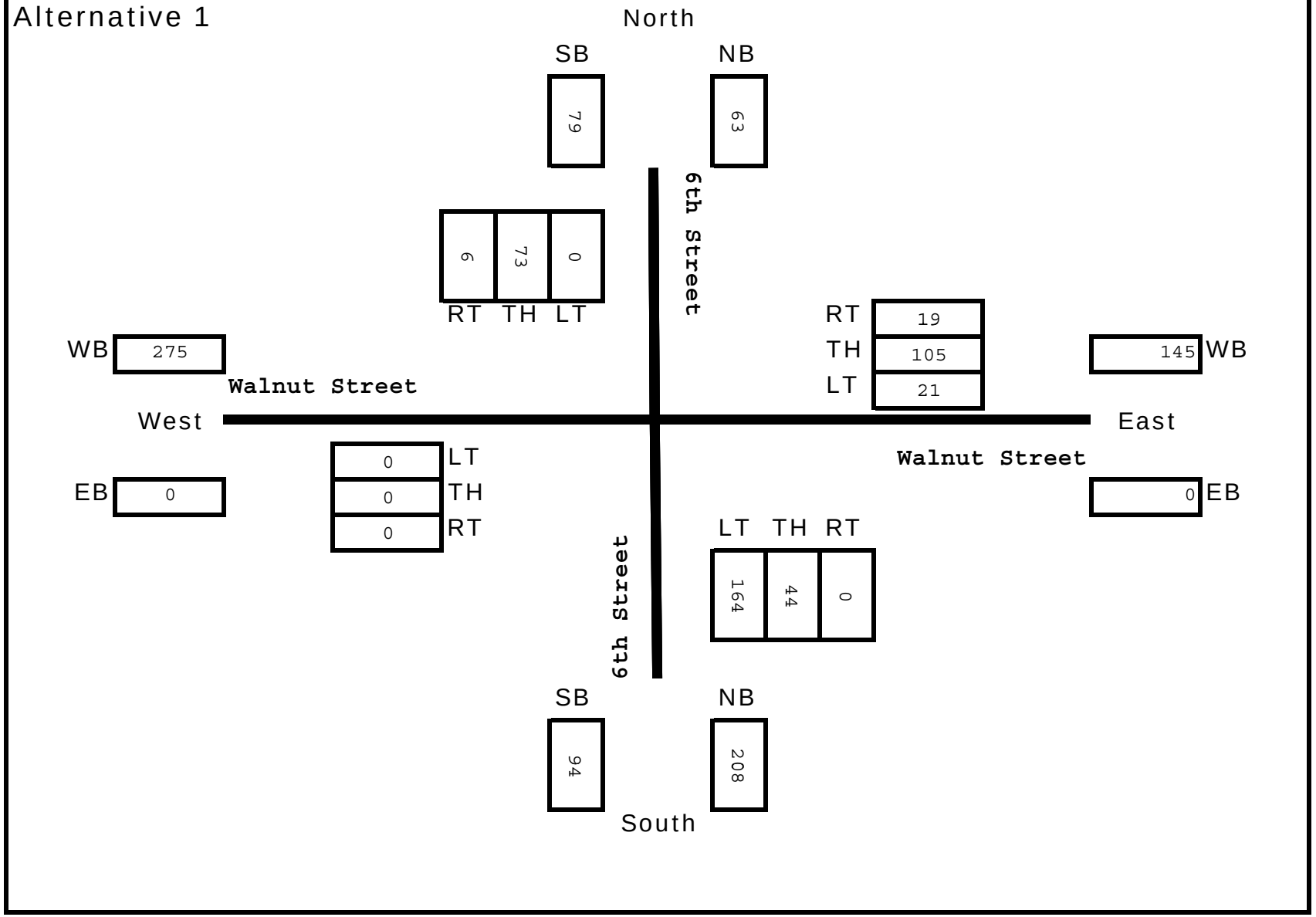
Walnut Street at 4th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



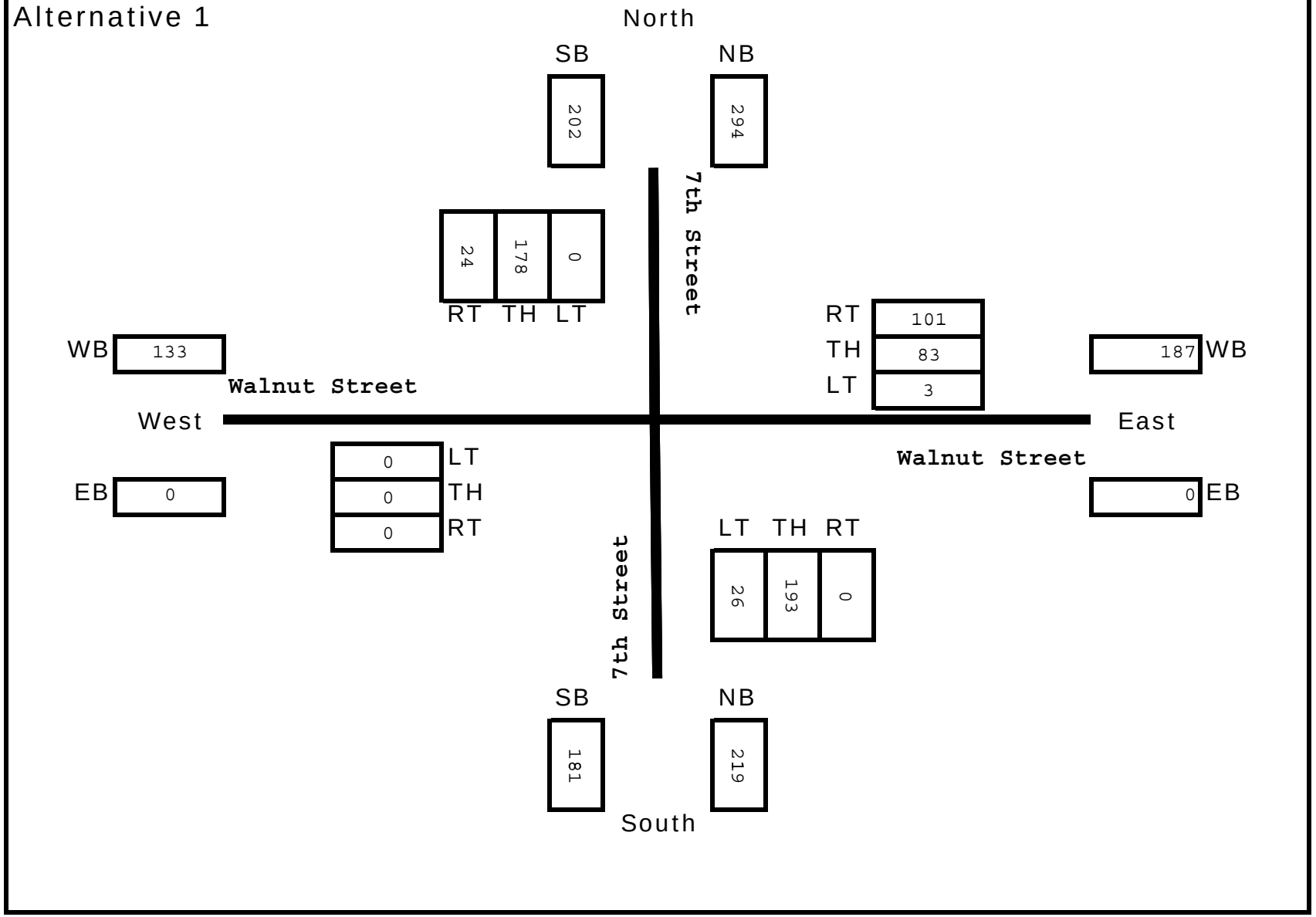
Walnut Street at 5th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



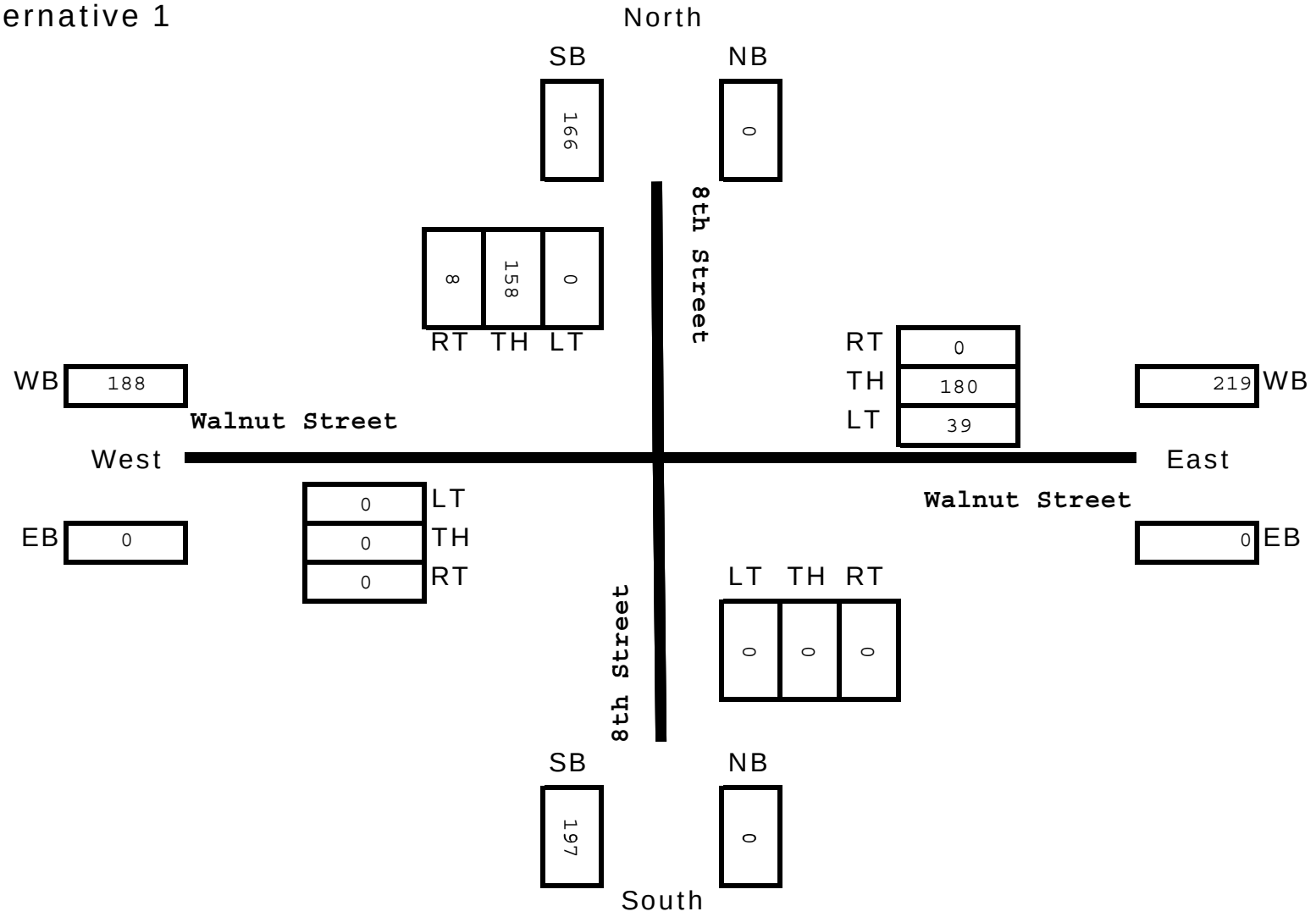
Walnut Street at 6th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



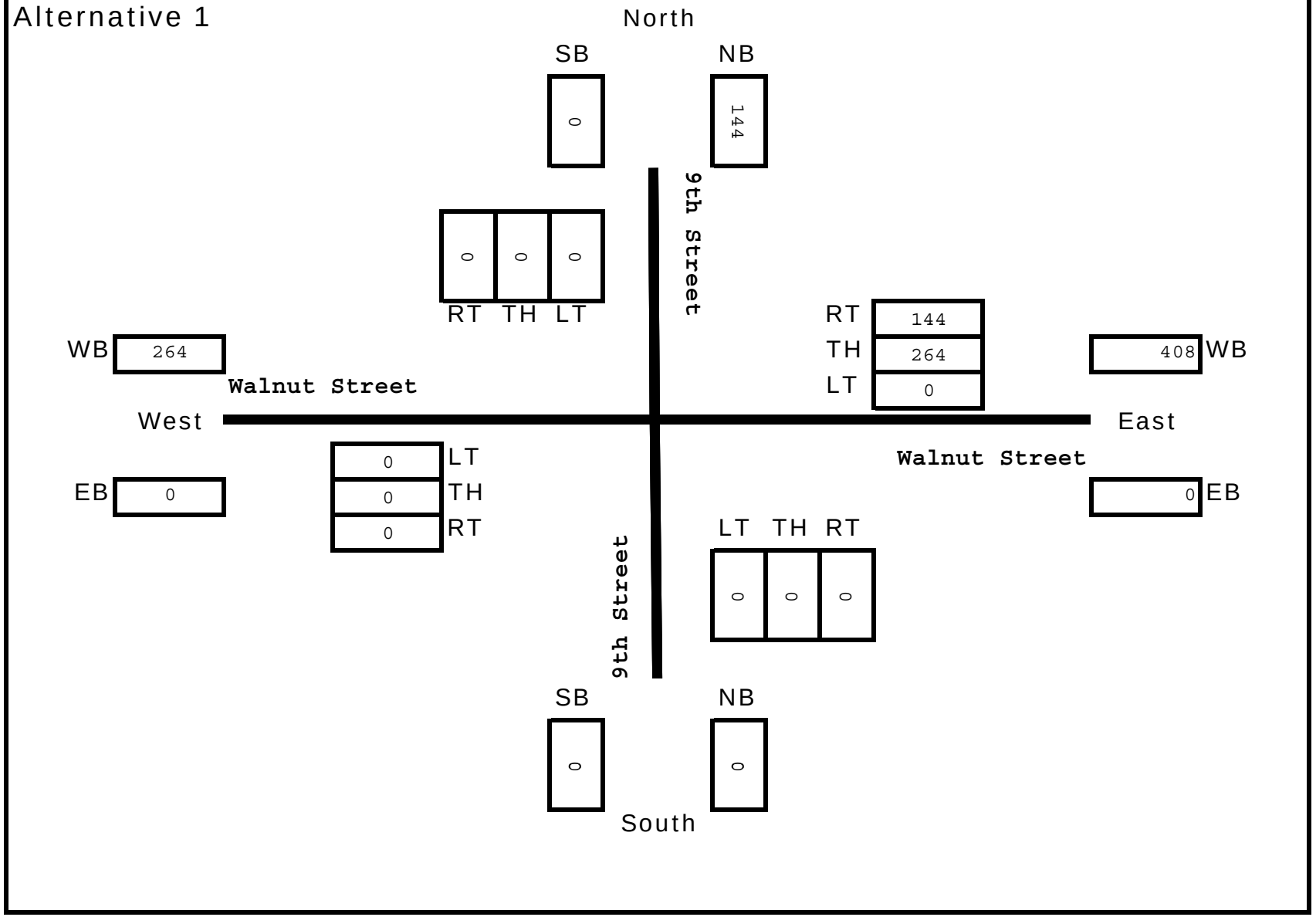
Walnut Street at 7th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



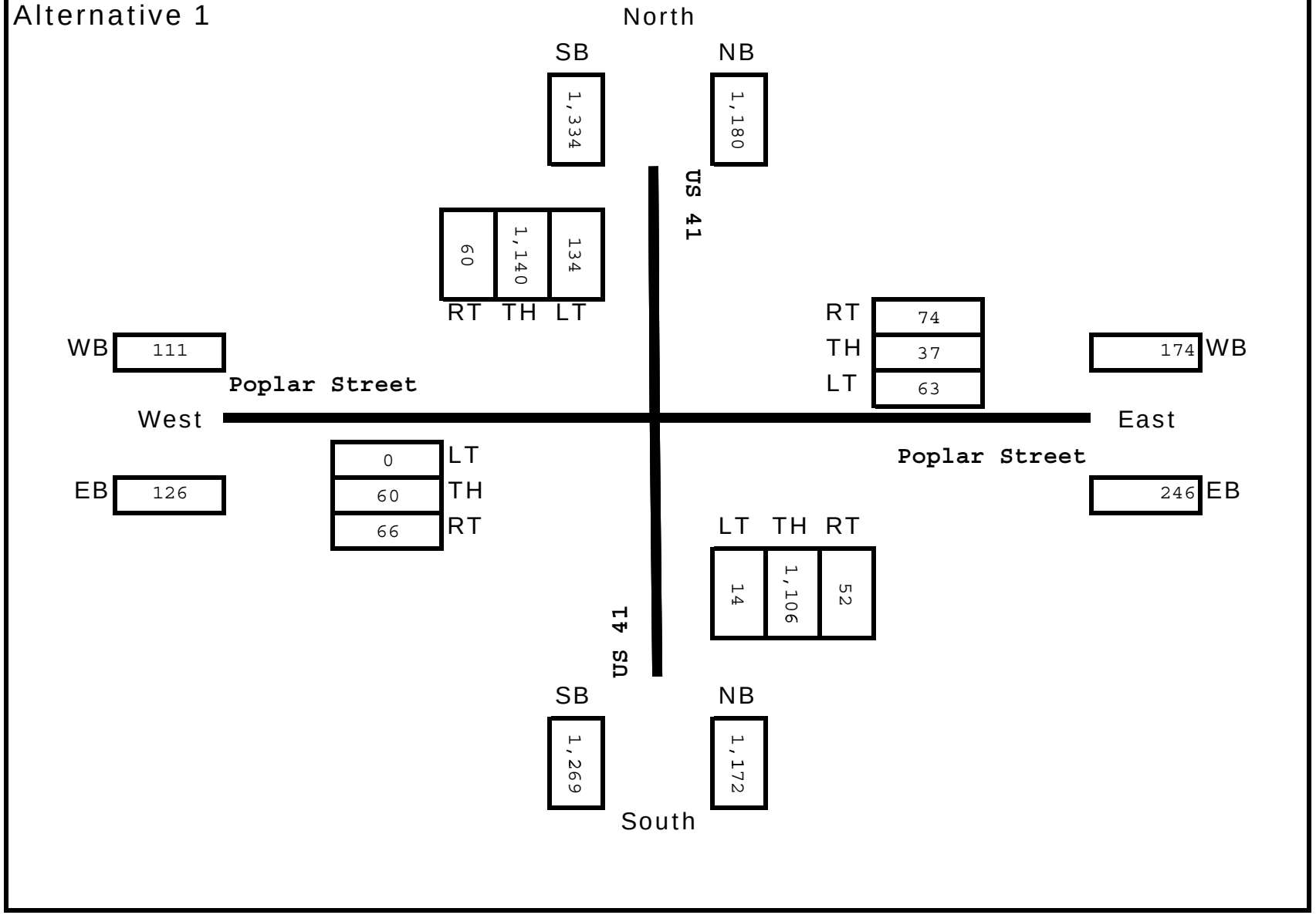
Walnut Street at 8th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



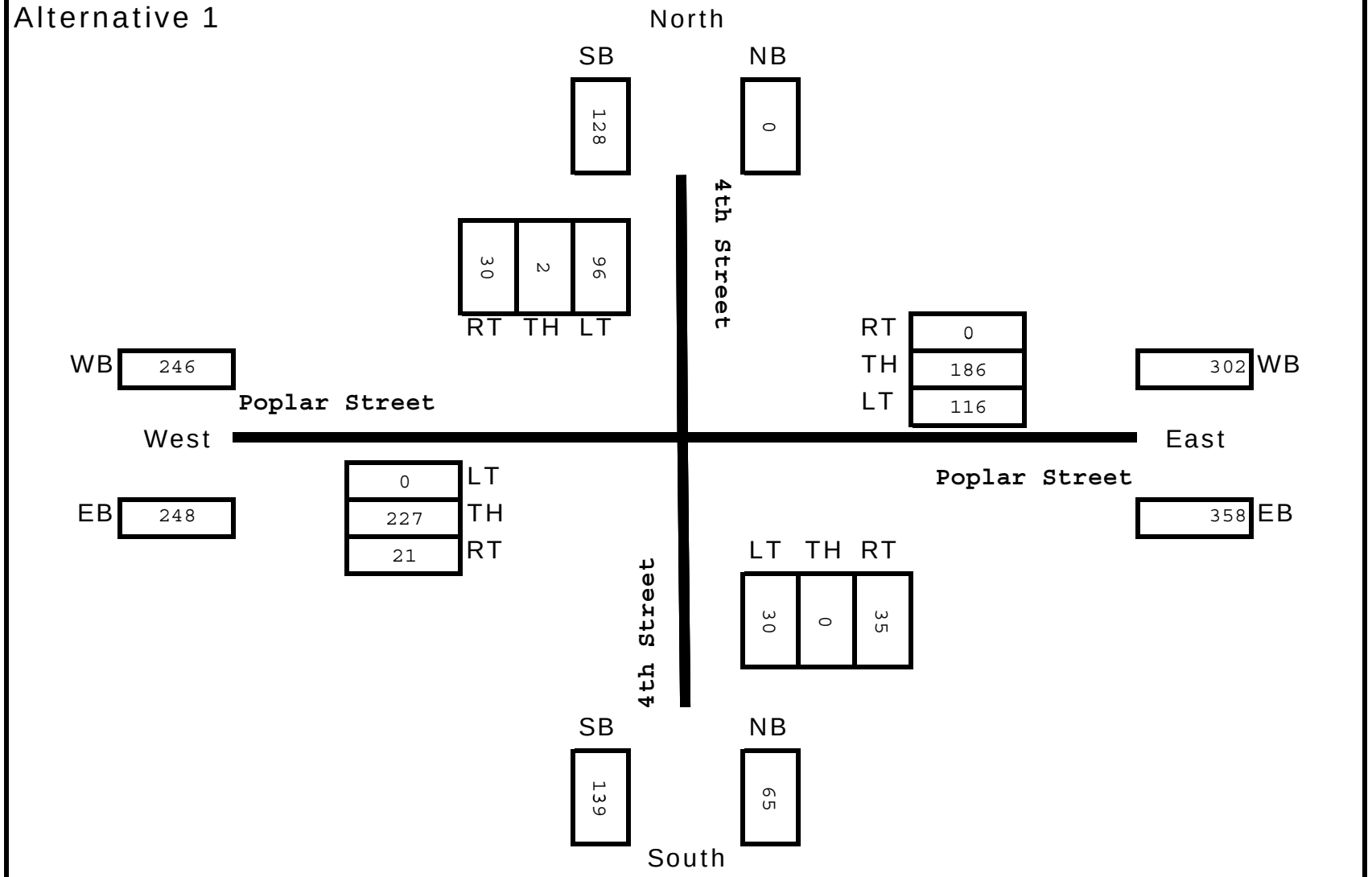
Walnut Street at 9th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



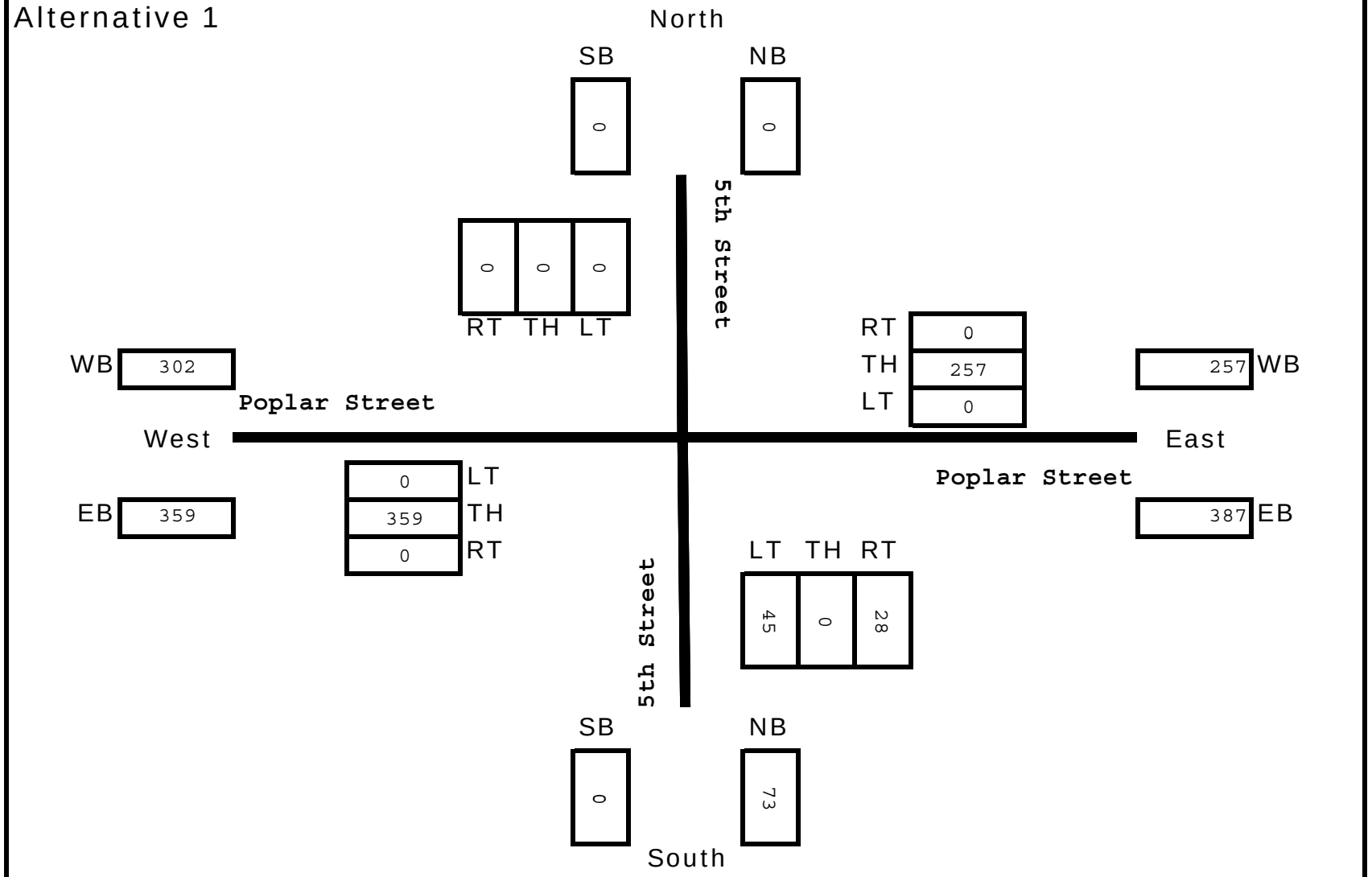
Poplar Street at US 41
PM Turning Movement Forecast
Year 2012
Alternative 1



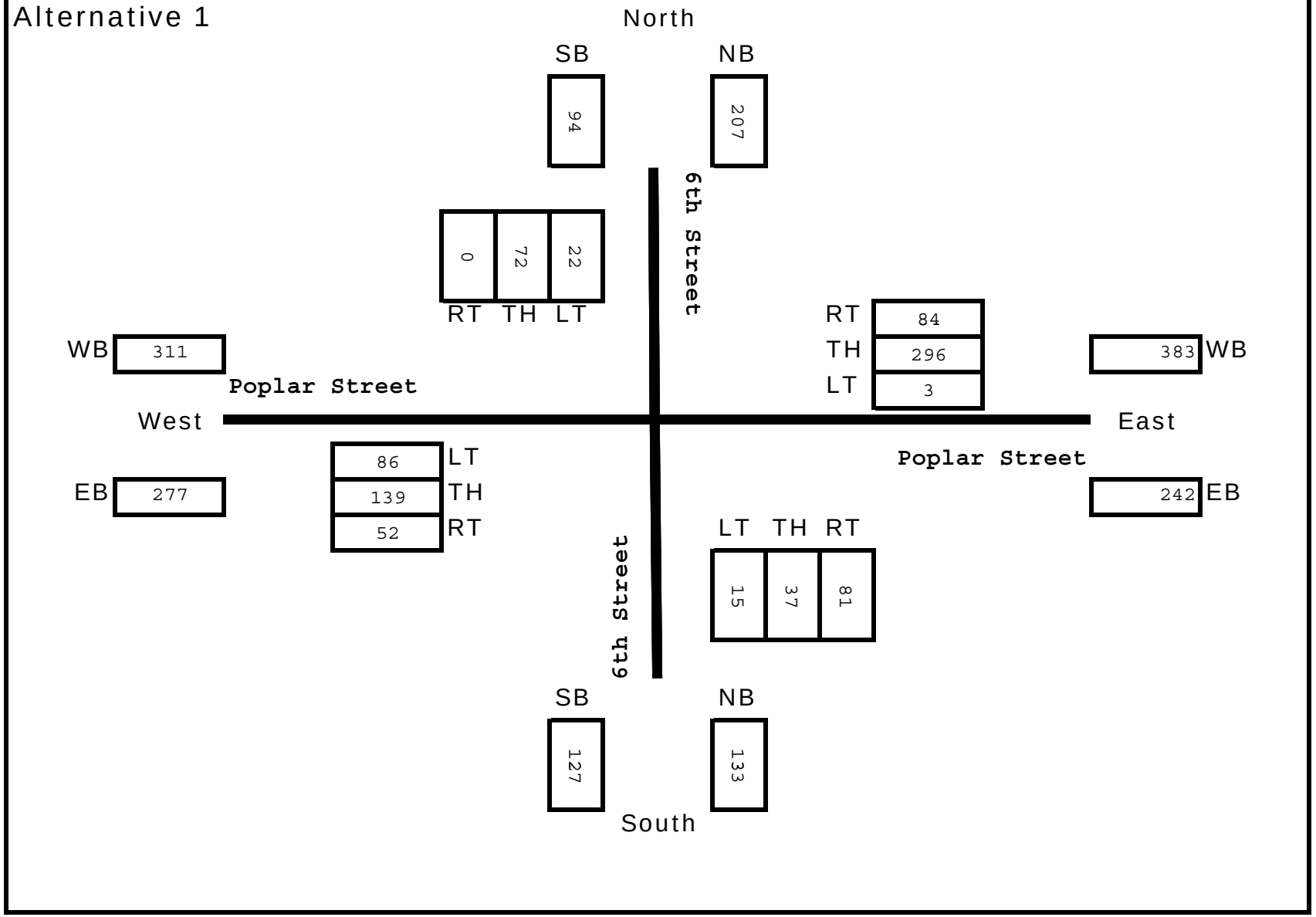
Poplar Street at 4th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



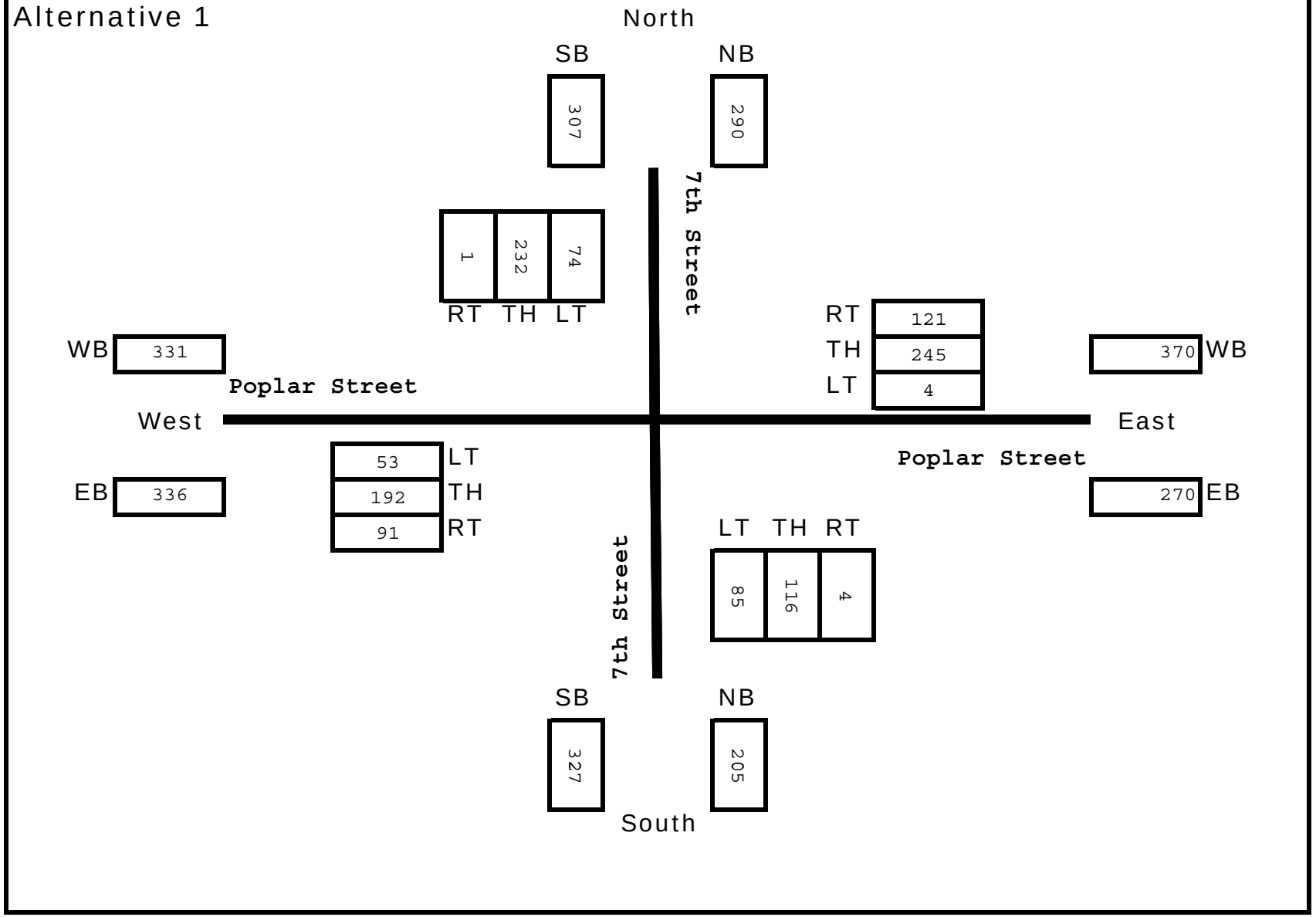
Poplar Street at 5th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



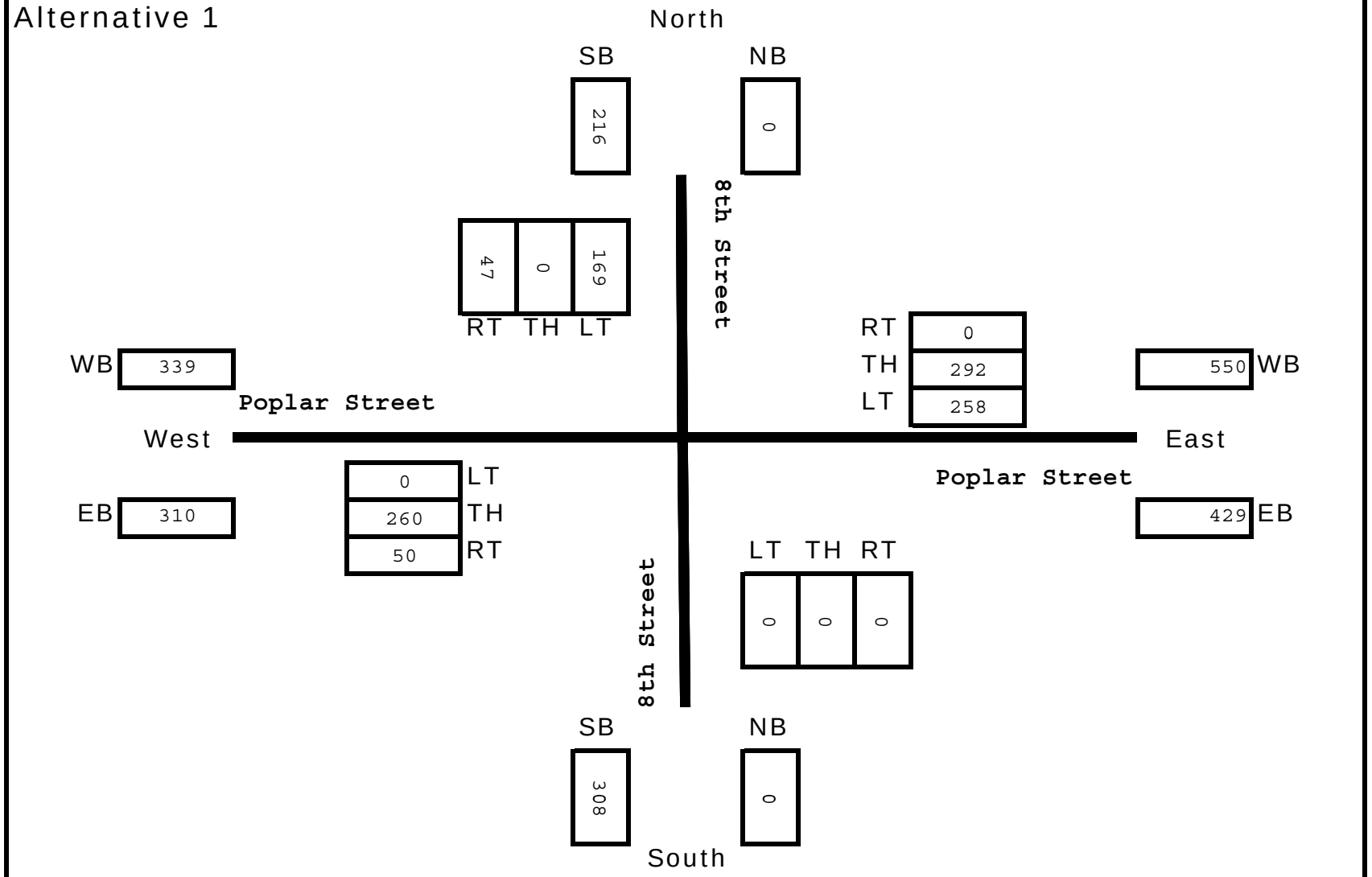
Poplar Street at 6th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



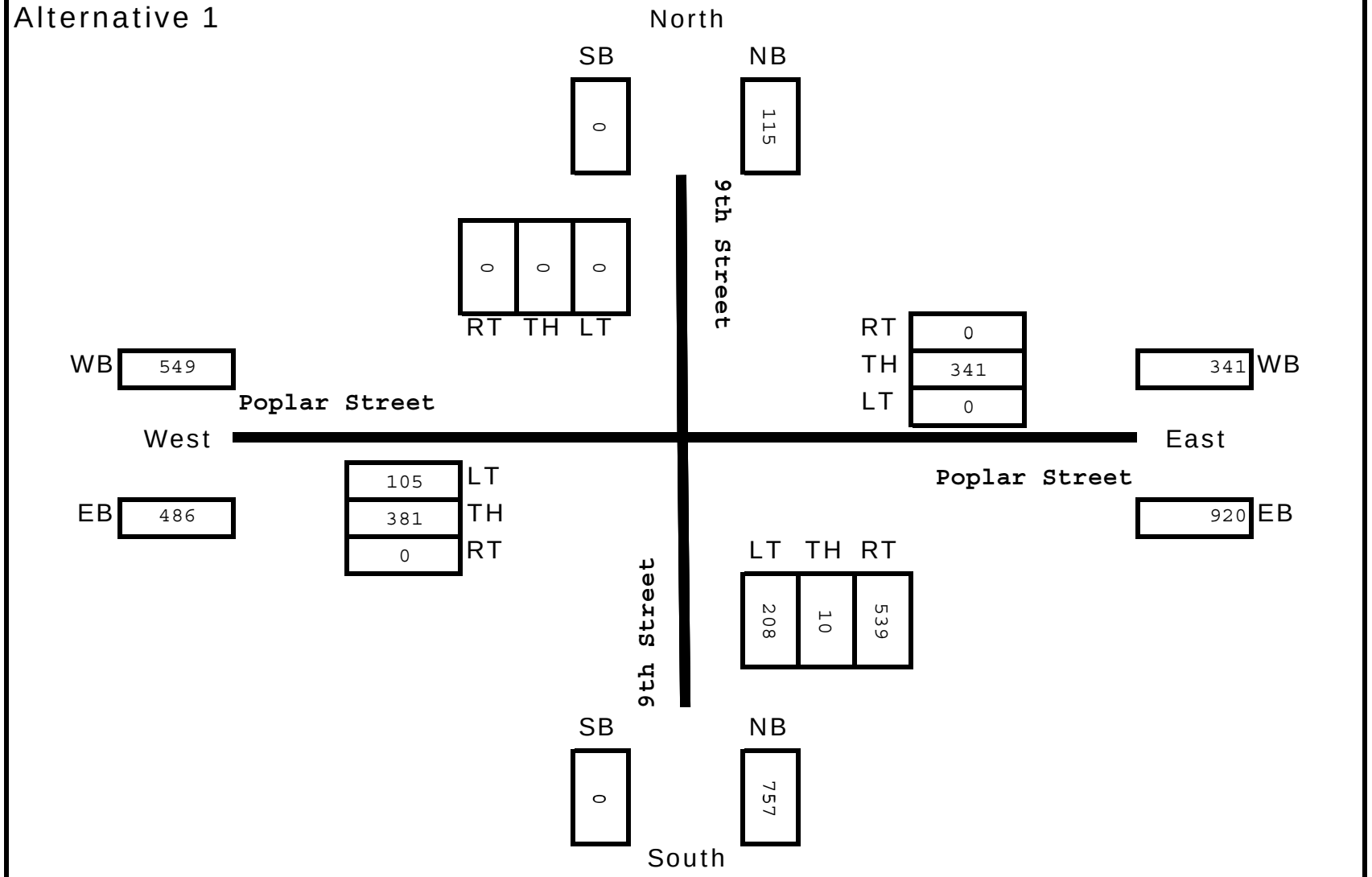
Poplar Street at 7th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



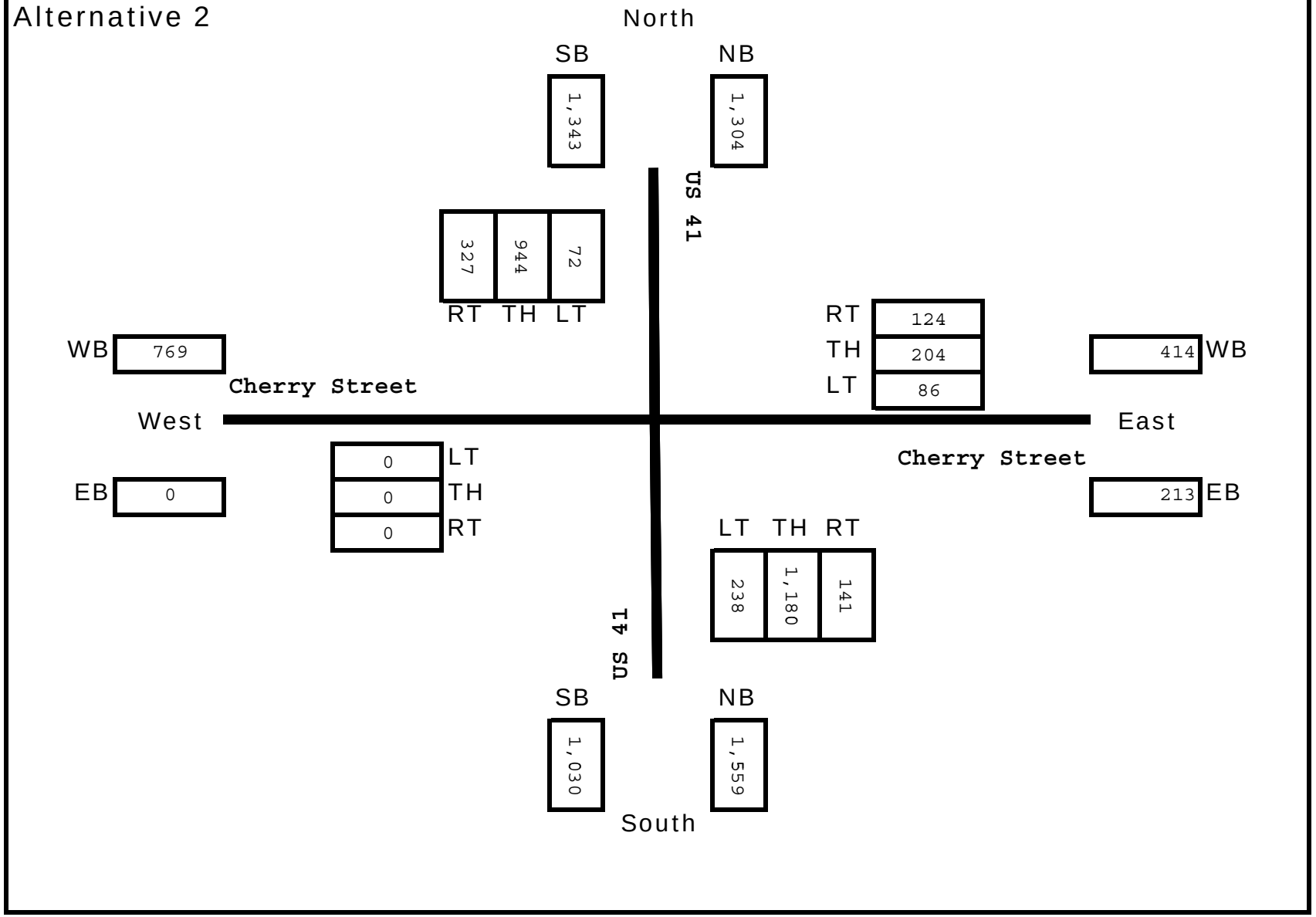
Poplar Street at 8th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



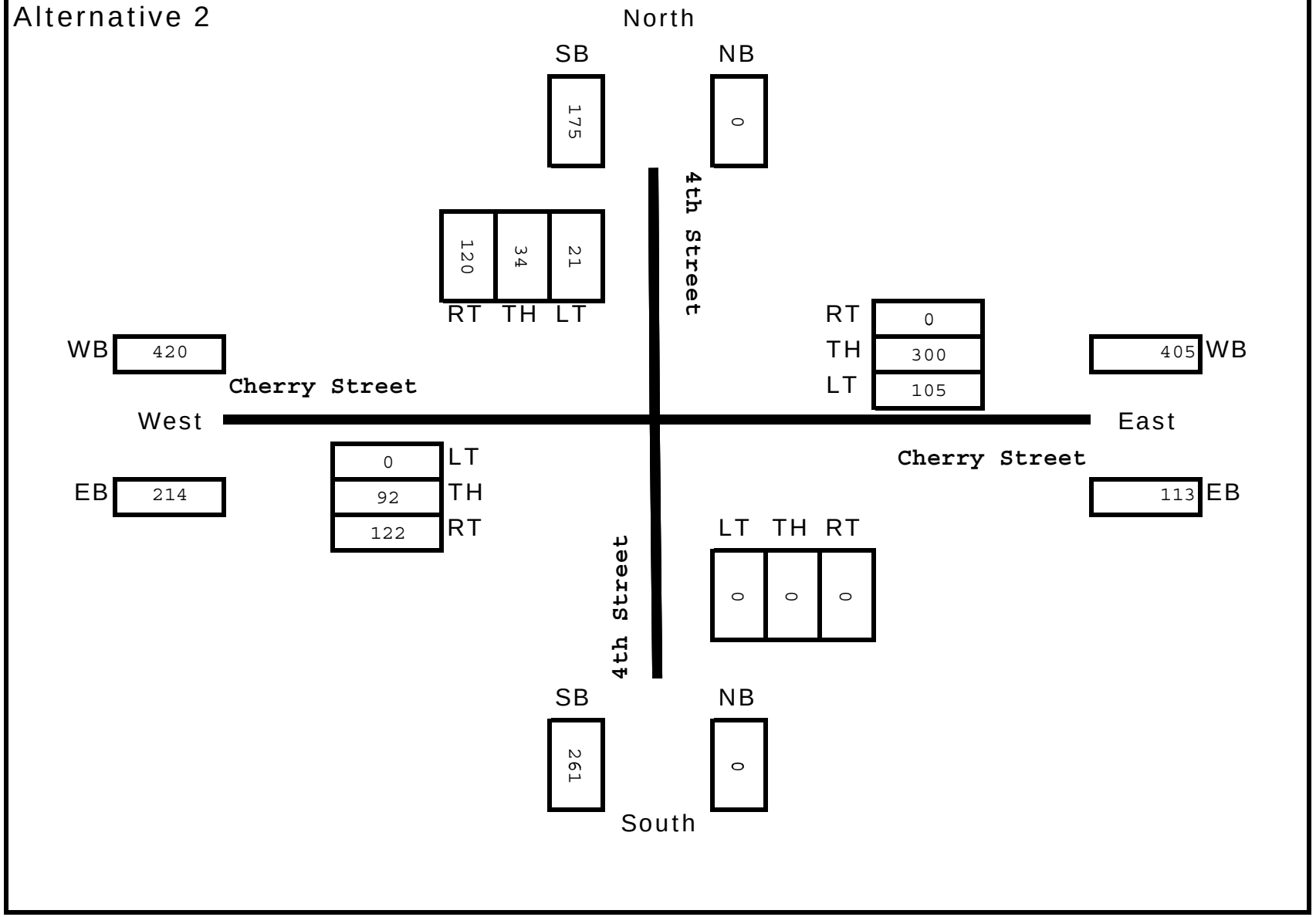
Poplar Street at 9th Street
PM Turning Movement Forecast
Year 2012
Alternative 1



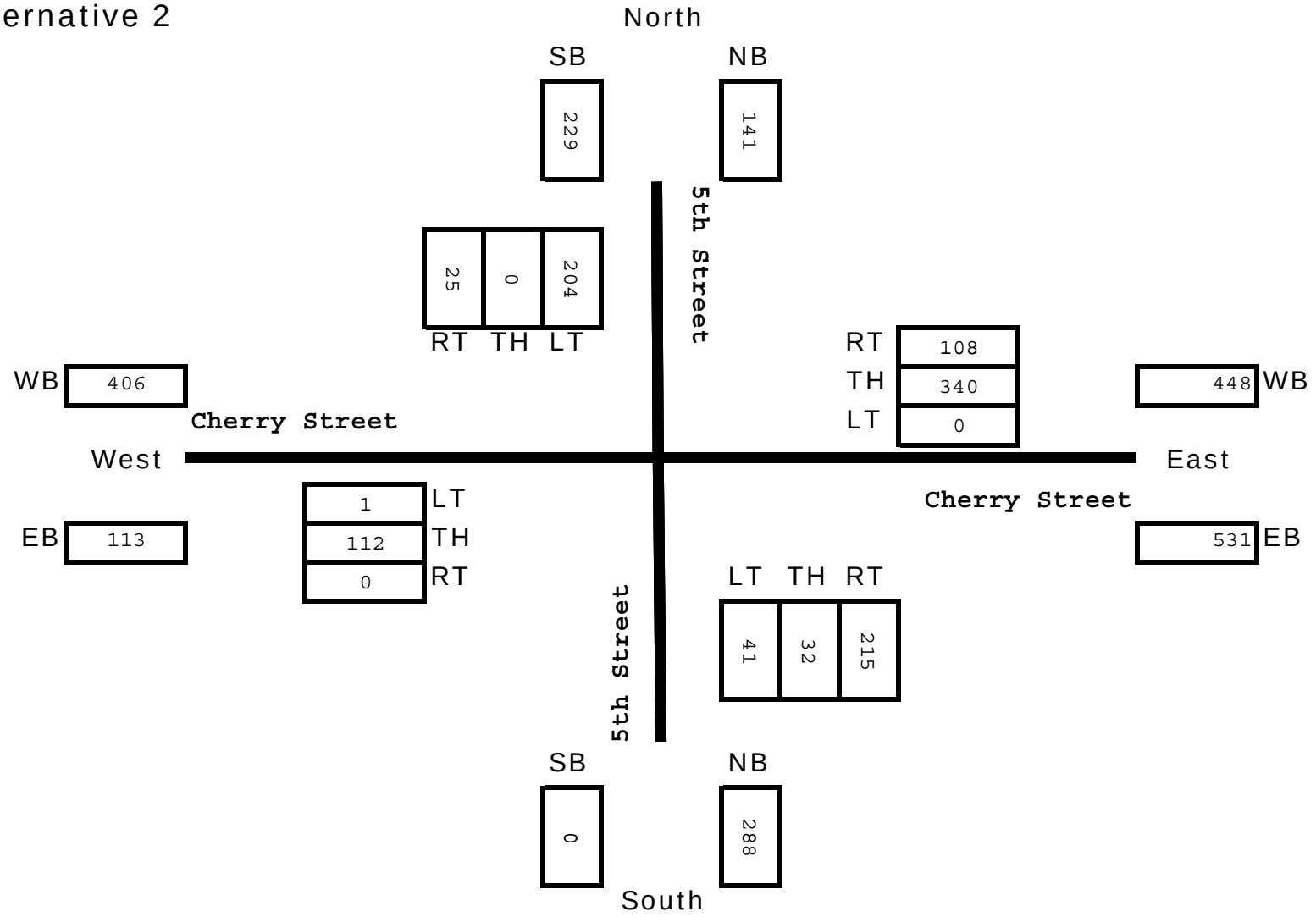
Cherry Street at US 41
PM Turning Movement Forecast
Year 2012
Alternative 2



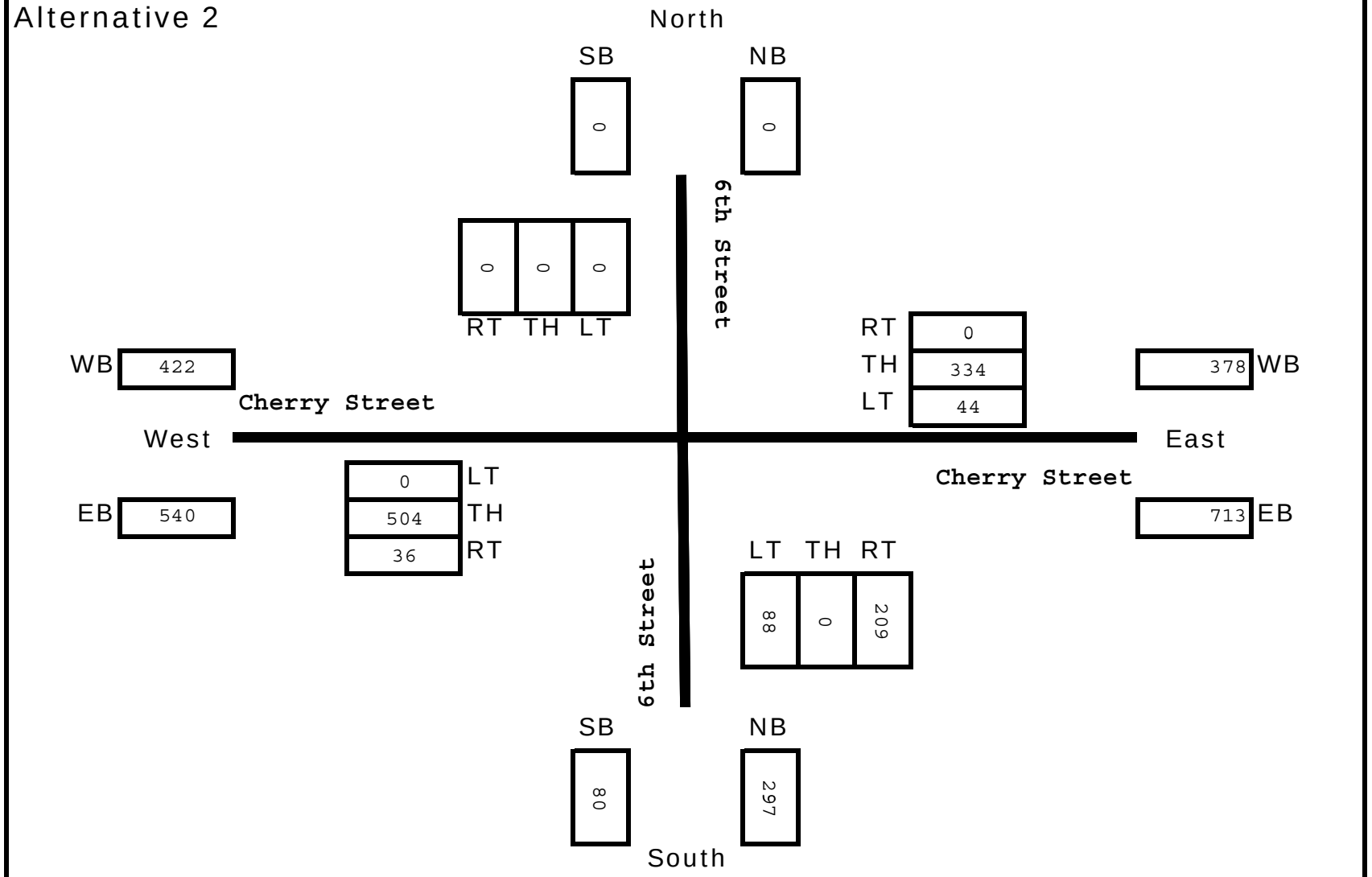
Cherry Street at 4th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



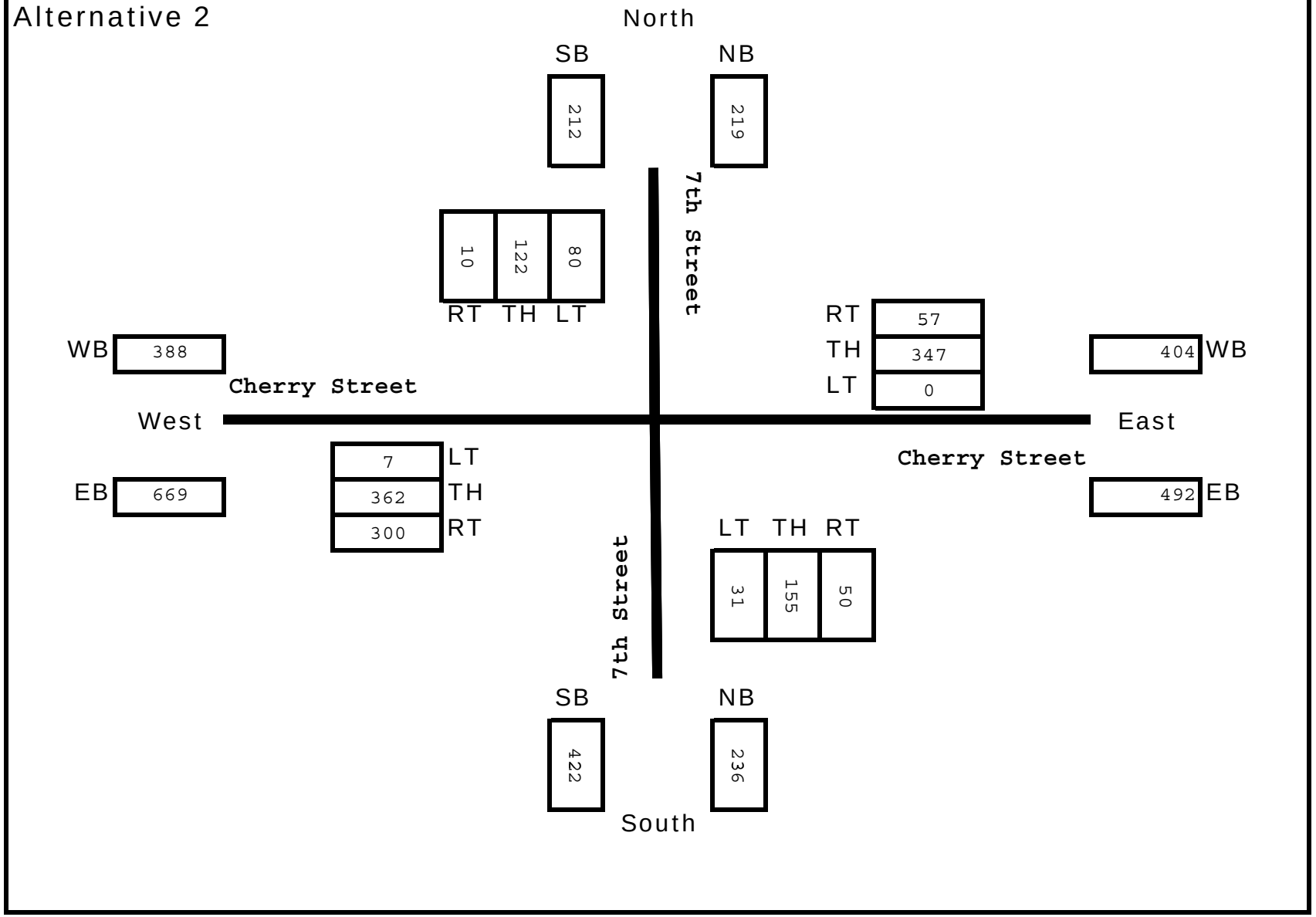
Cherry Street at 5th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



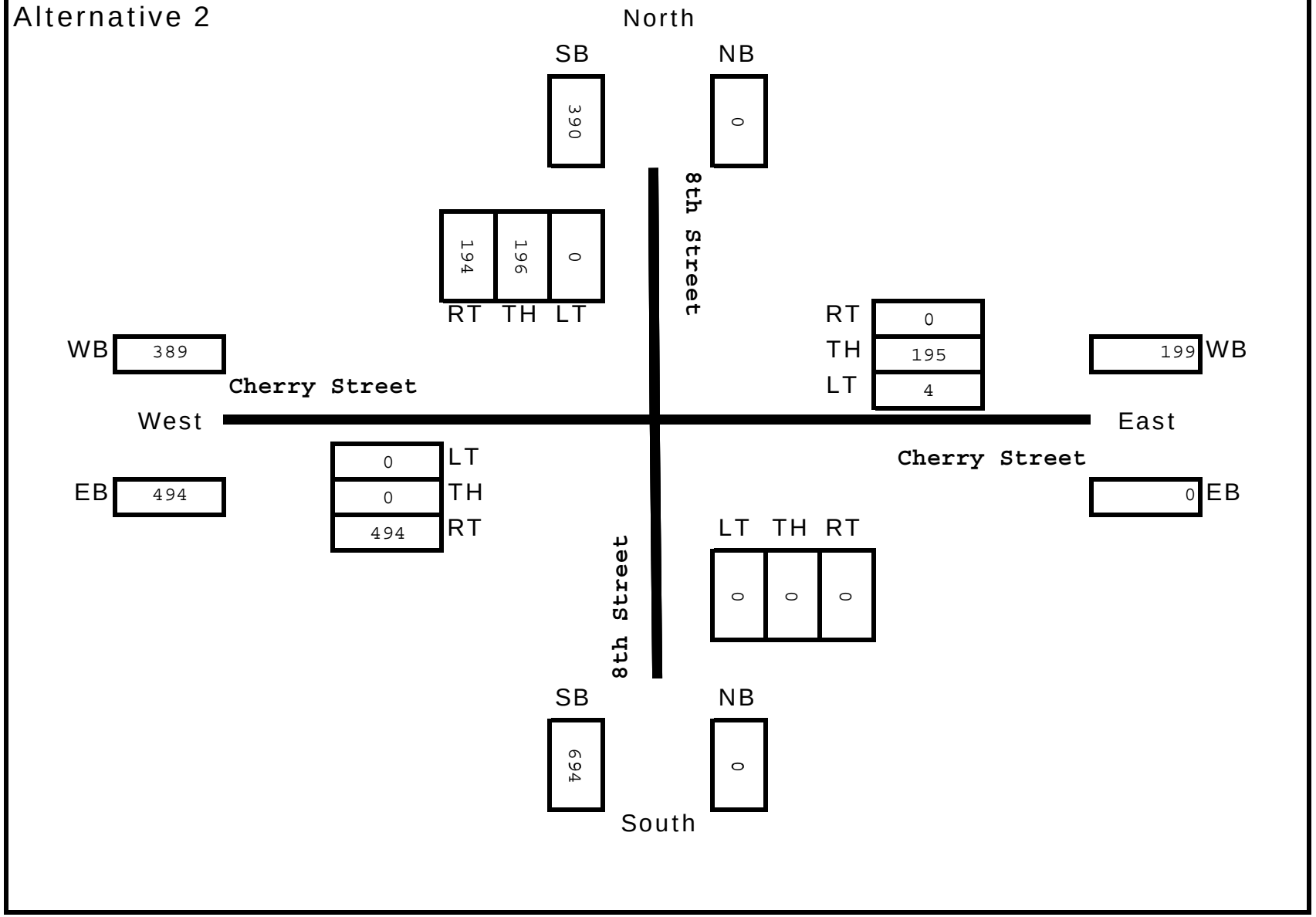
Cherry Street at 6th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



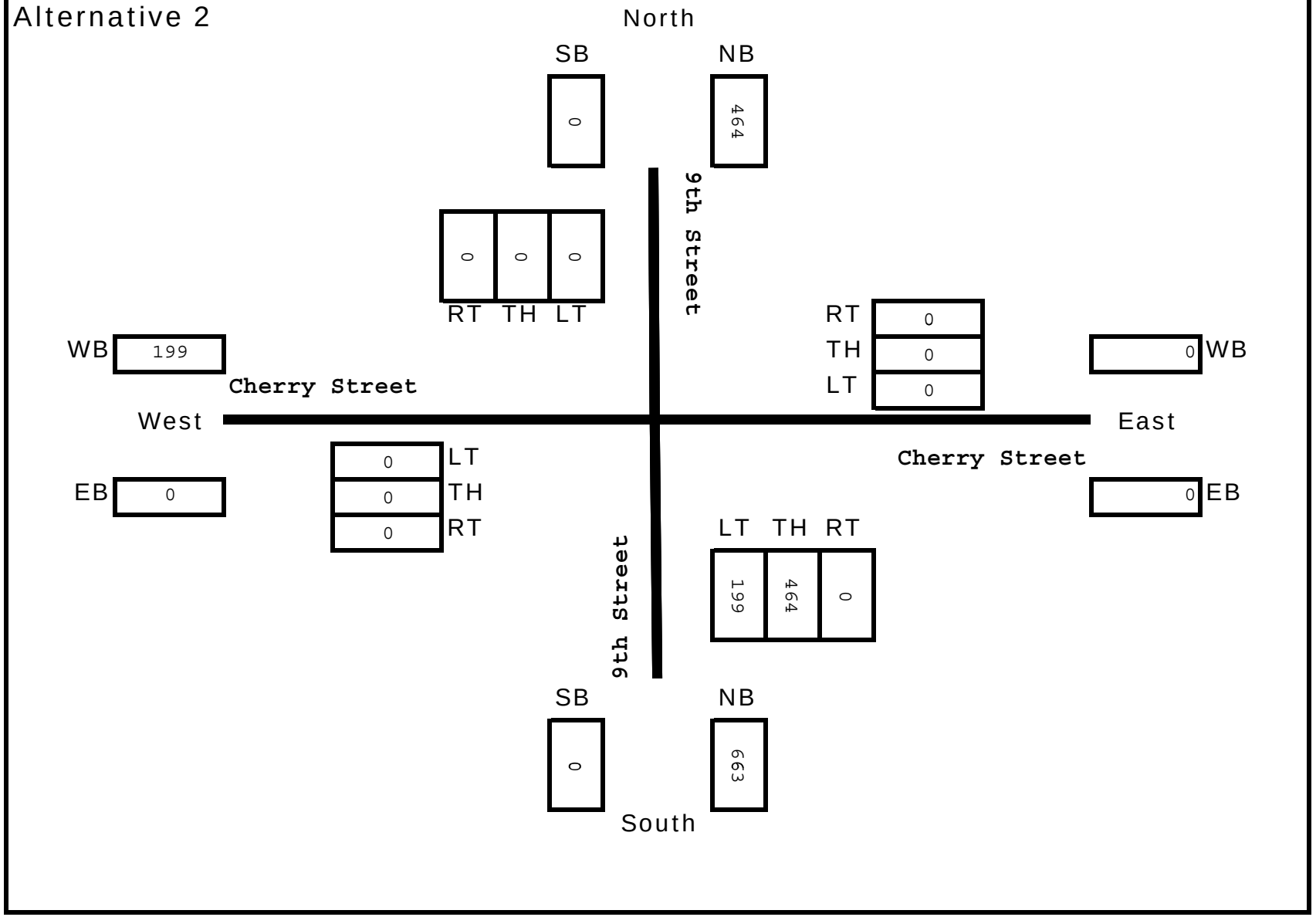
Cherry Street at 7th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



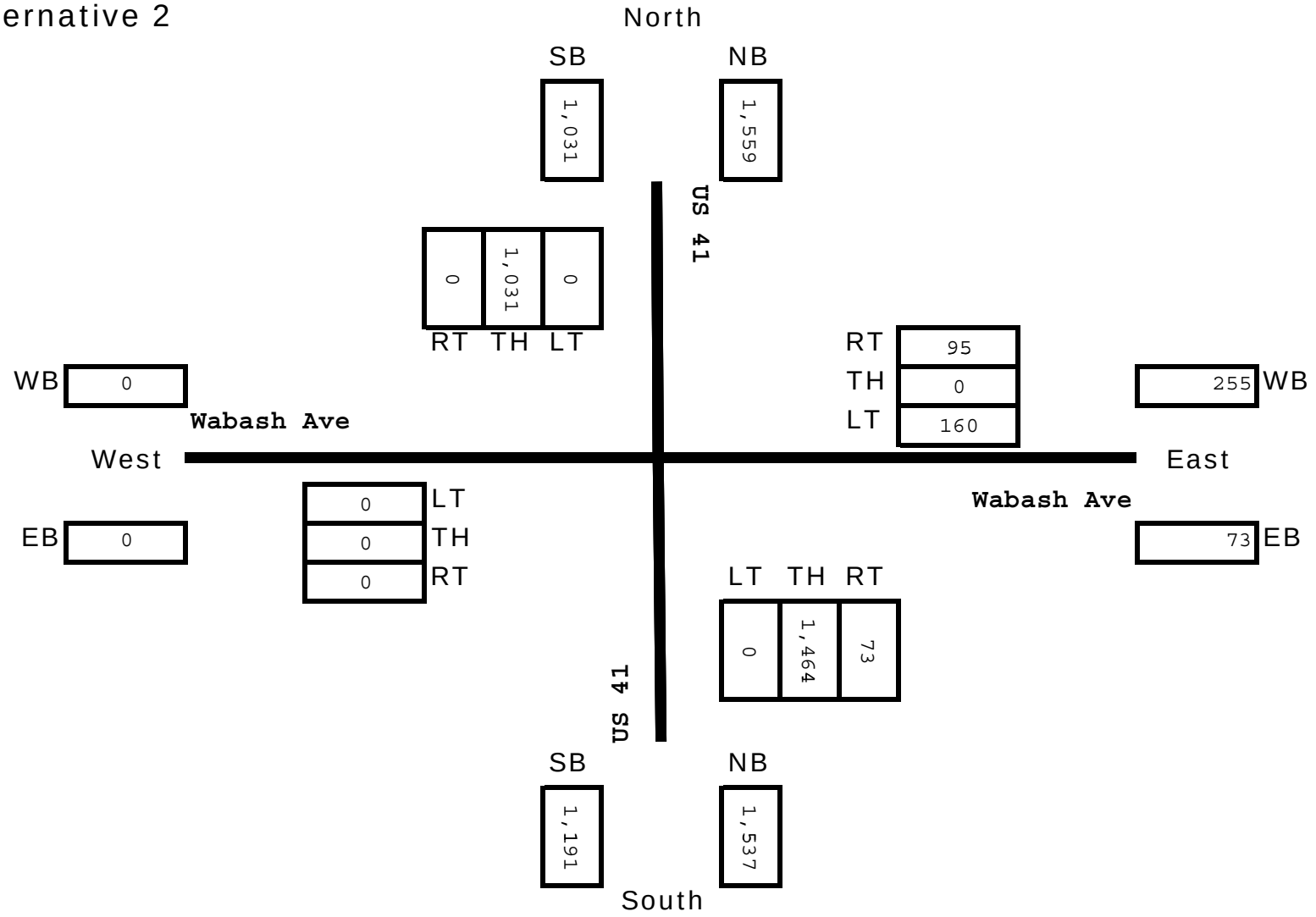
Cherry Street at 8th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



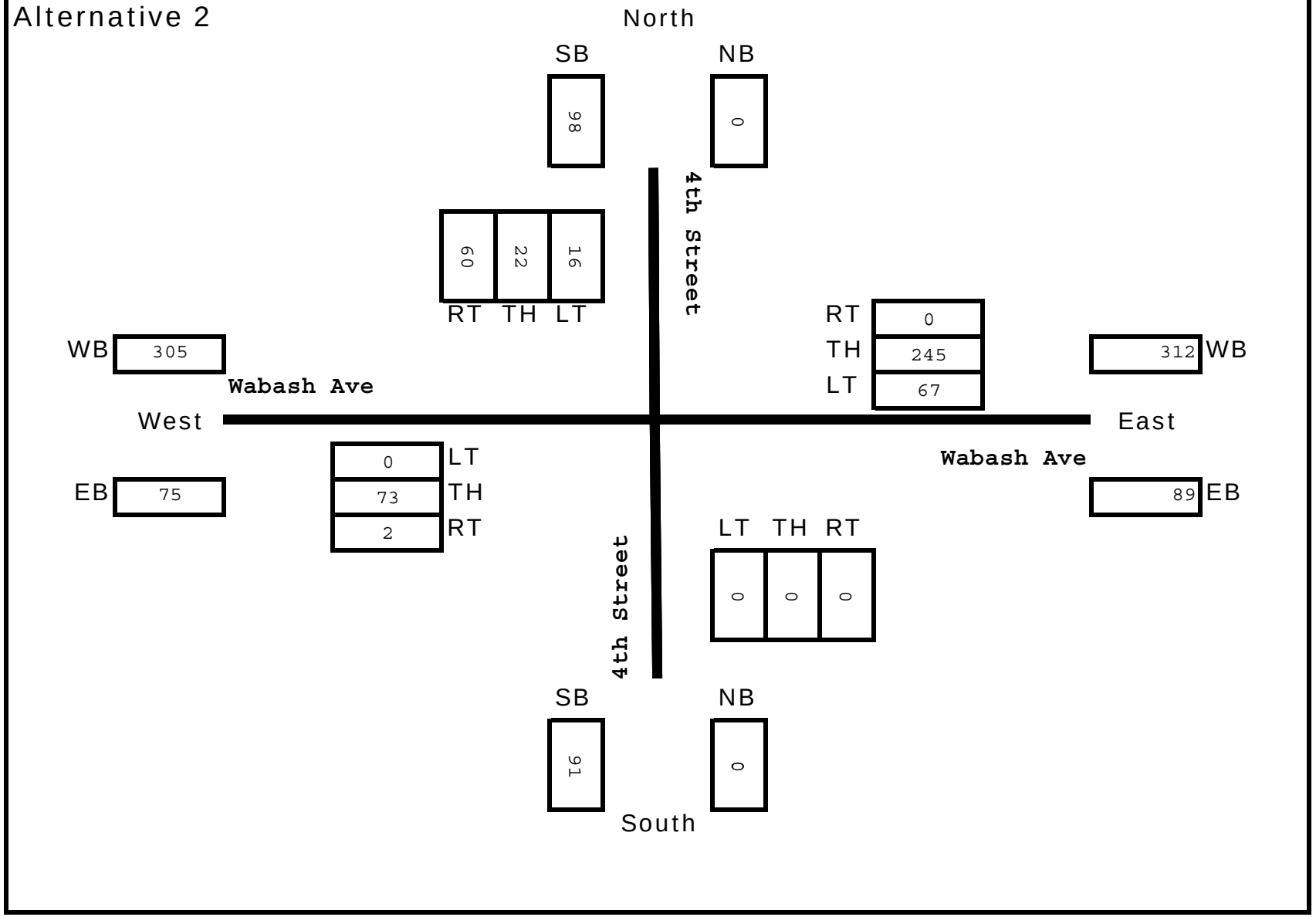
Cherry Street at 9th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



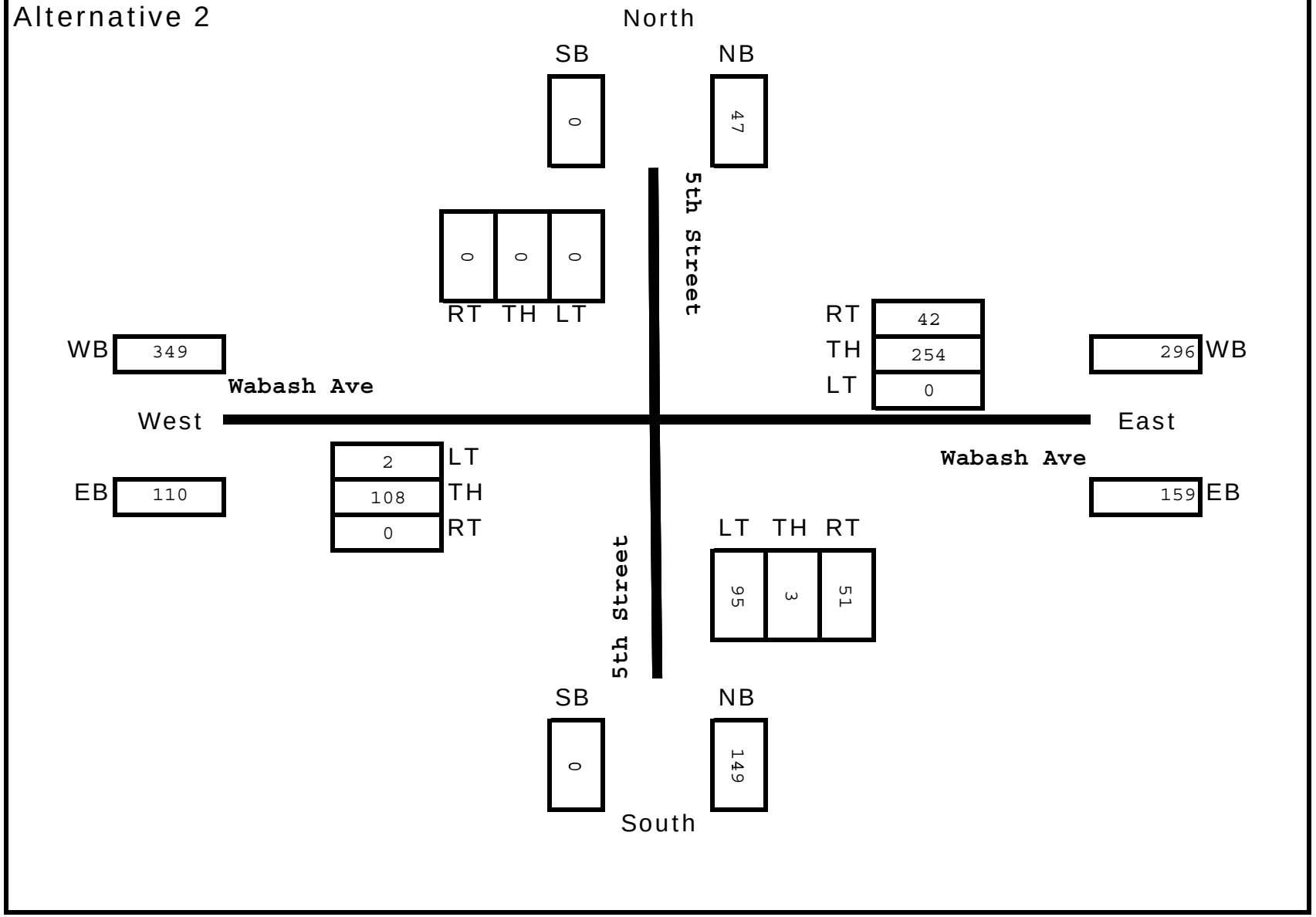
Wabash Ave at US 41
PM Turning Movement Forecast
Year 2012
Alternative 2



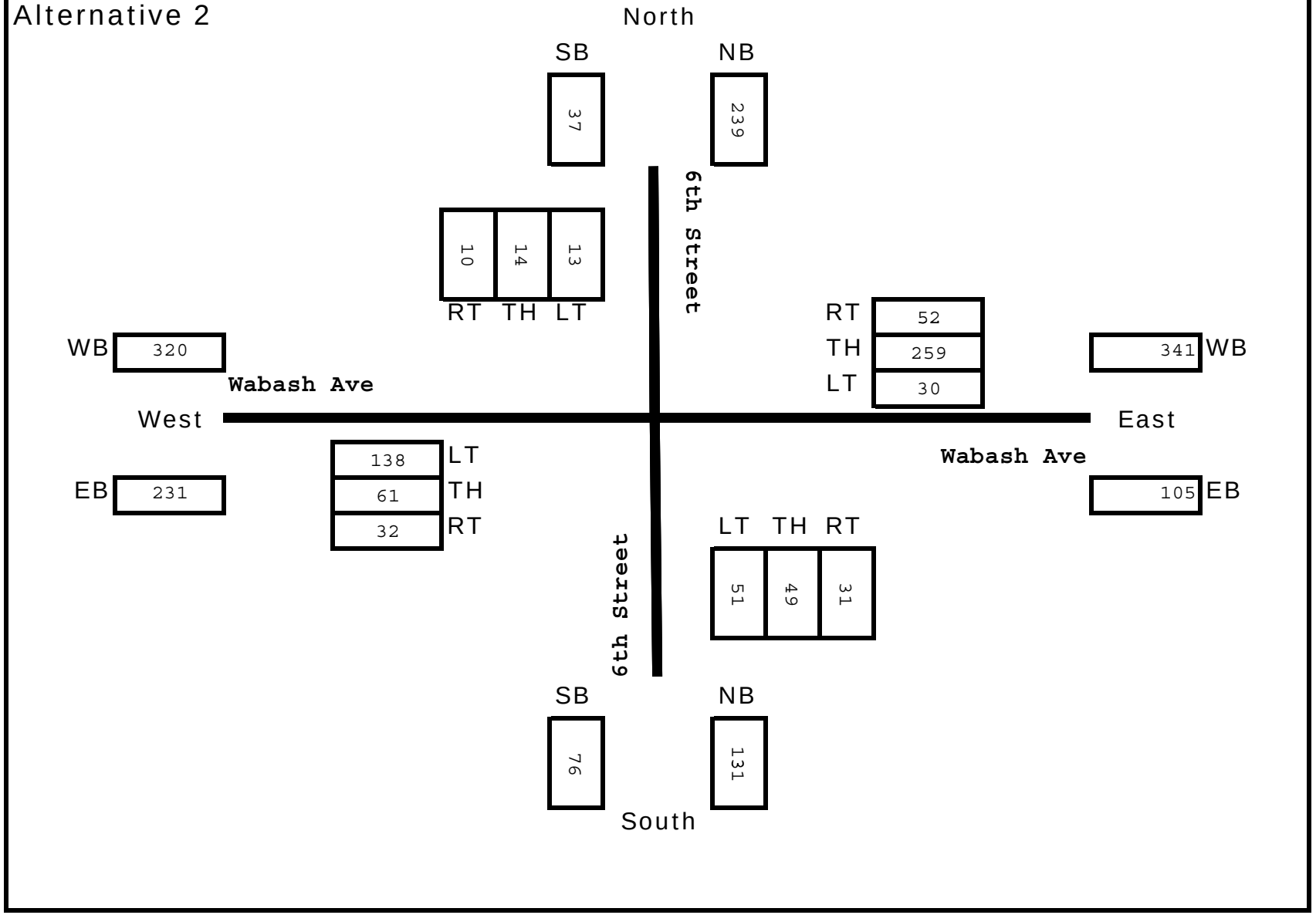
Wabash Ave at 4th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



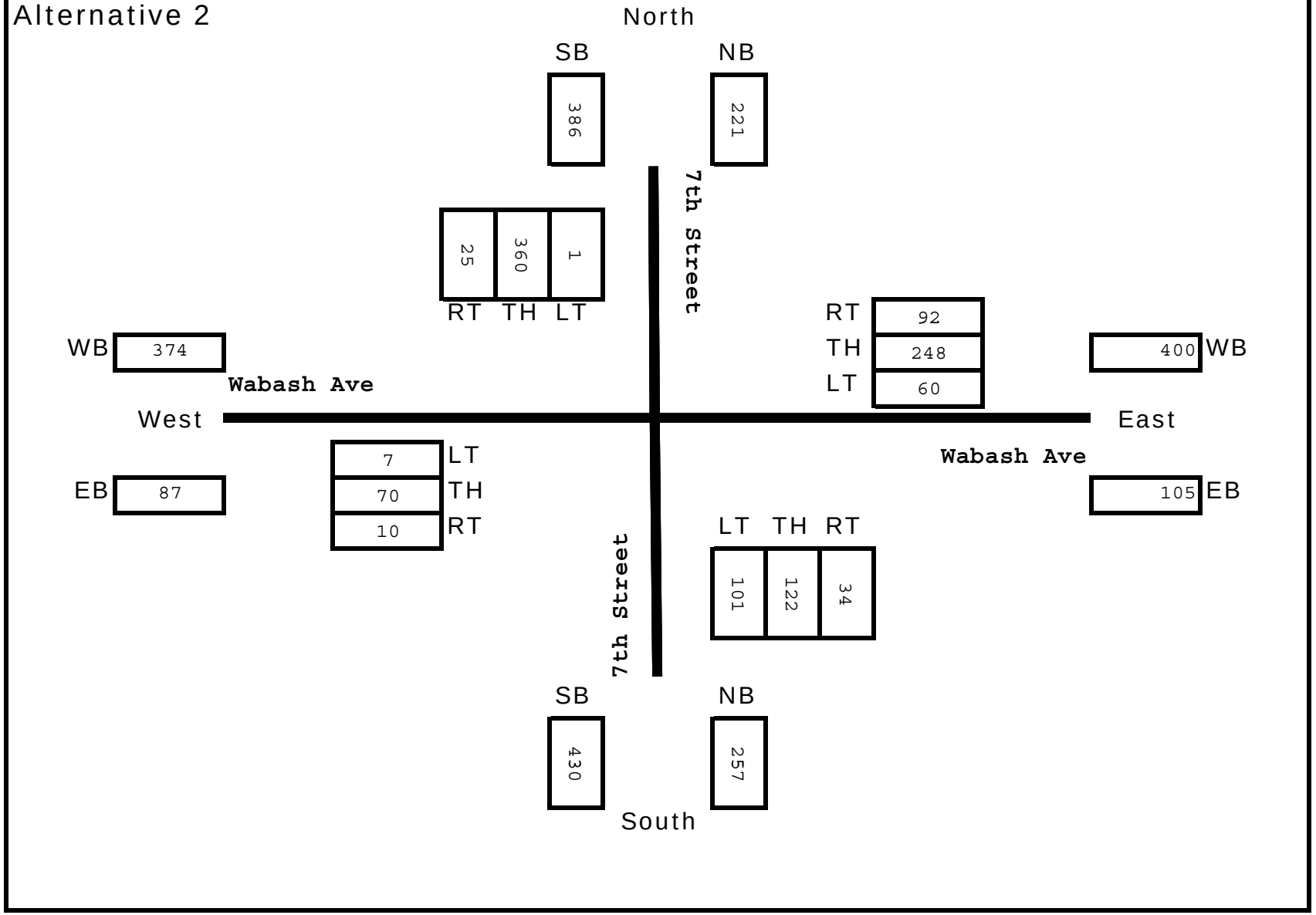
Wabash Ave at 5th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



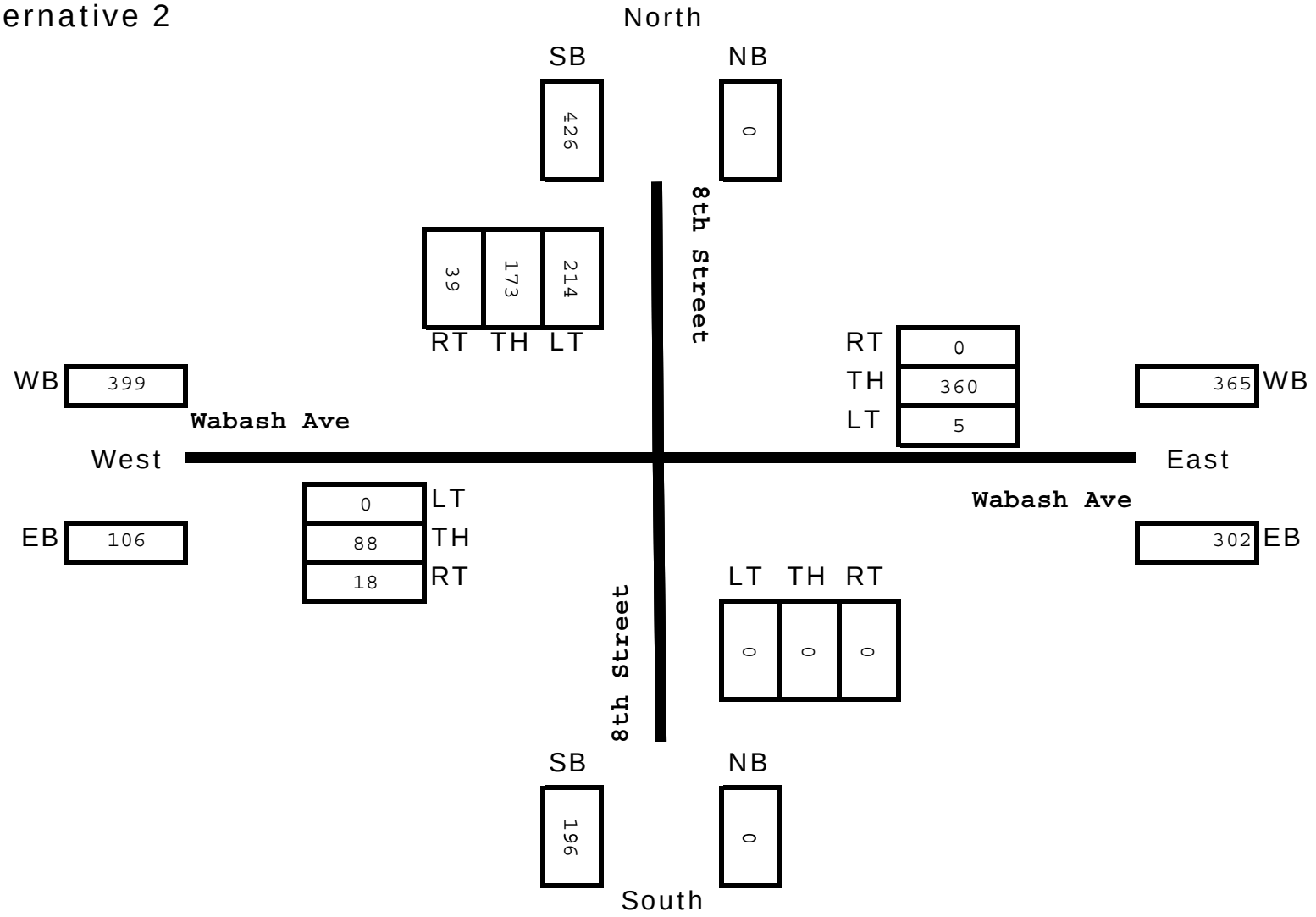
Wabash Ave at 6th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



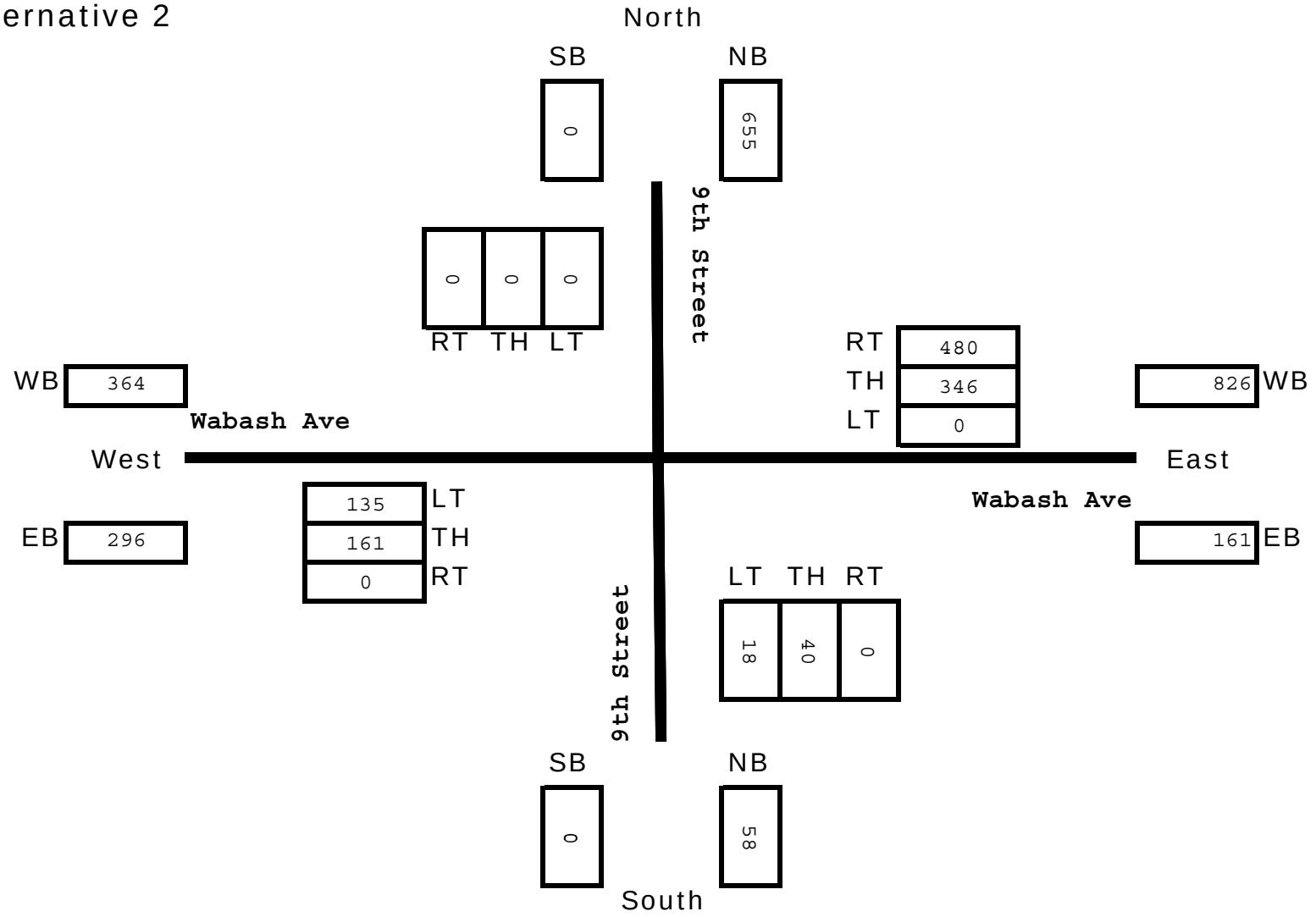
Wabash Ave at 7th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



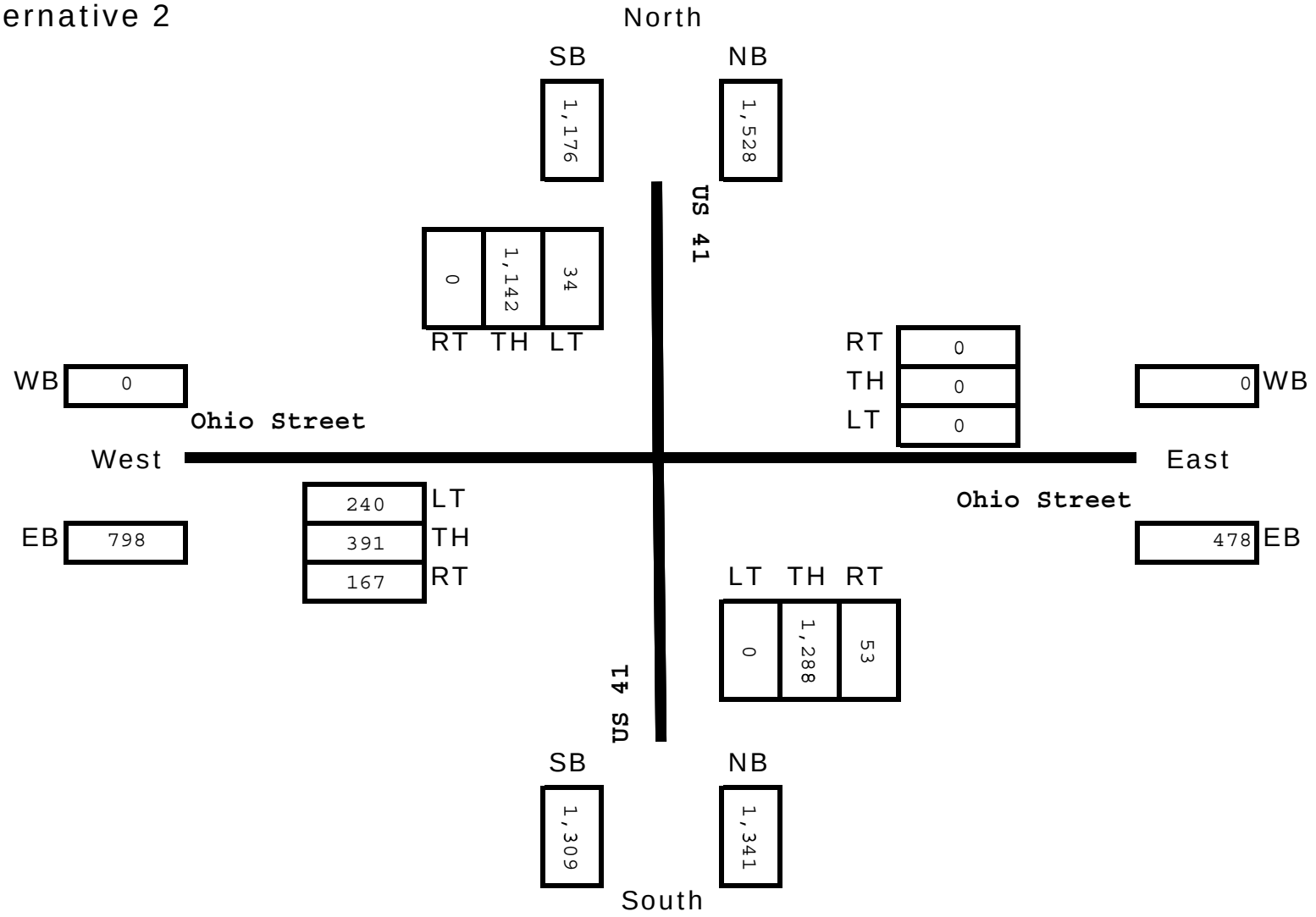
Wabash Ave at 8th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



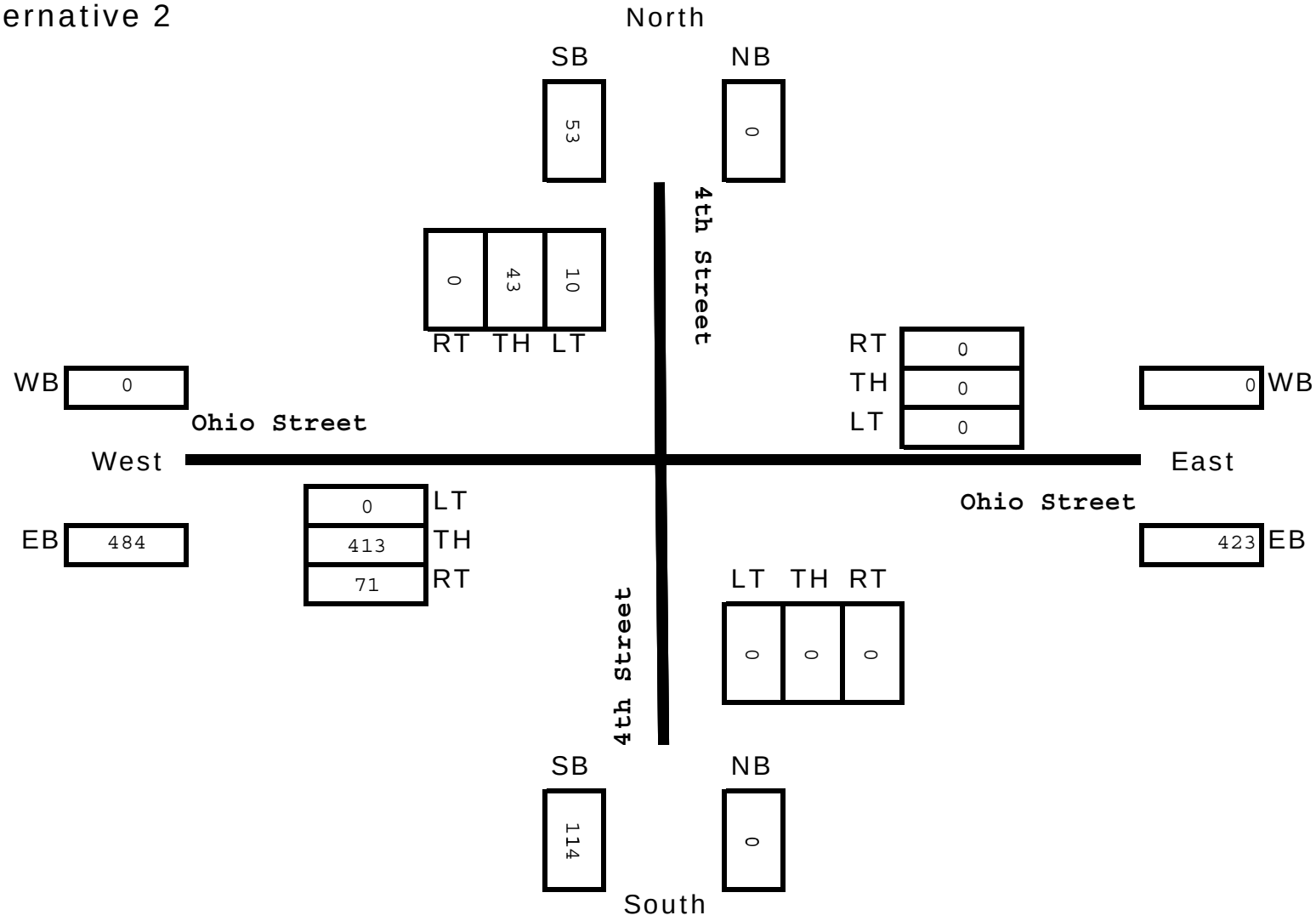
Wabash Ave at 9th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



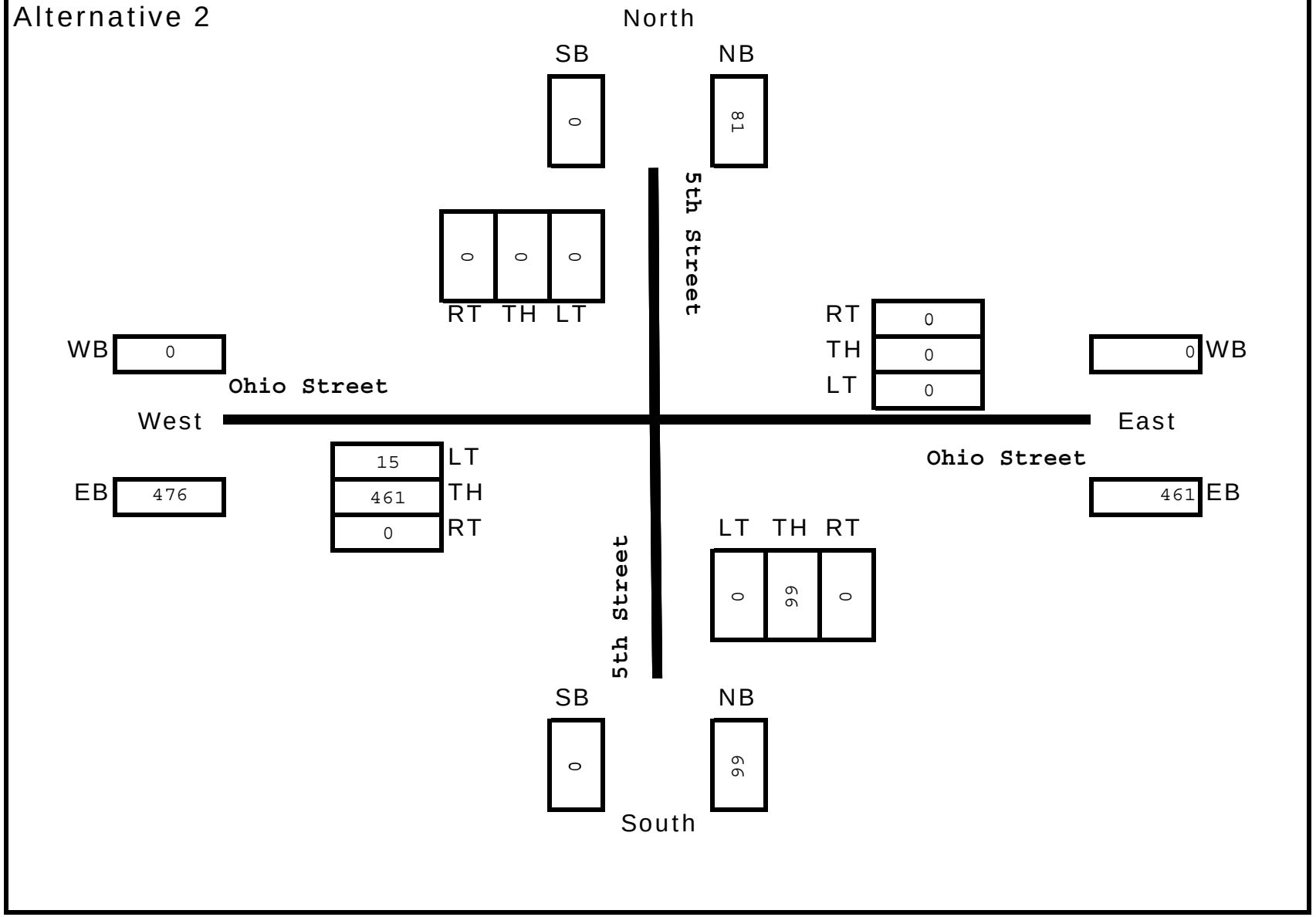
Ohio Street at US 41
PM Turning Movement Forecast
Year 2012
Alternative 2



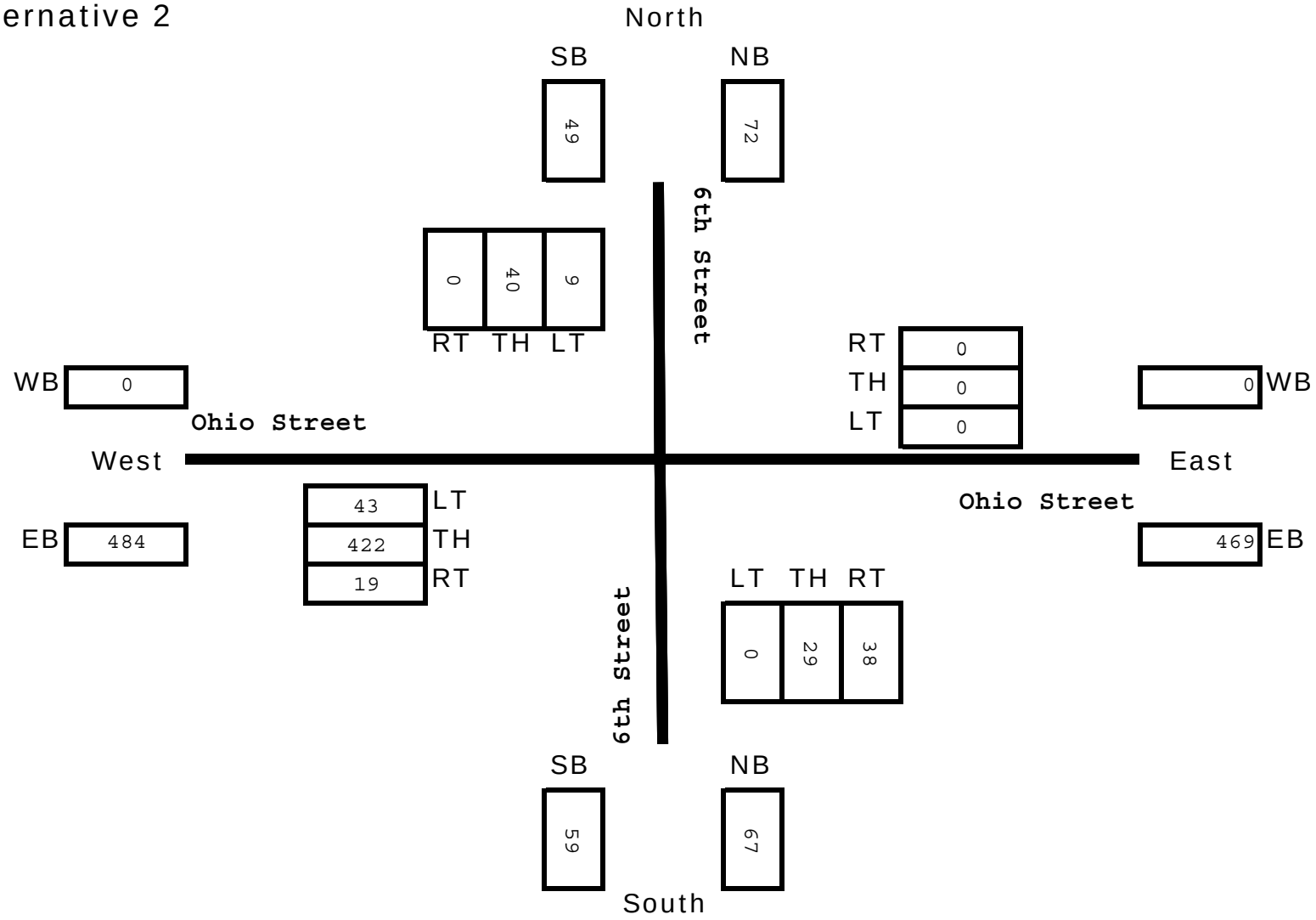
Ohio Street at 4th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



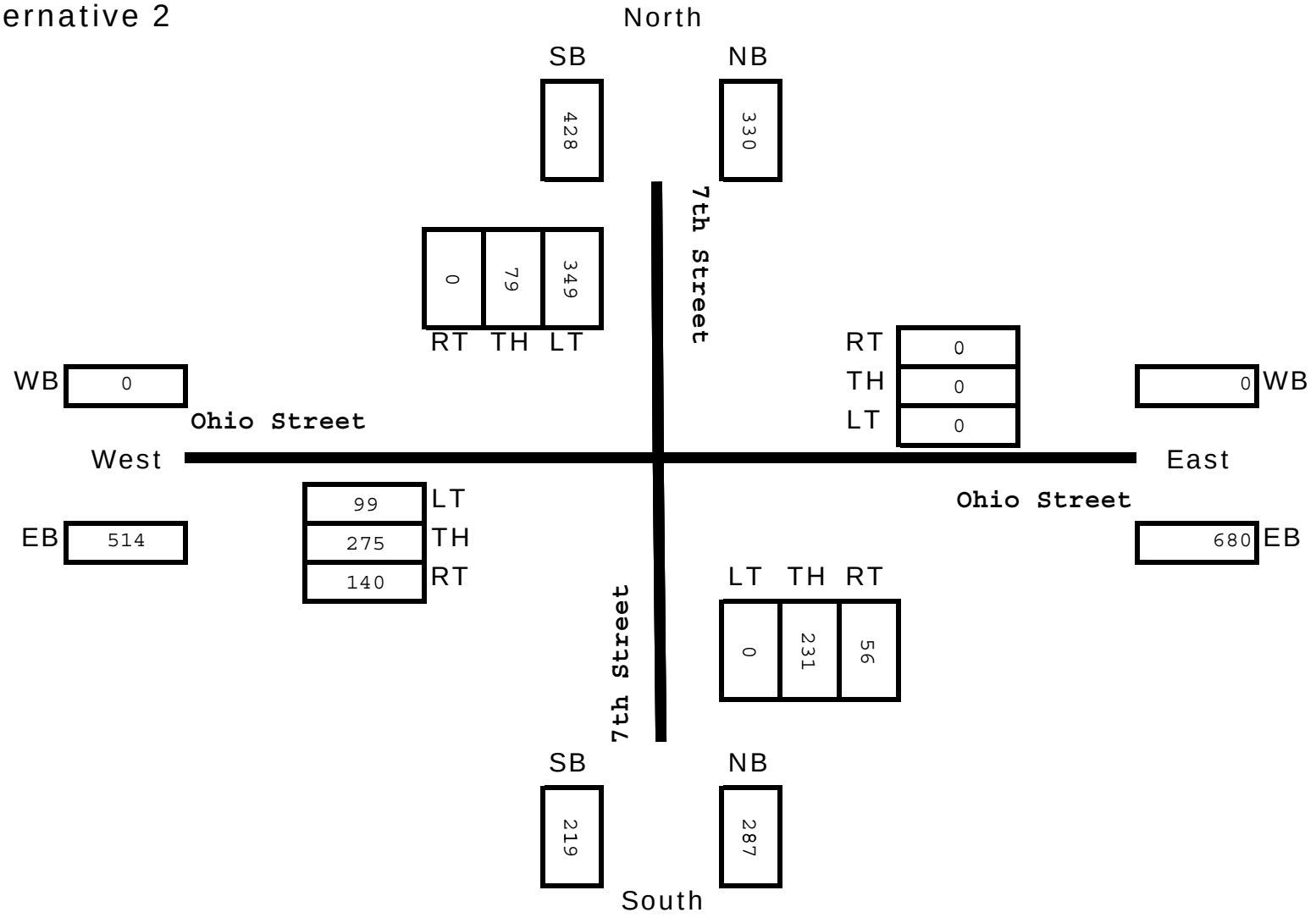
Ohio Street at 5th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



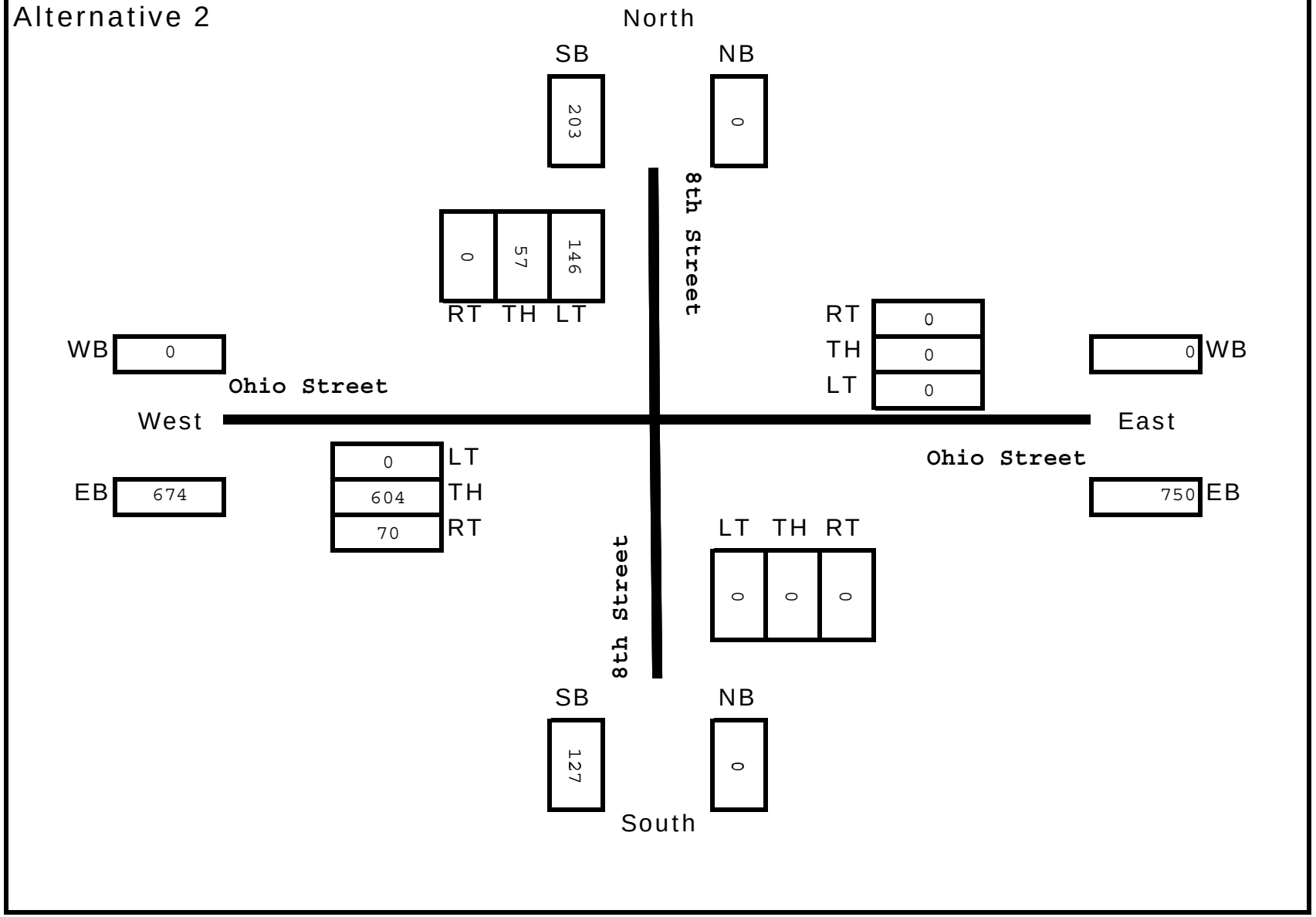
Ohio Street at 6th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



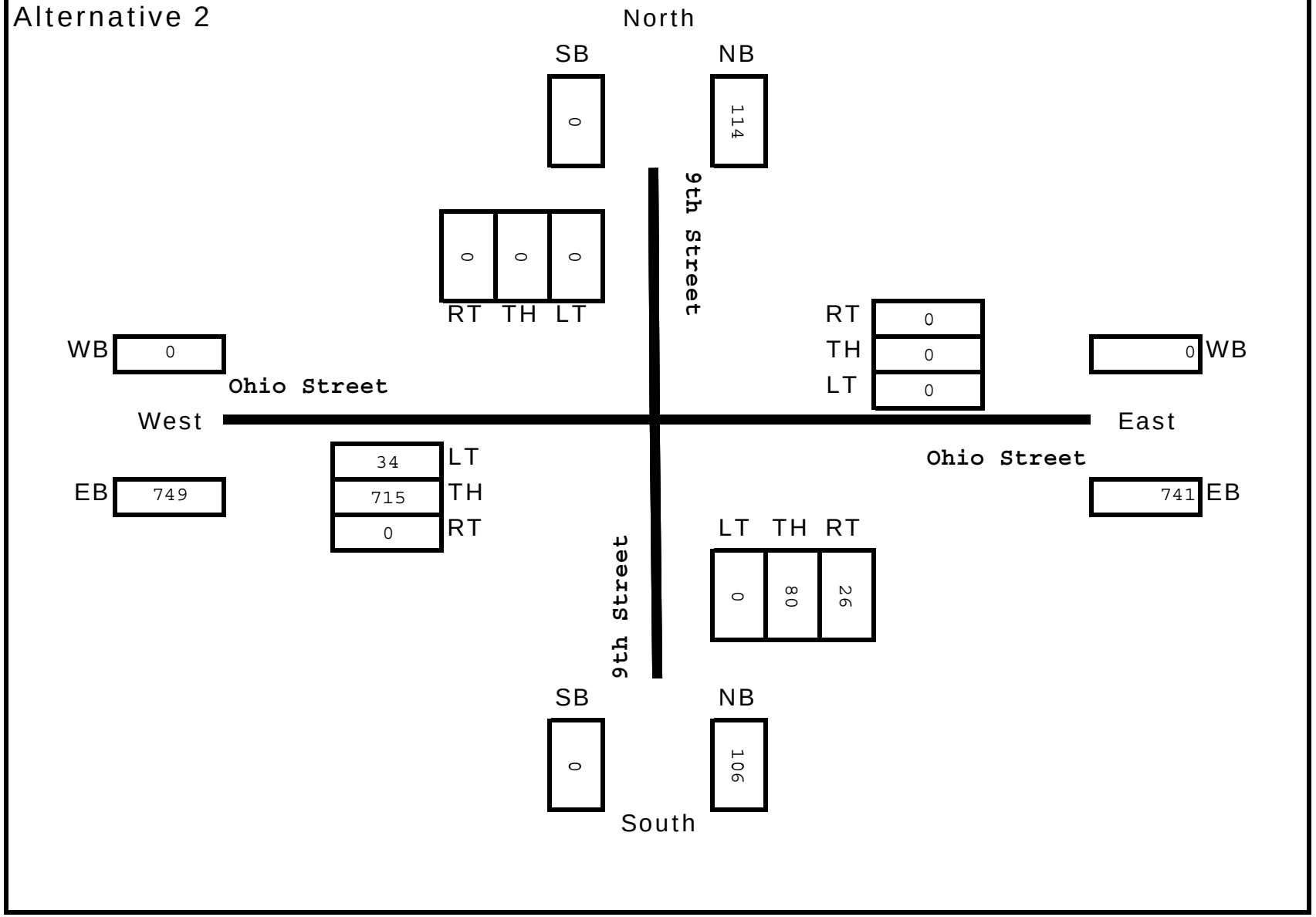
Ohio Street at 7th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



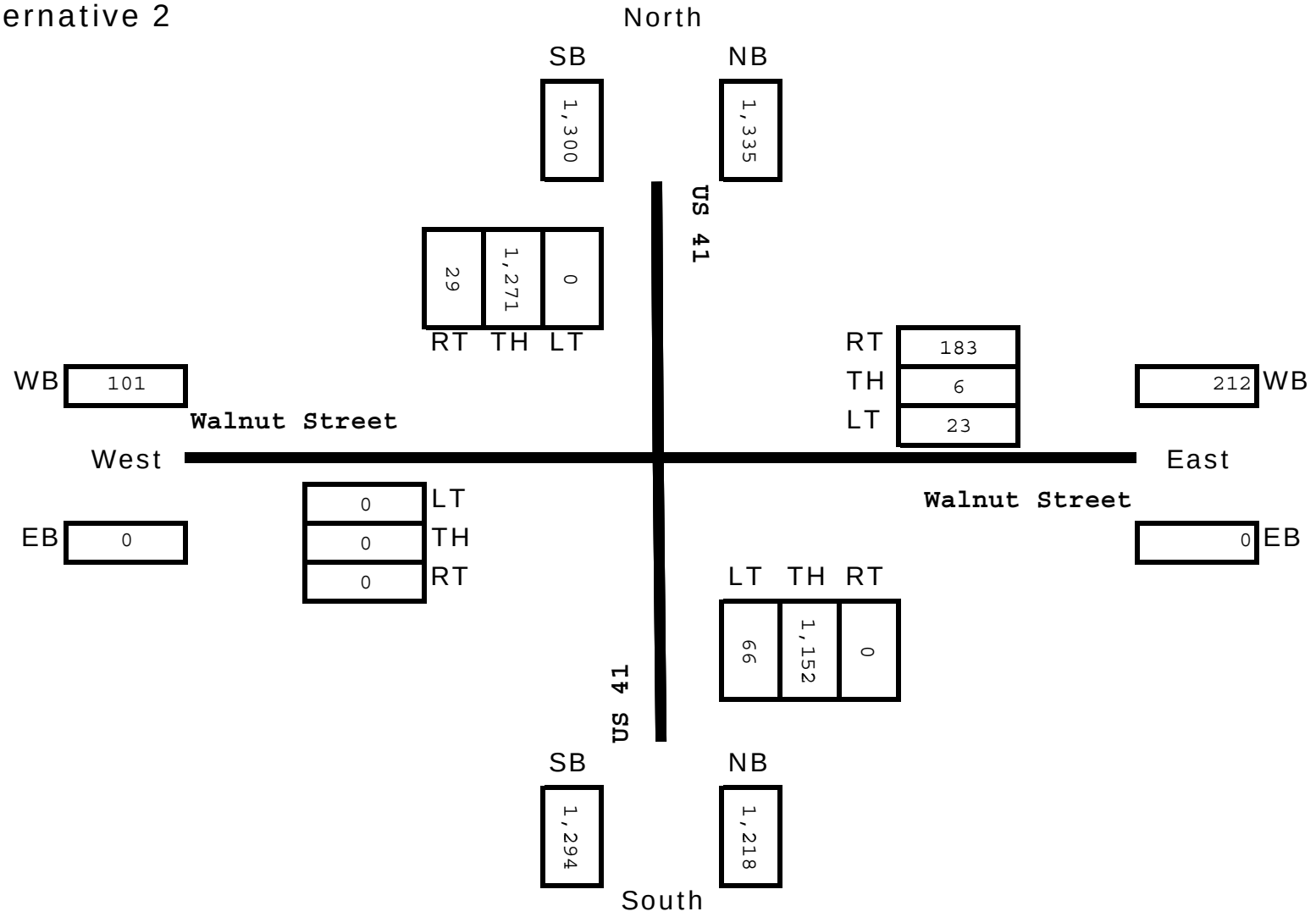
Ohio Street at 8th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



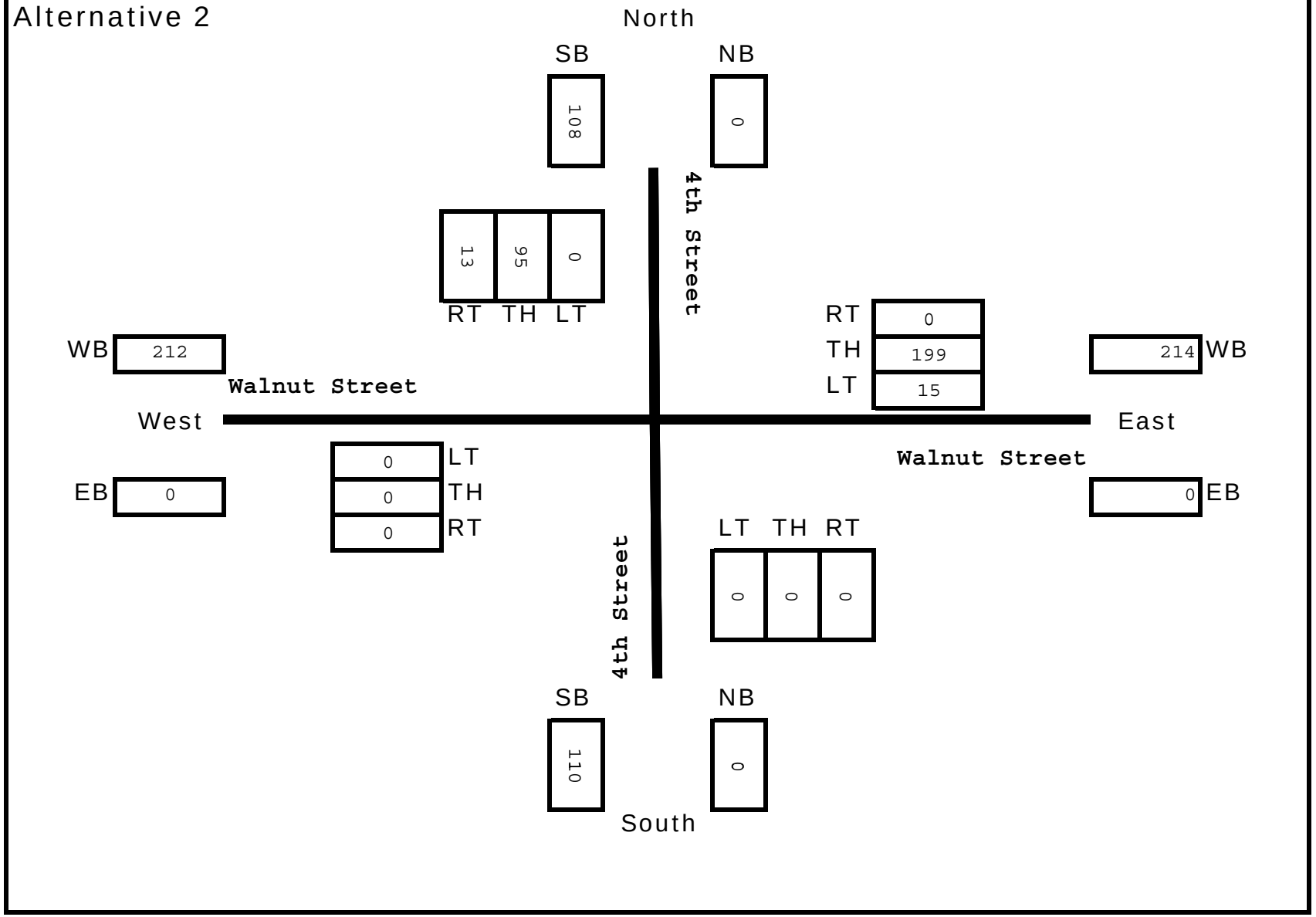
Ohio Street at 9th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



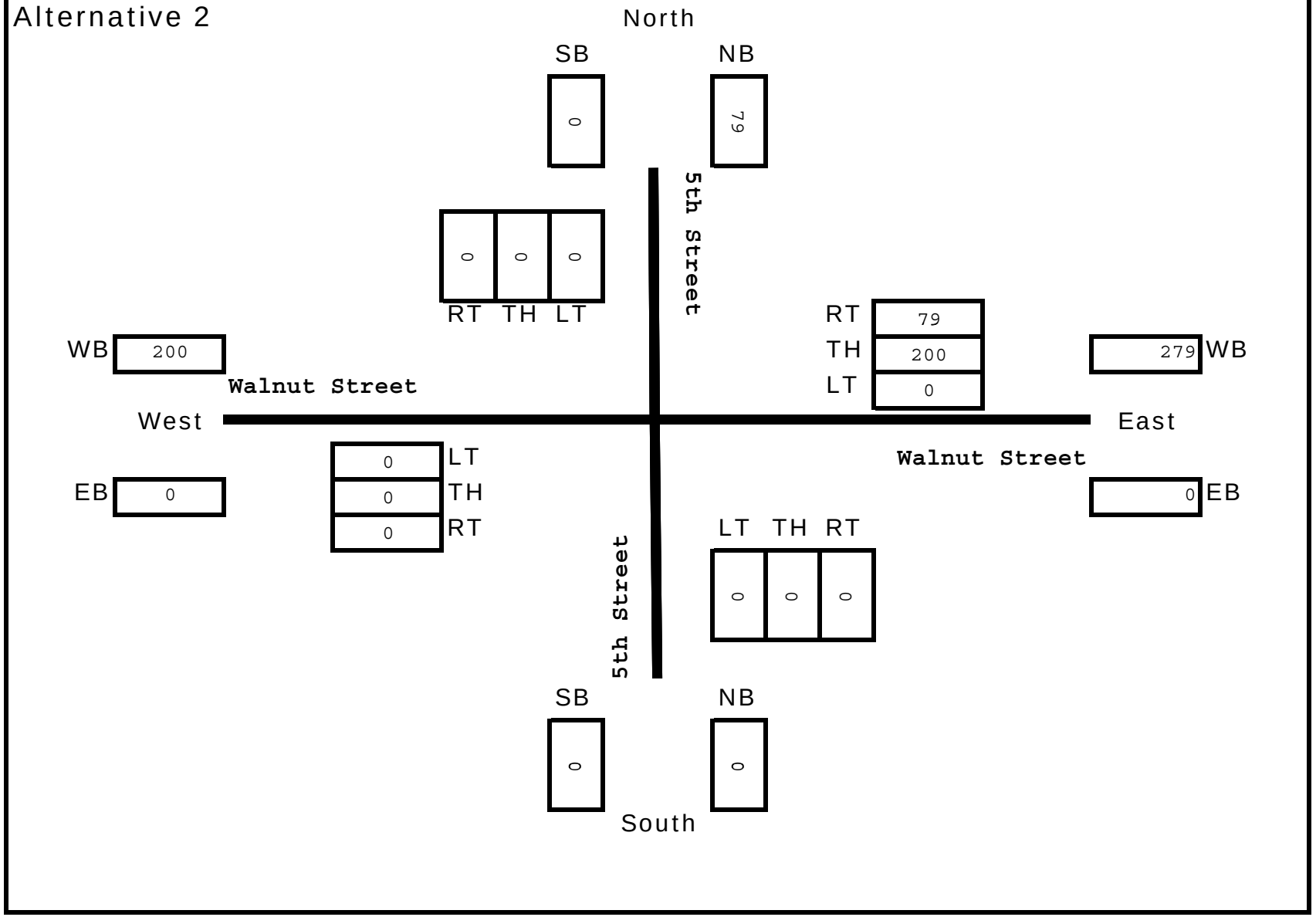
Walnut Street at US 41
PM Turning Movement Forecast
Year 2012
Alternative 2



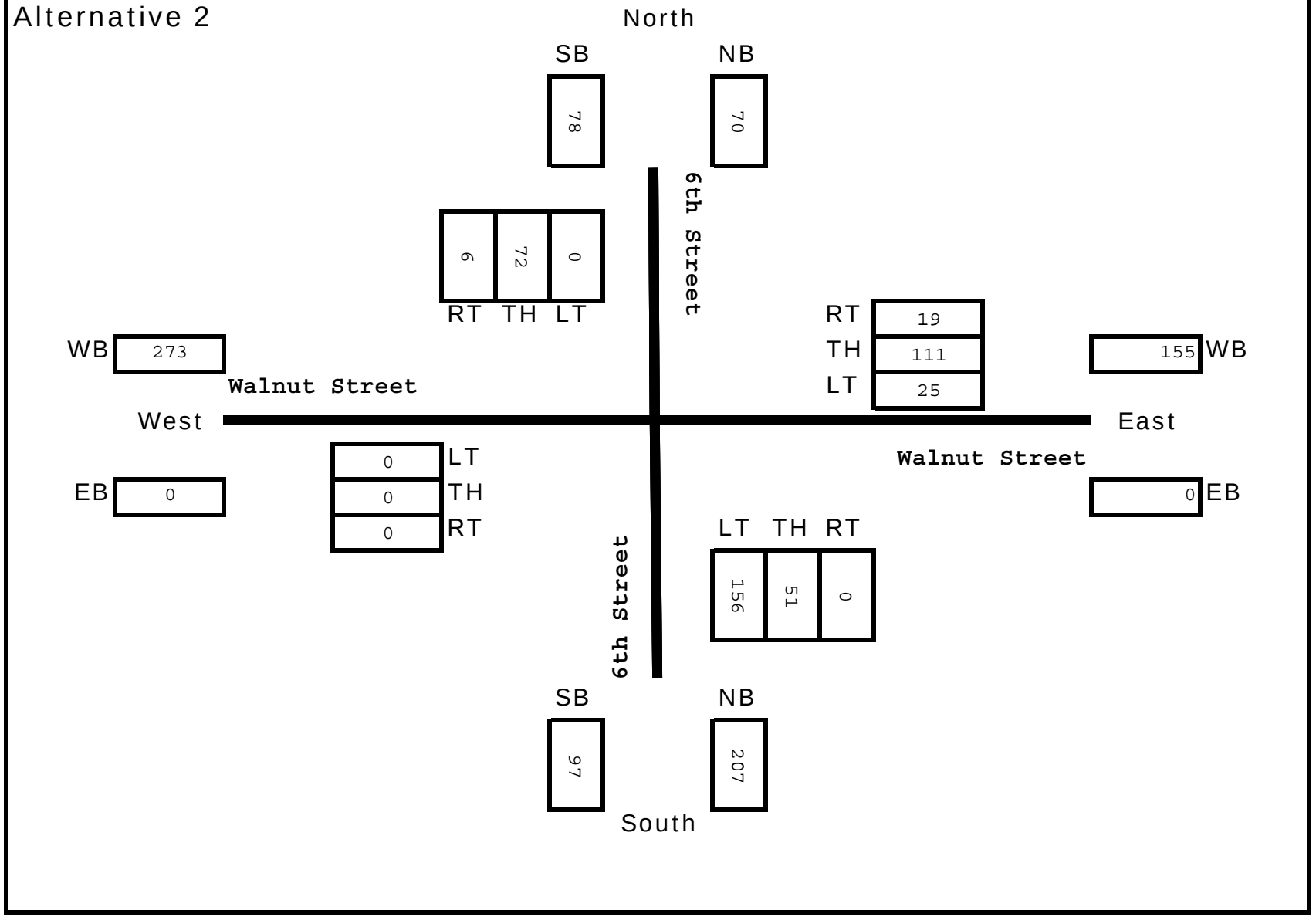
Walnut Street at 4th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



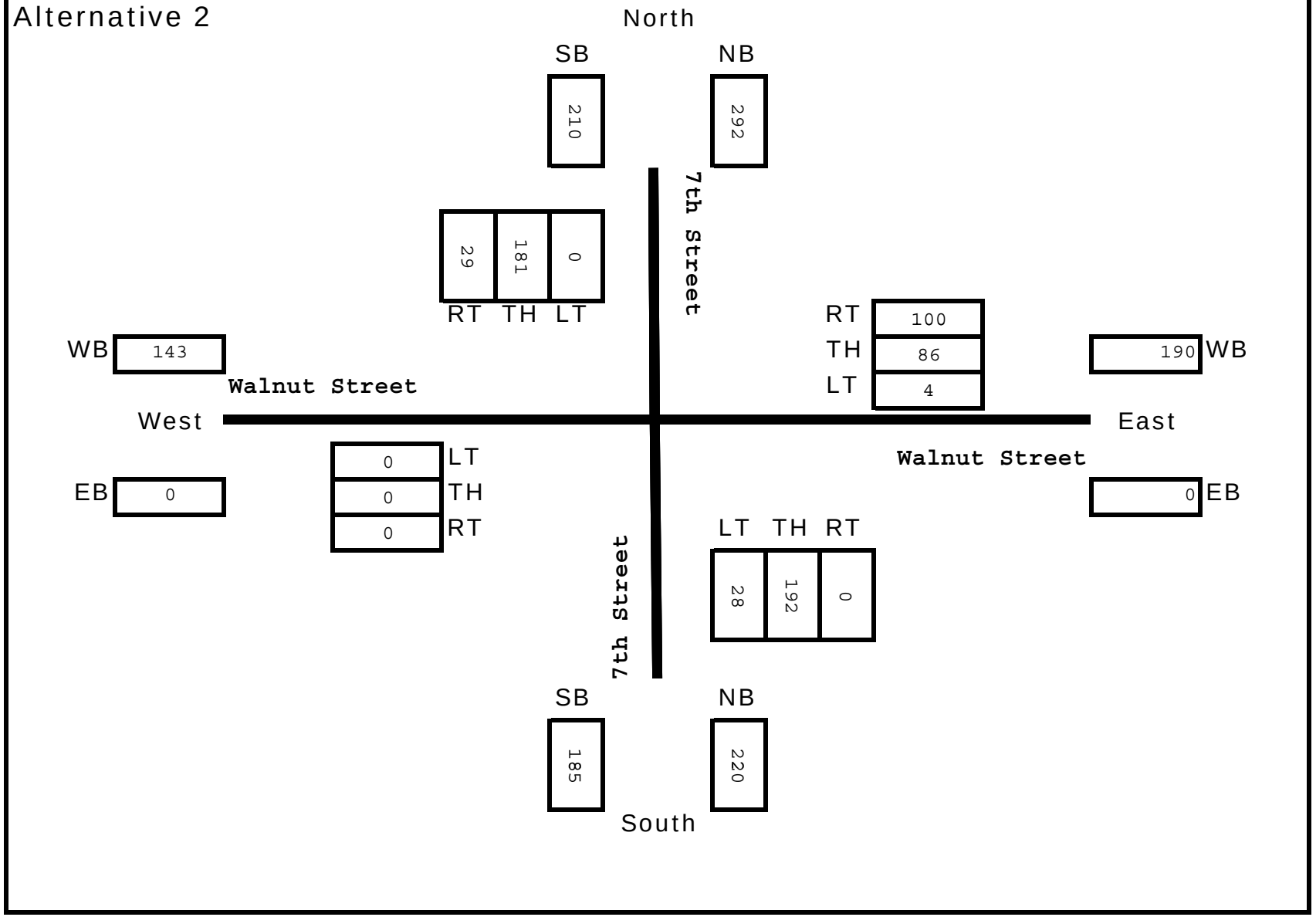
Walnut Street at 5th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



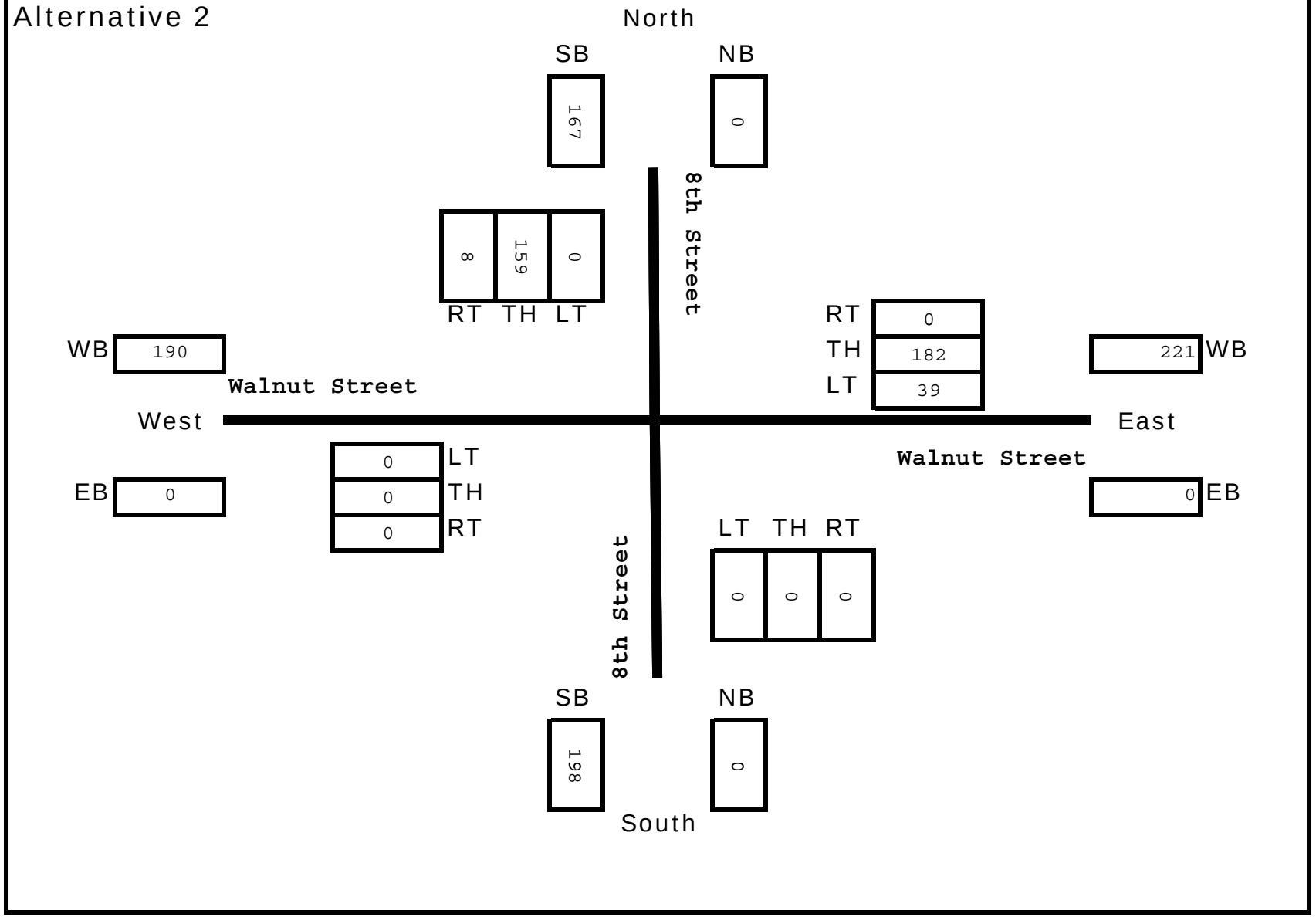
Walnut Street at 6th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



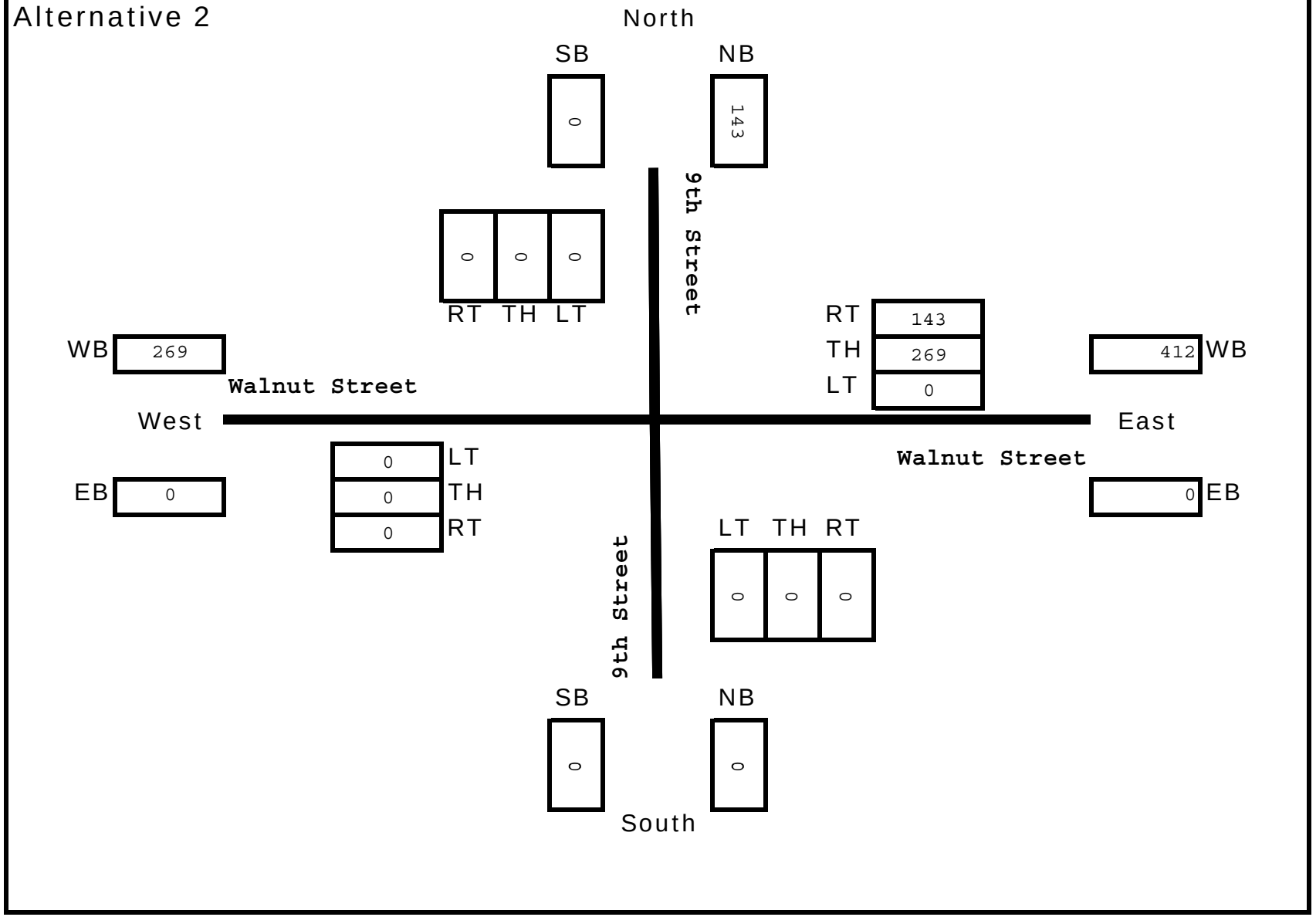
Walnut Street at 7th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



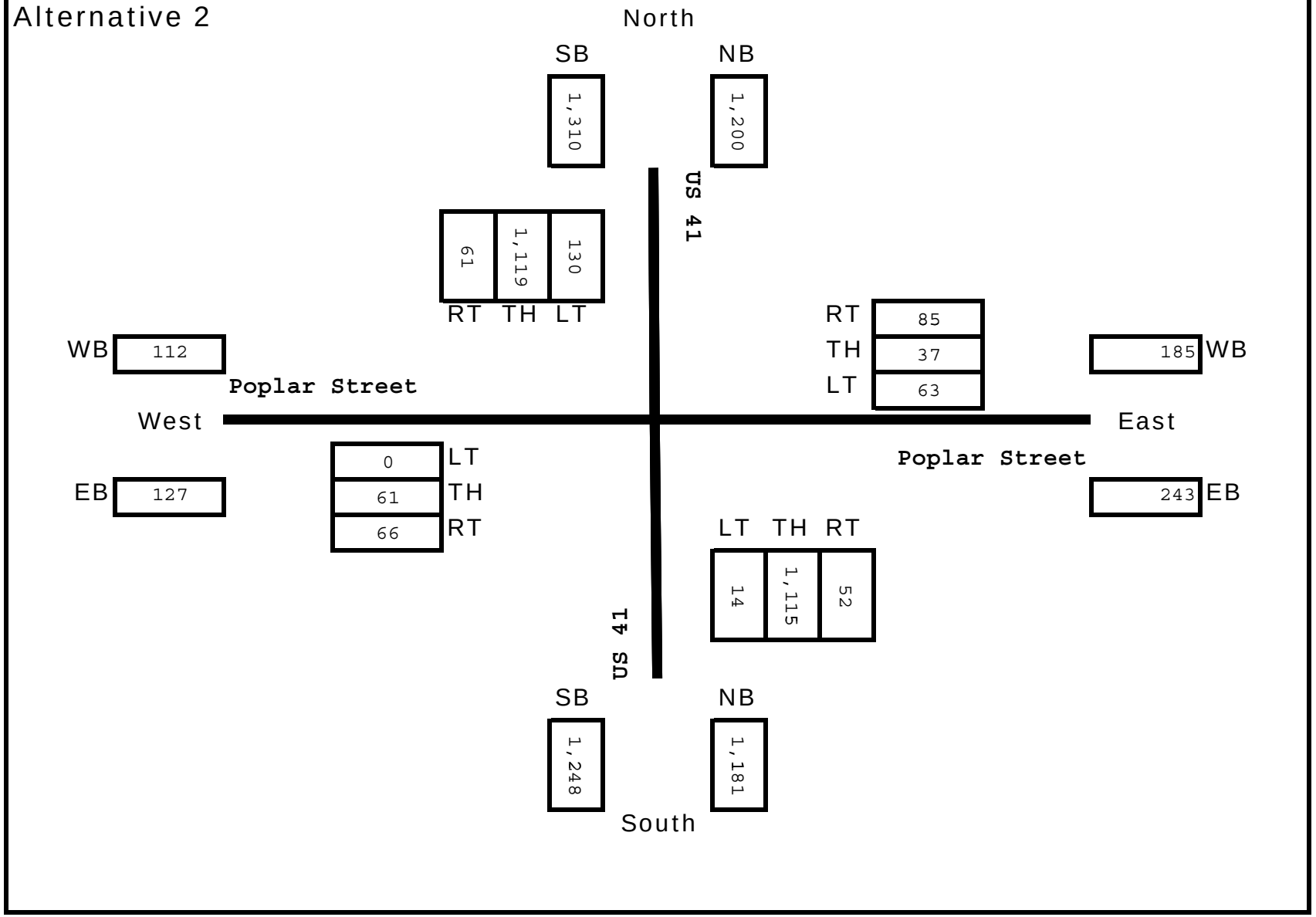
Walnut Street at 8th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



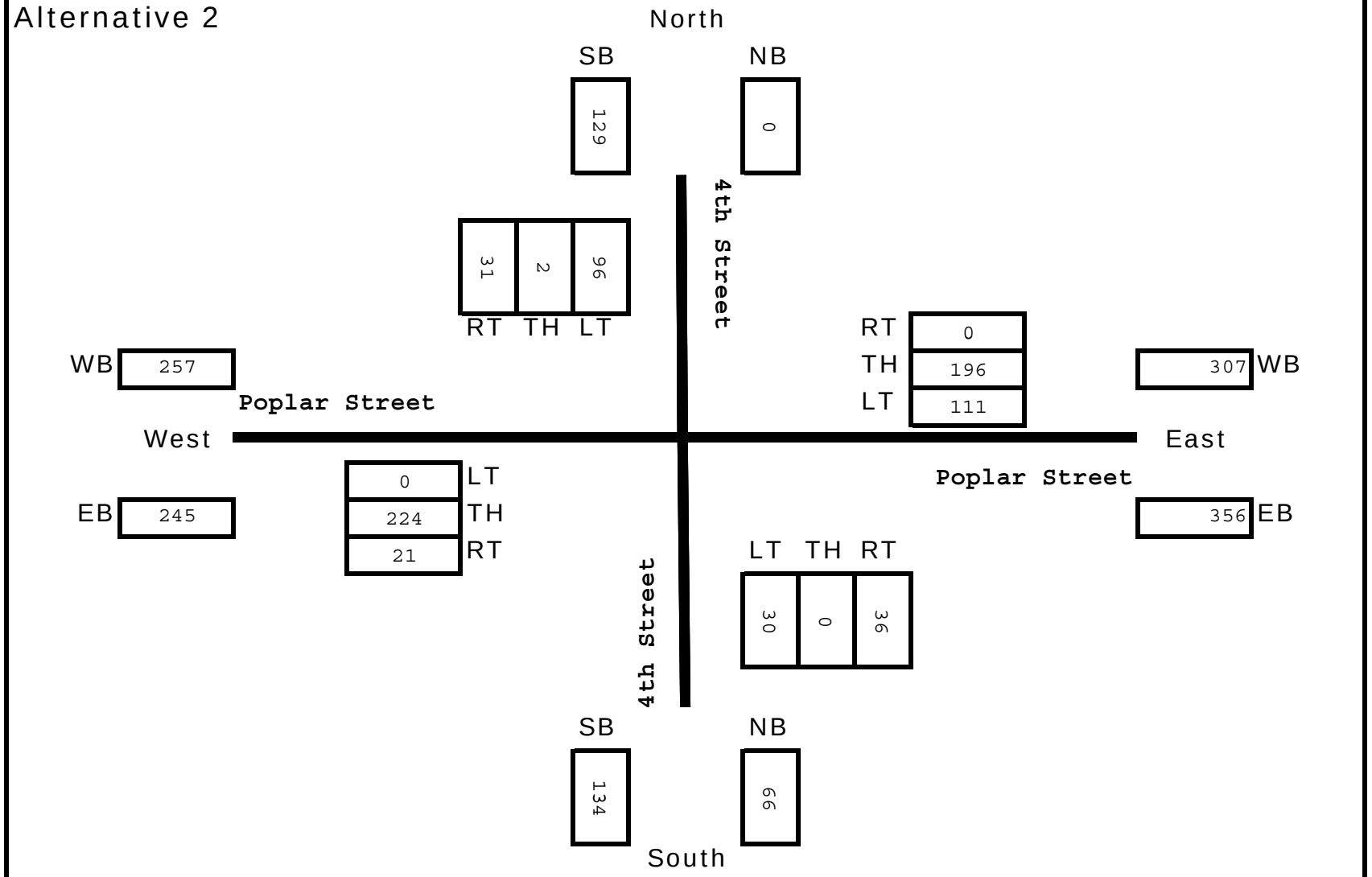
Walnut Street at 9th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



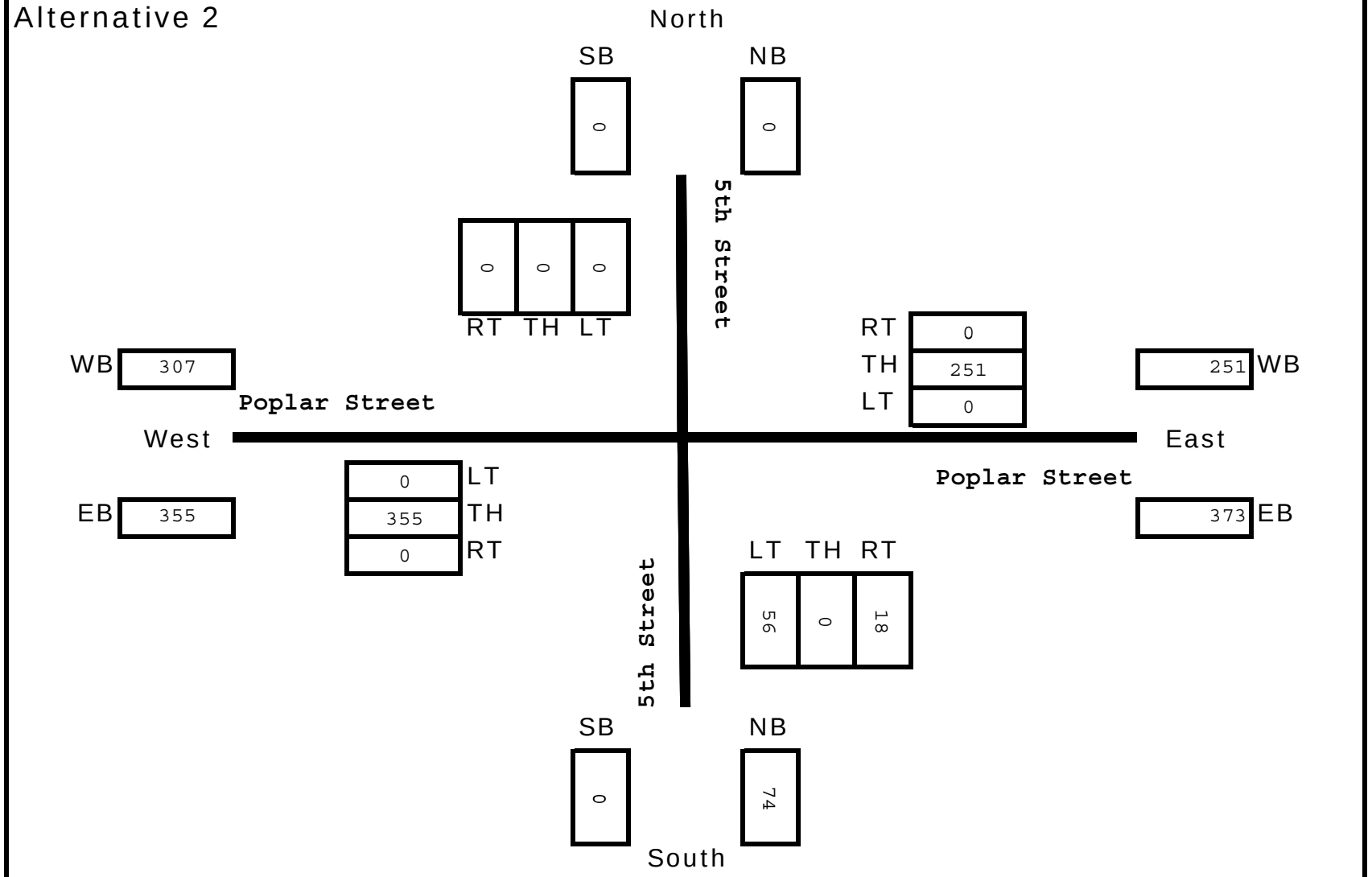
Poplar Street at US 41
PM Turning Movement Forecast
Year 2012
Alternative 2



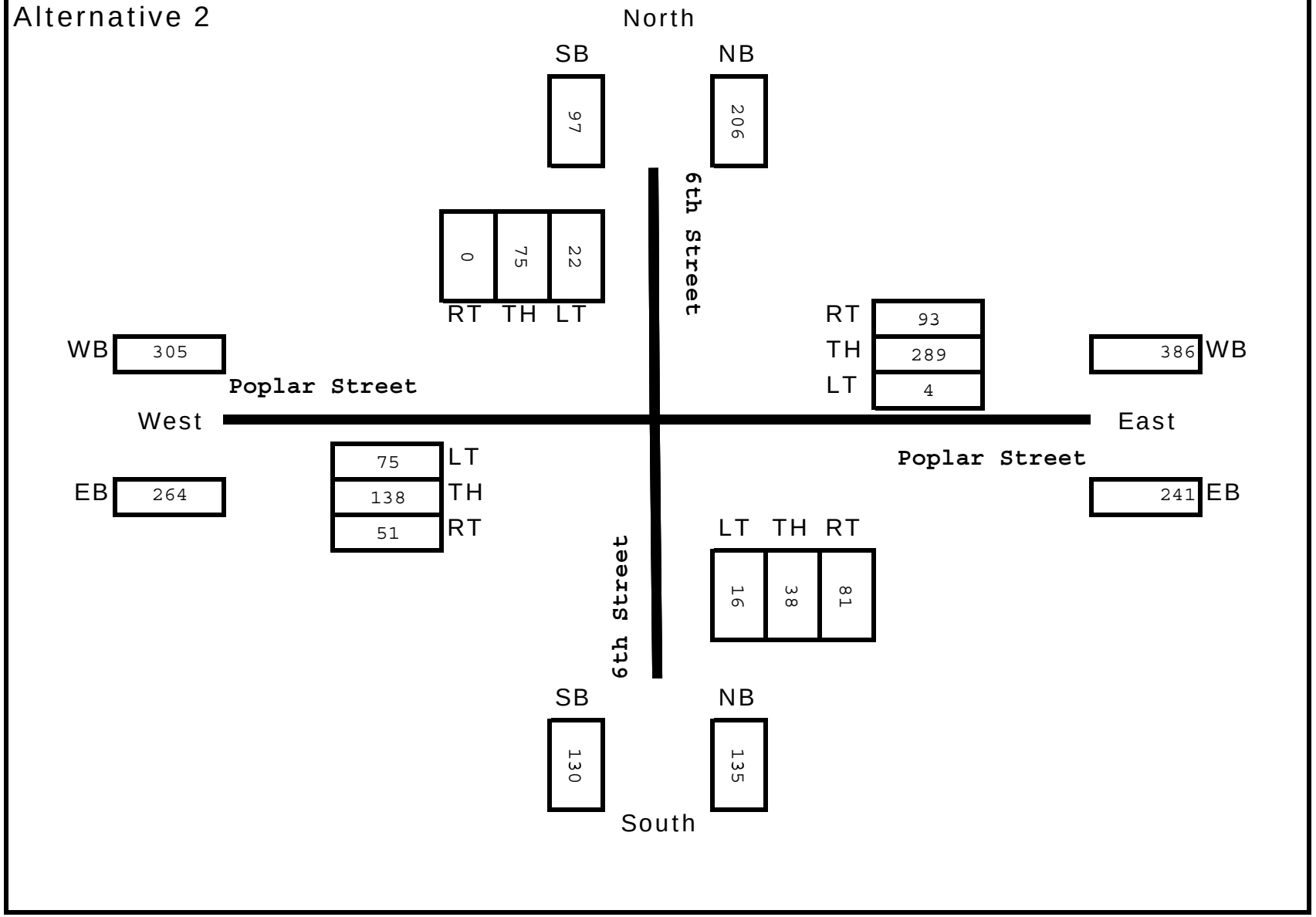
Poplar Street at 4th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



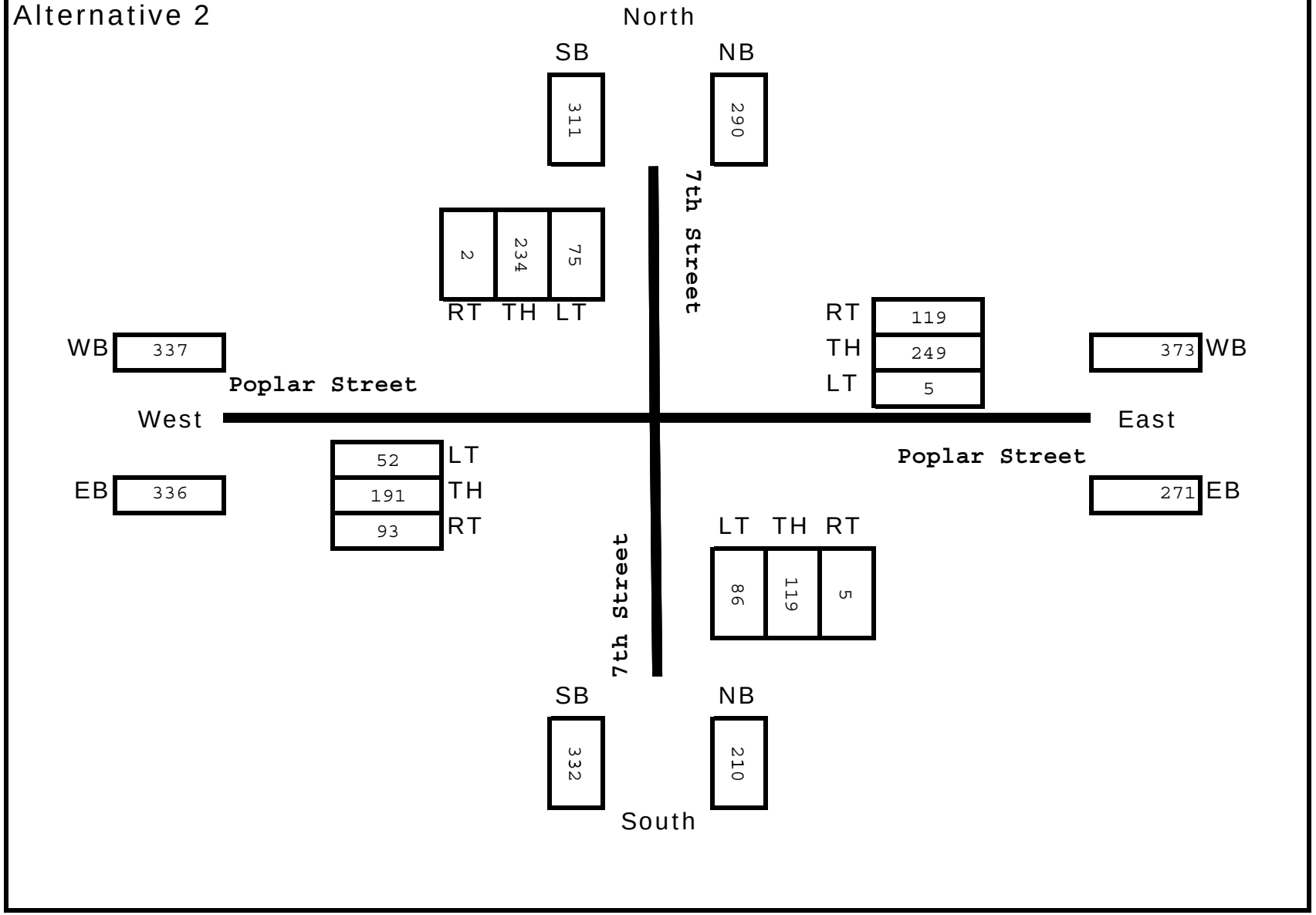
Poplar Street at 5th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



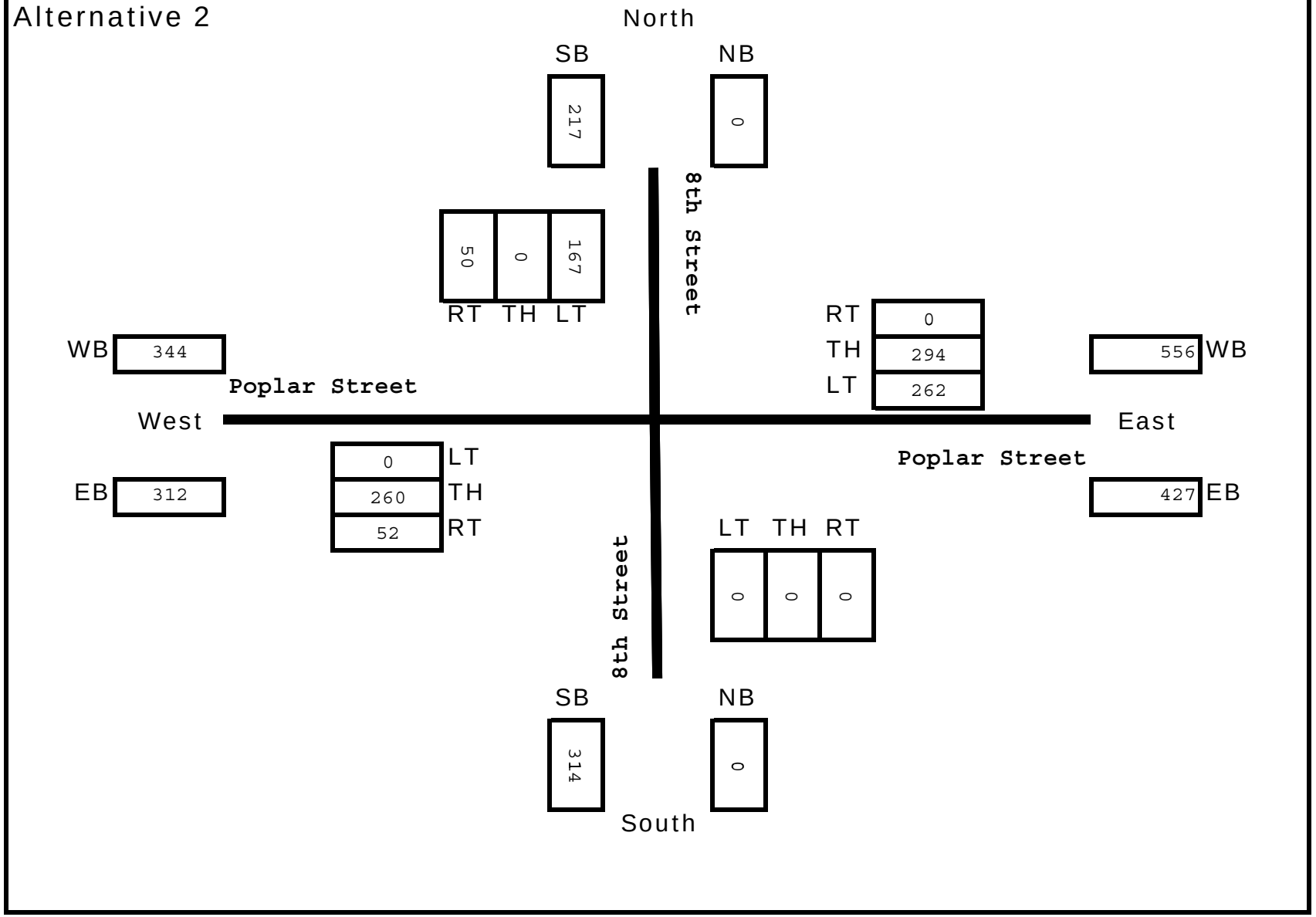
Poplar Street at 6th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



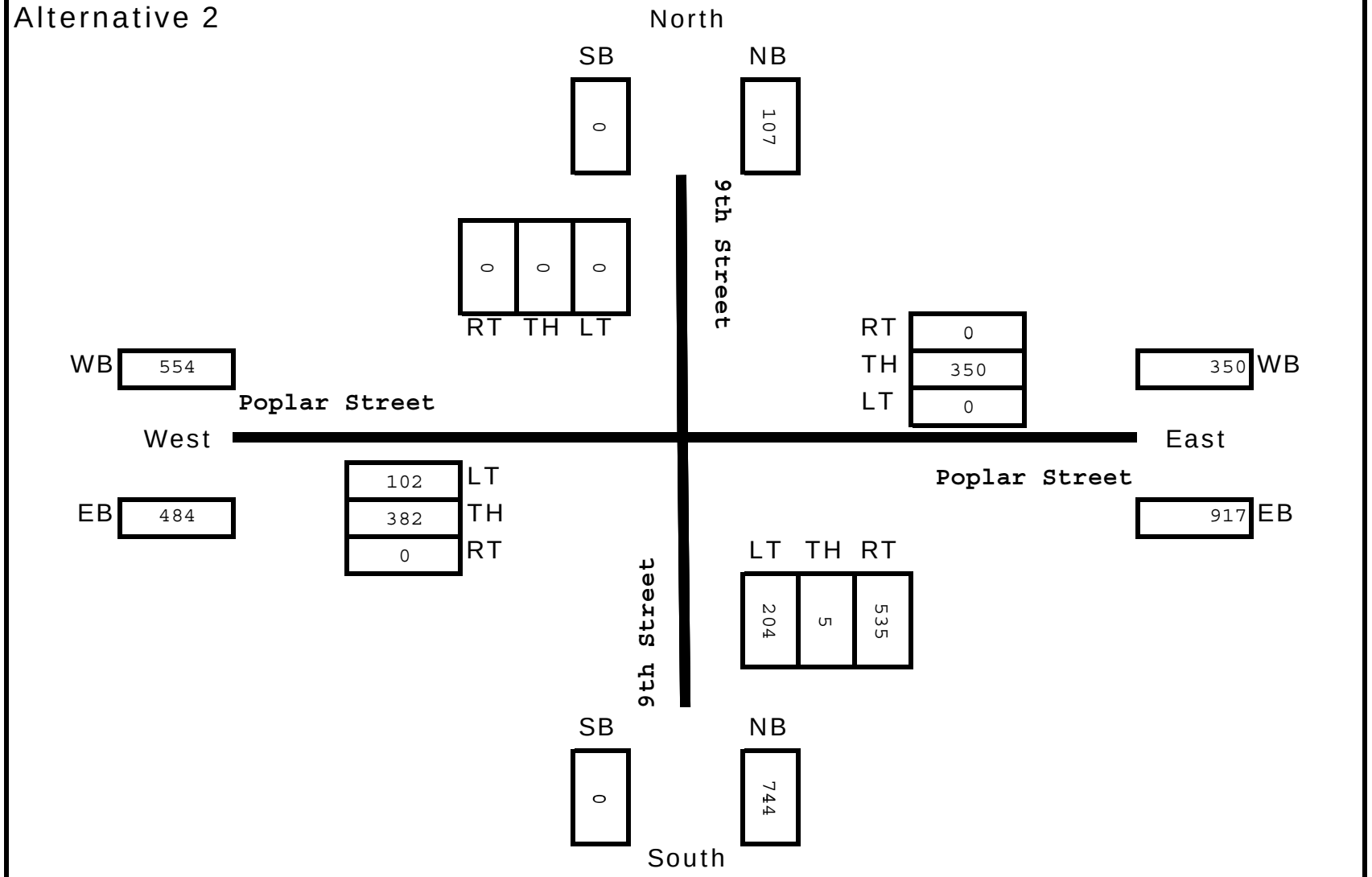
Poplar Street at 7th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



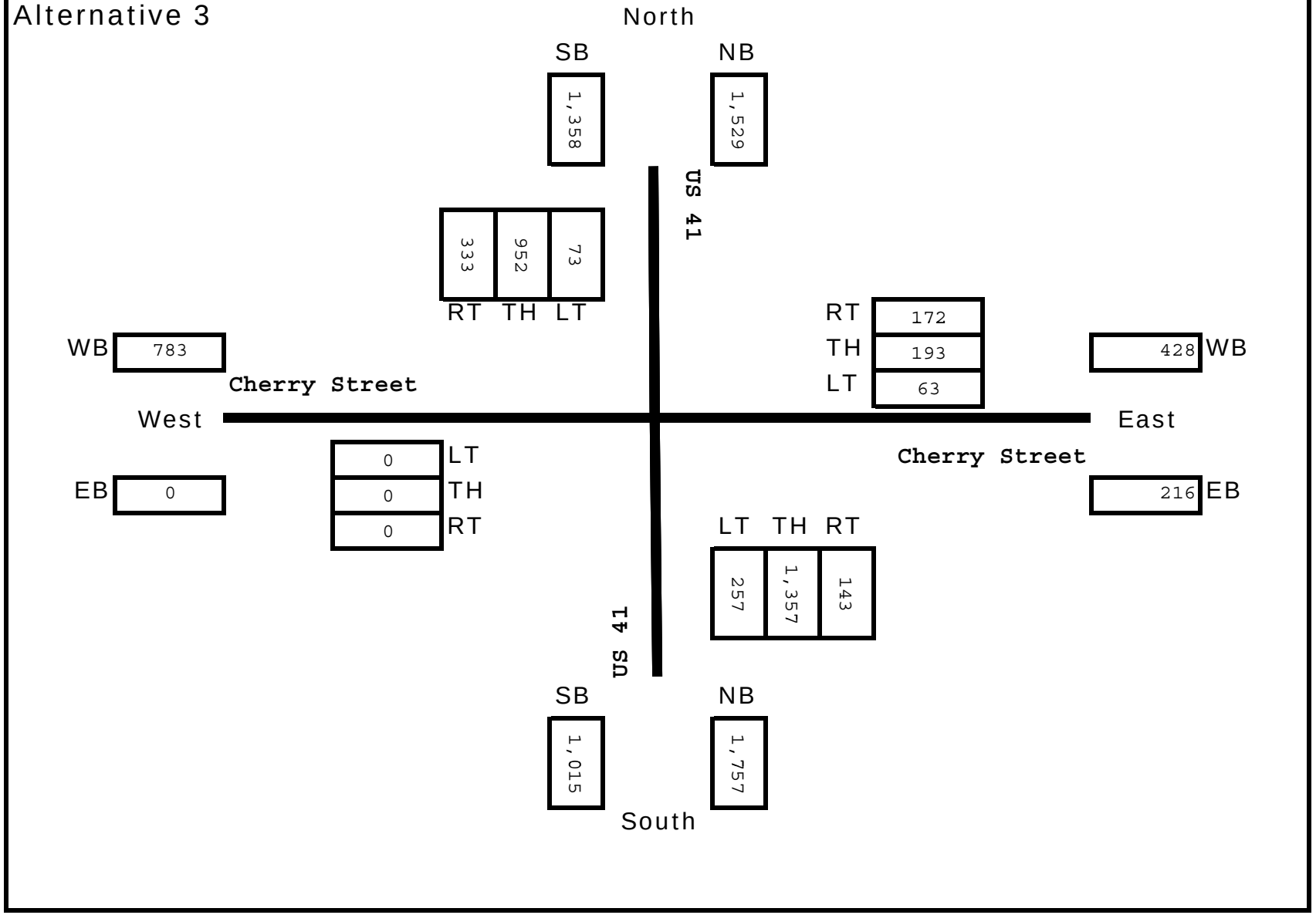
Poplar Street at 8th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



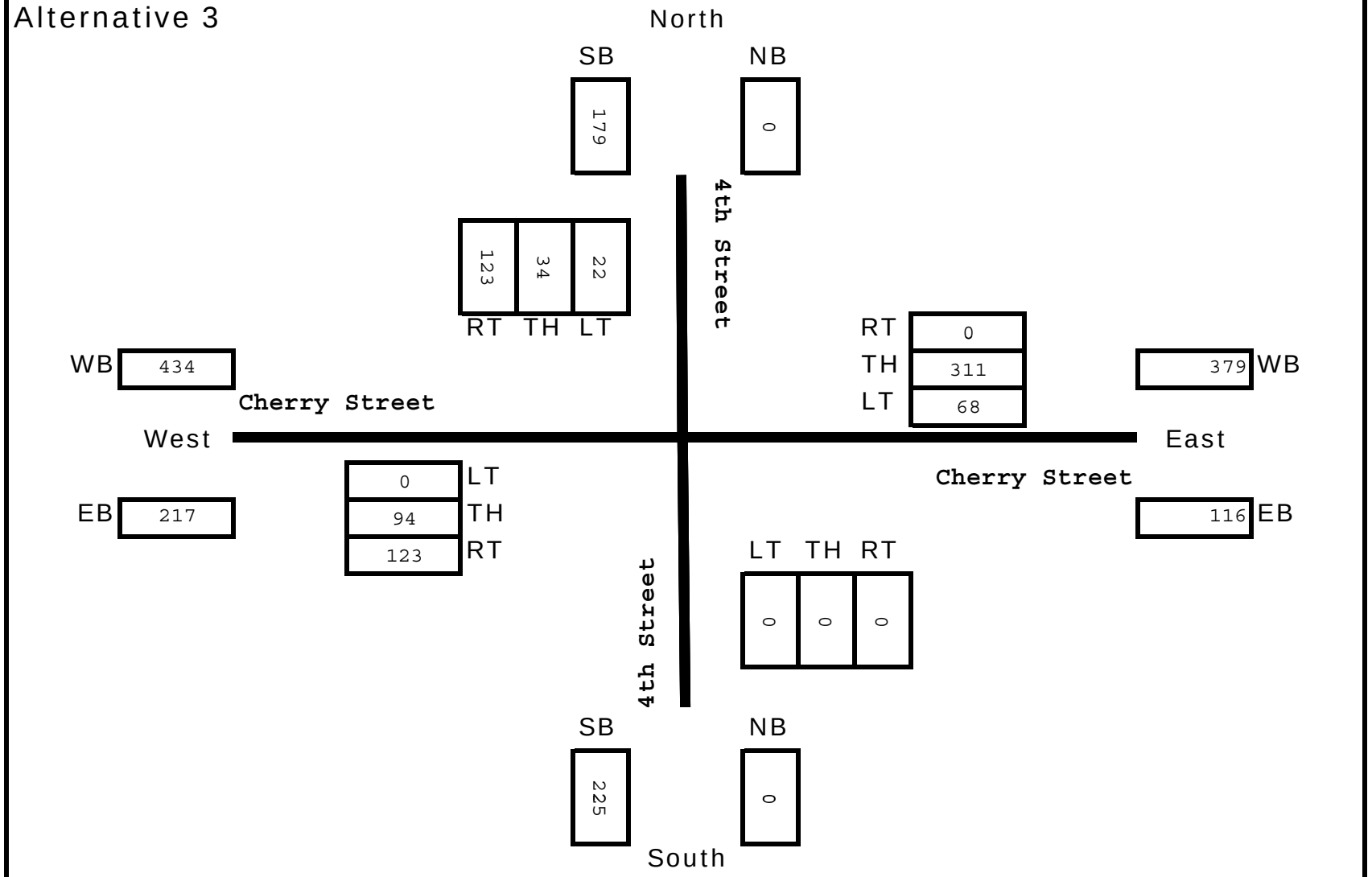
Poplar Street at 9th Street
PM Turning Movement Forecast
Year 2012
Alternative 2



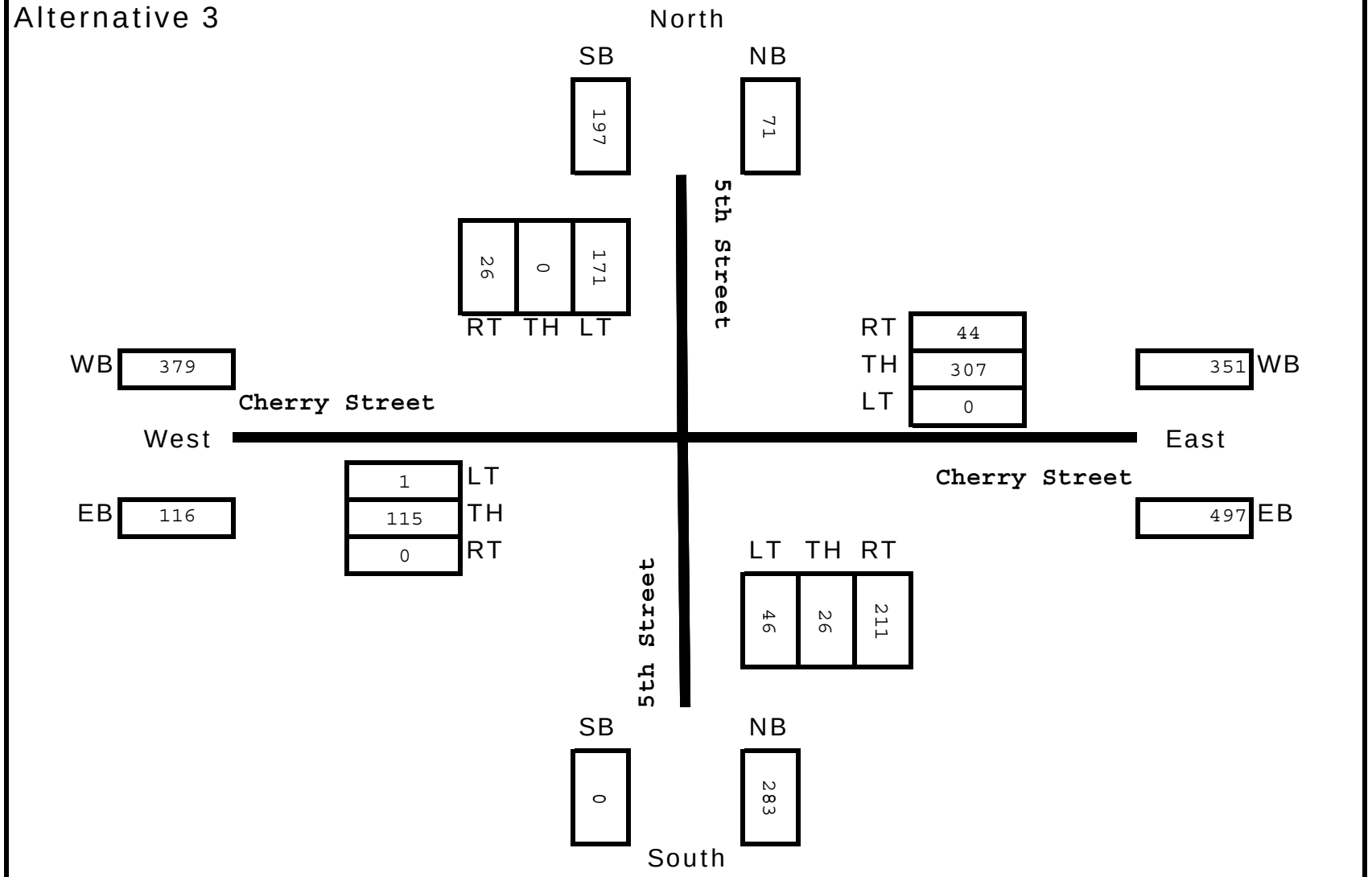
Cherry Street at US 41
PM Turning Movement Forecast
Year 2012
Alternative 3



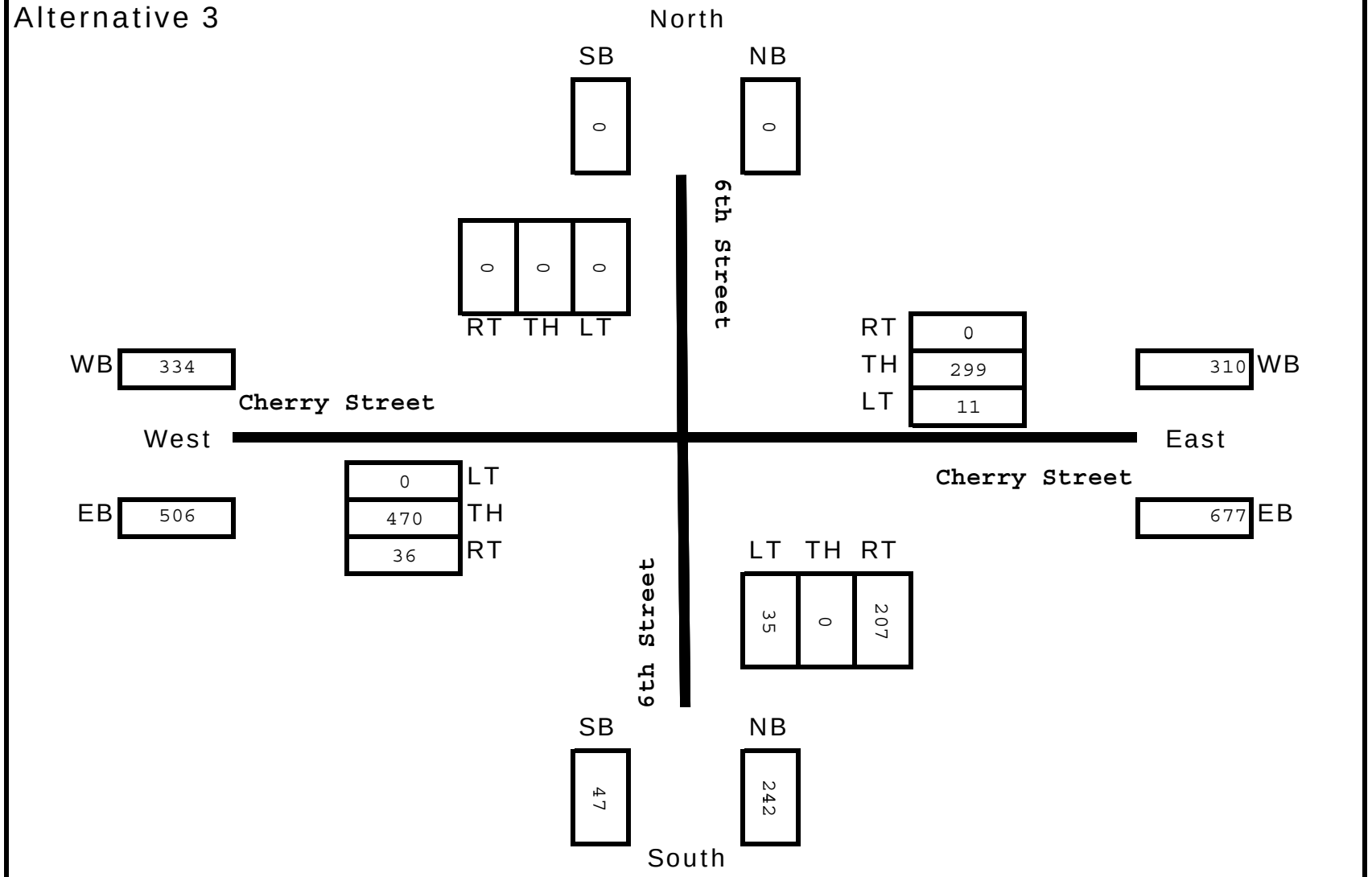
Cherry Street at 4th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



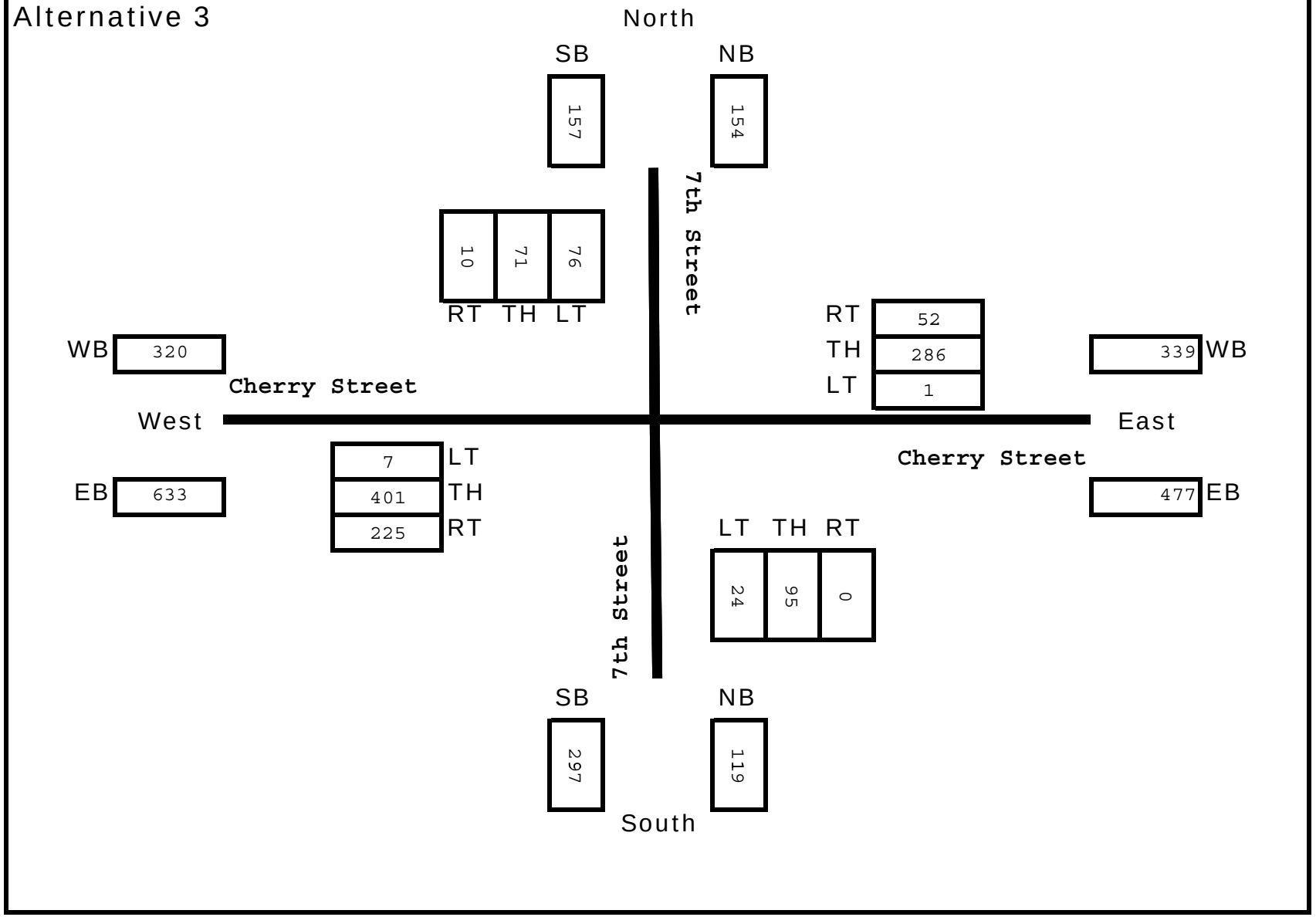
Cherry Street at 5th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



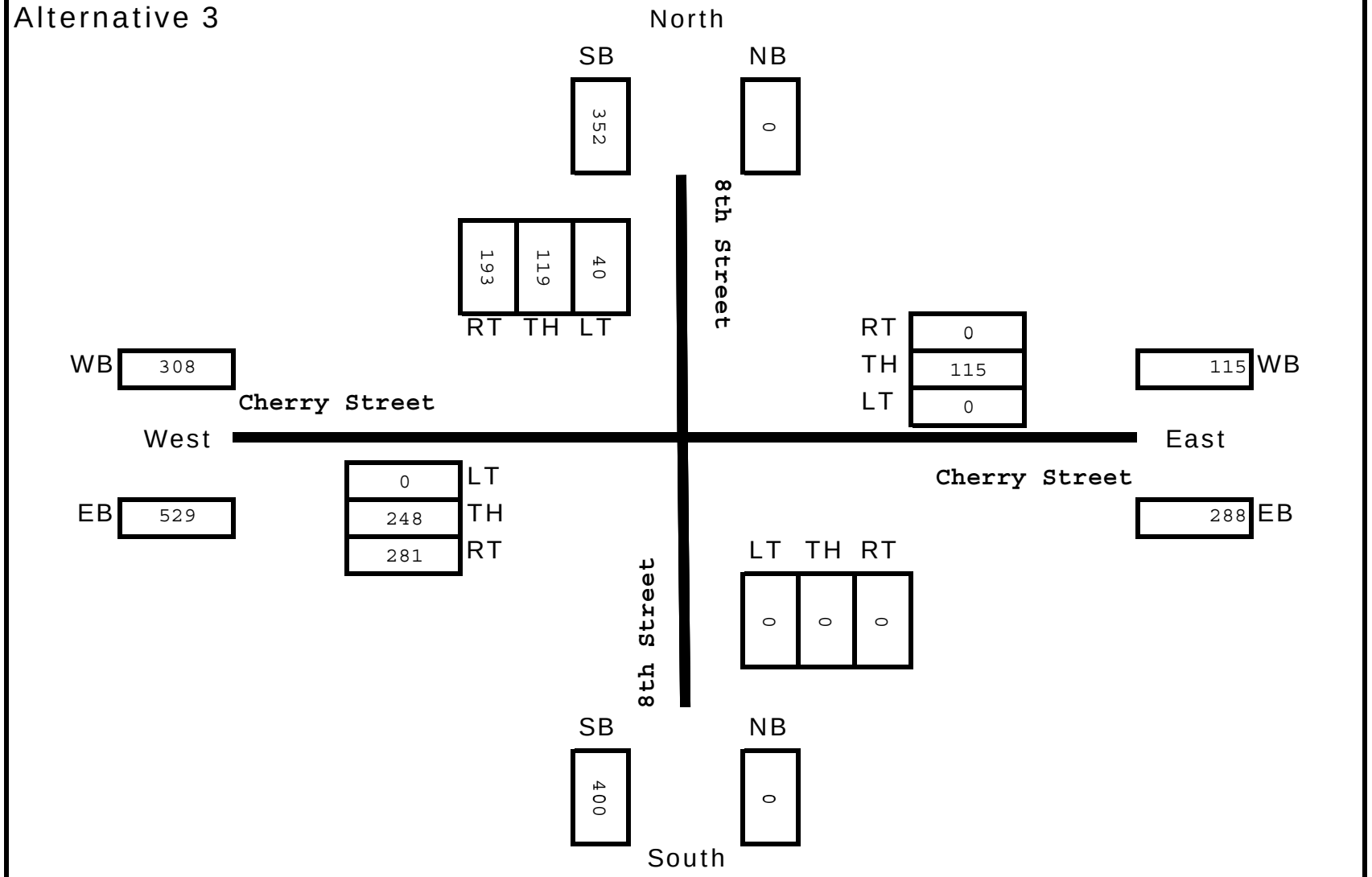
Cherry Street at 6th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



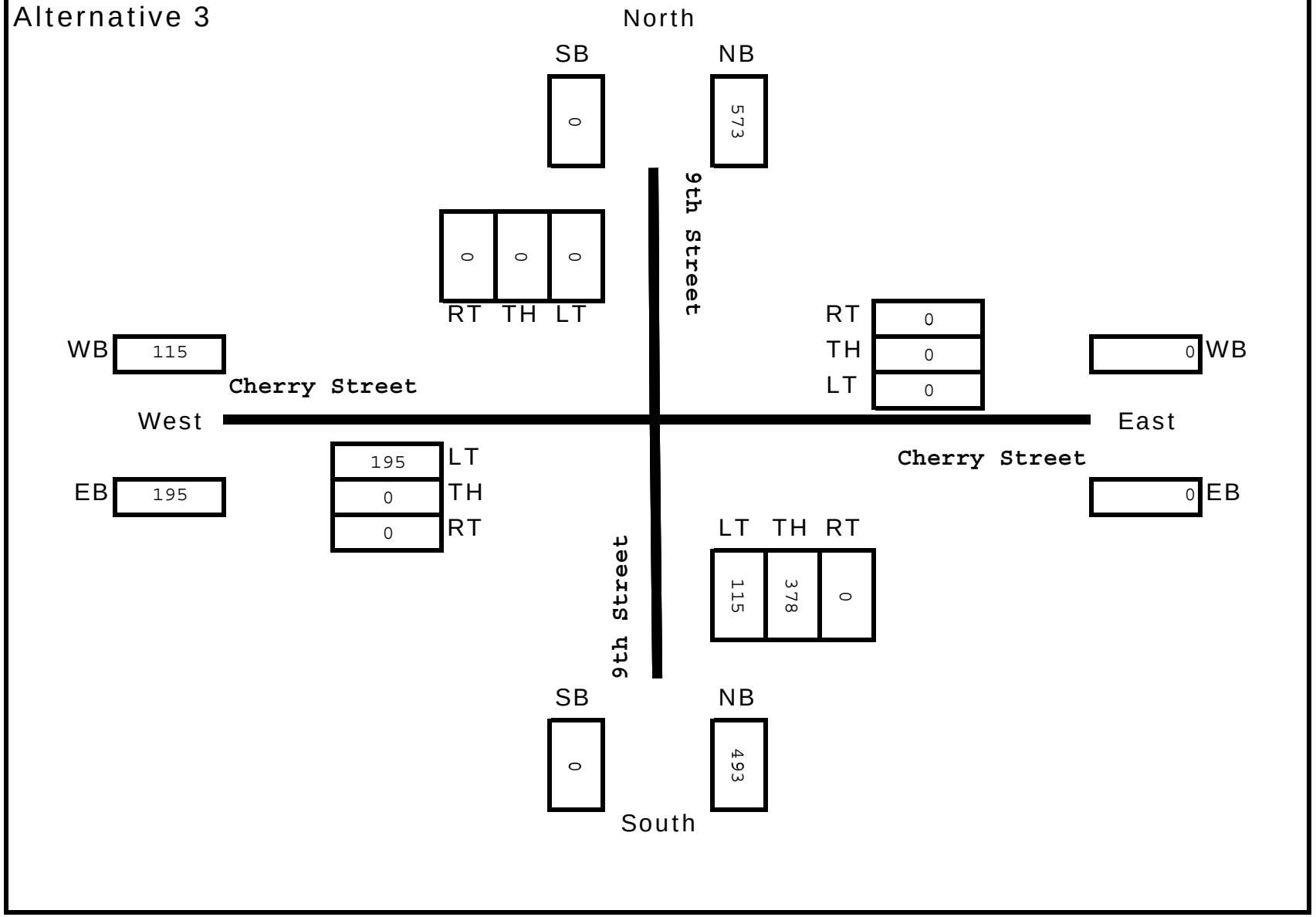
Cherry Street at 7th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



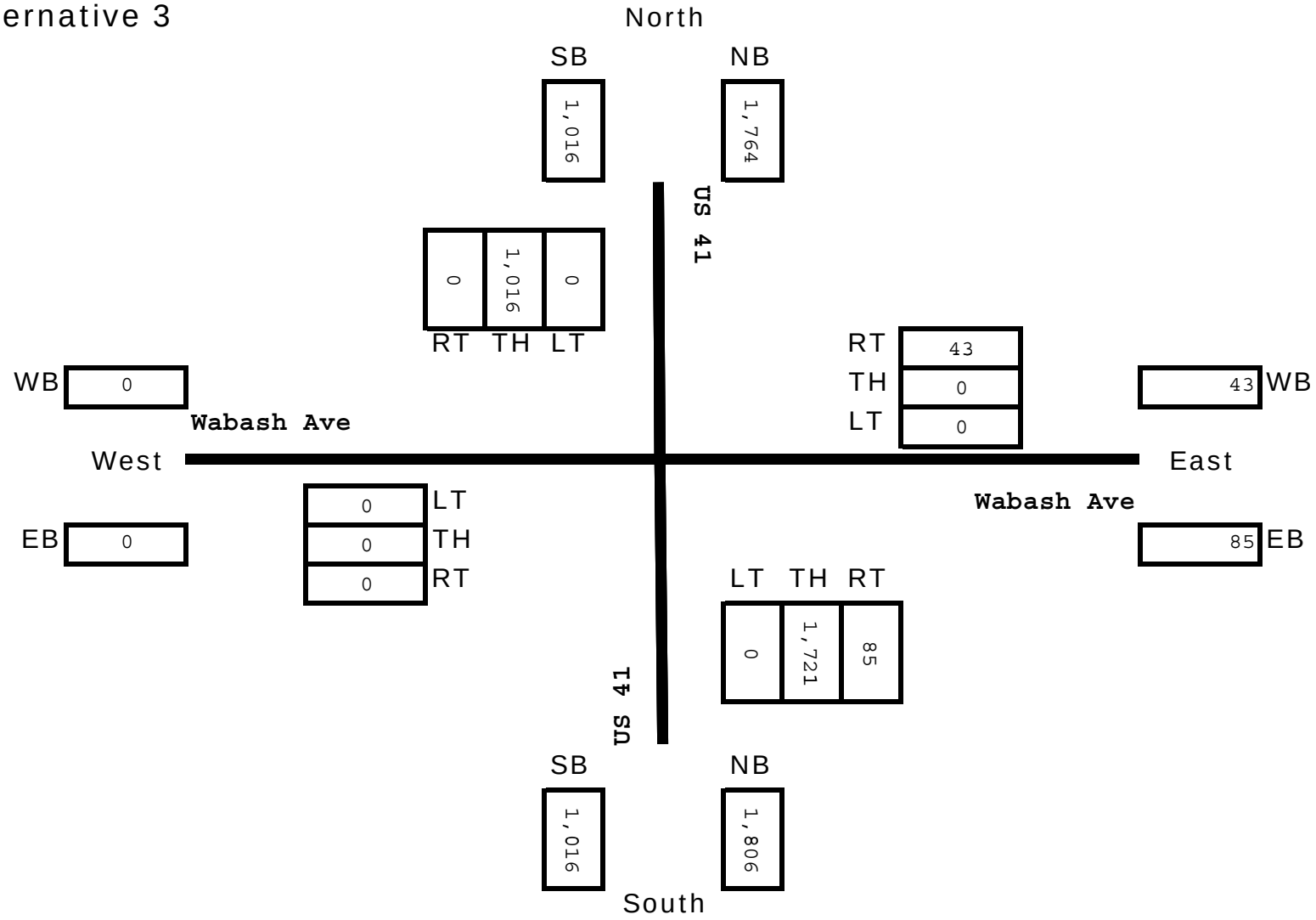
Cherry Street at 8th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



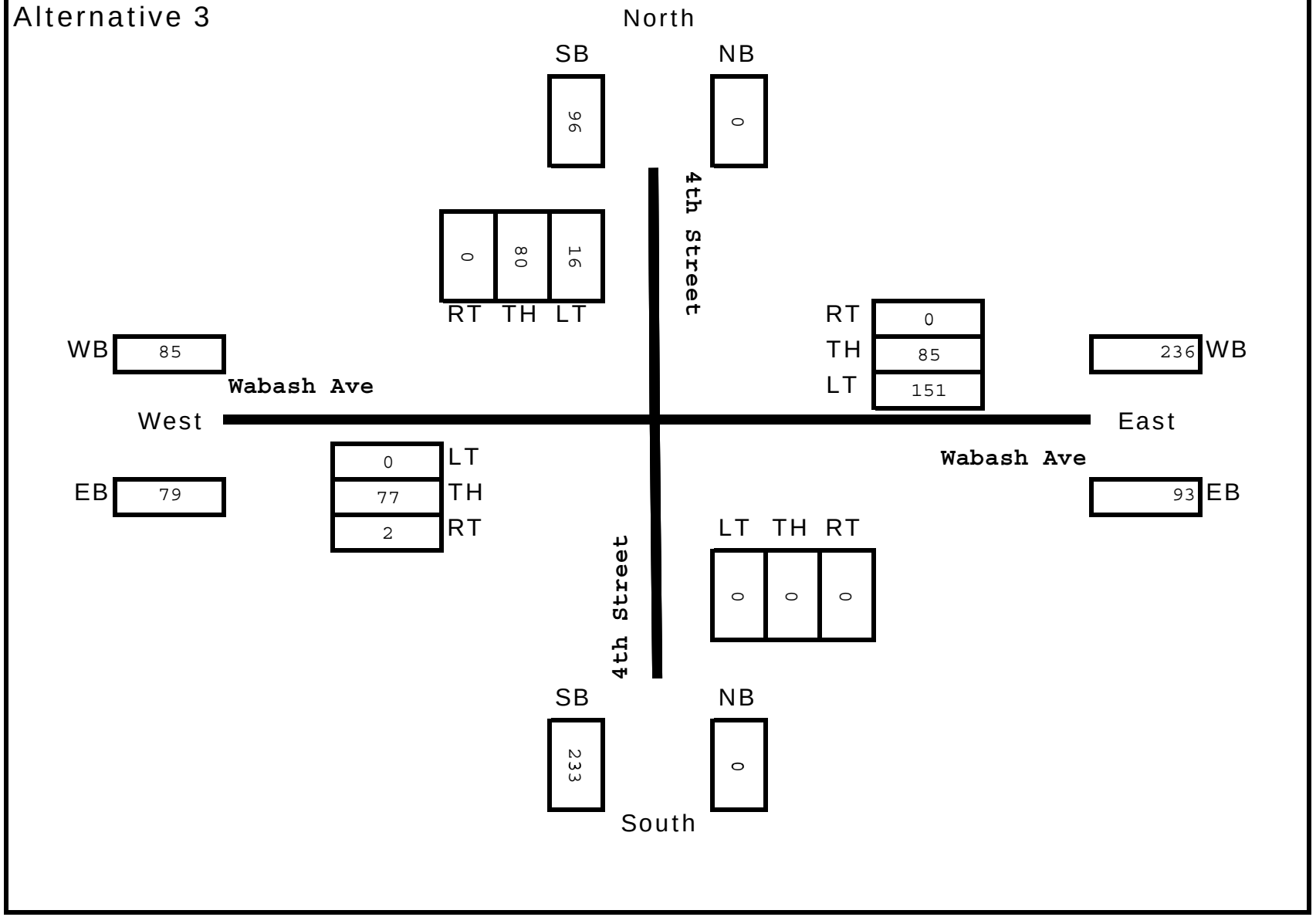
Cherry Street at 9th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



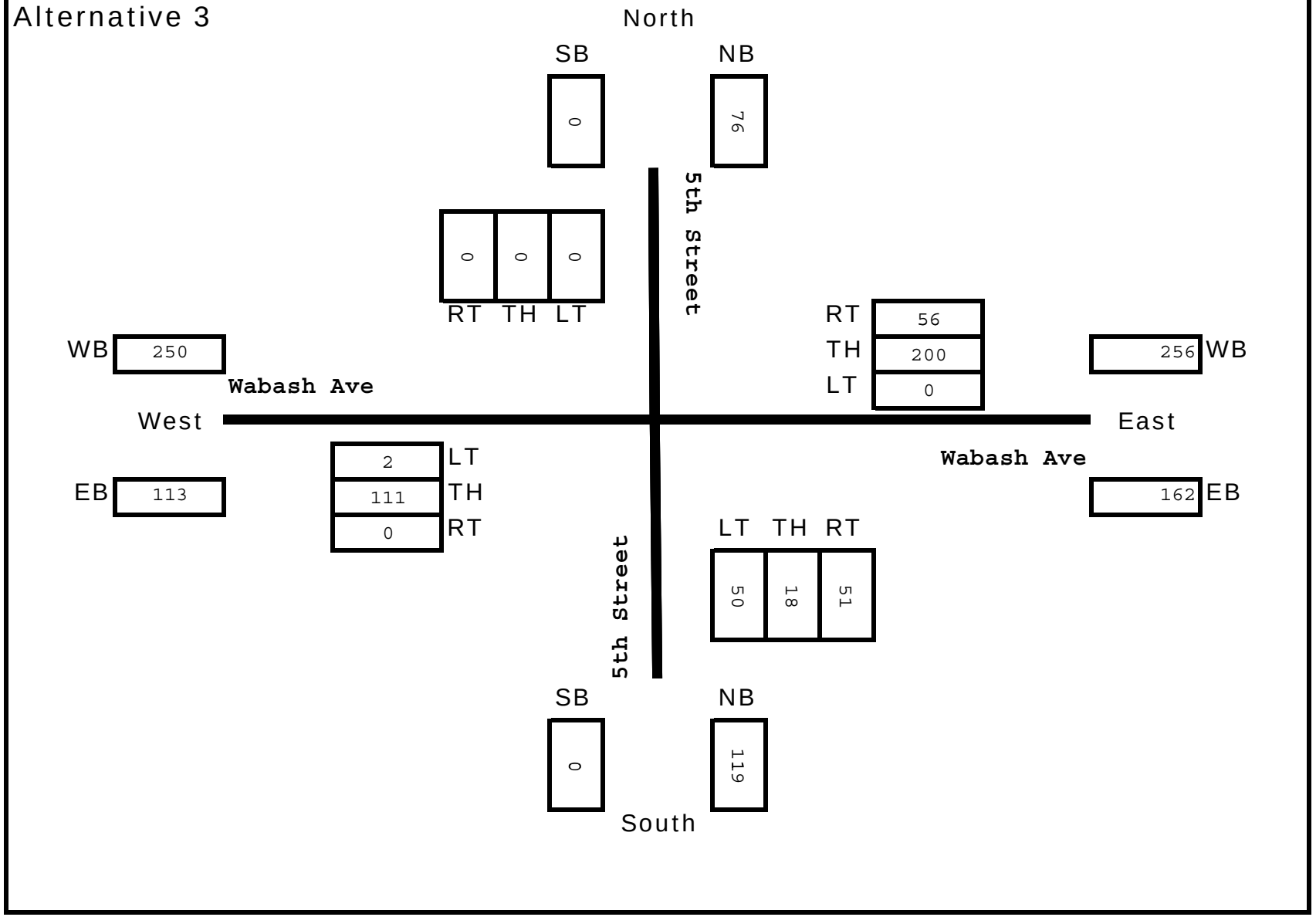
Wabash Ave at US 41
PM Turning Movement Forecast
Year 2012
Alternative 3



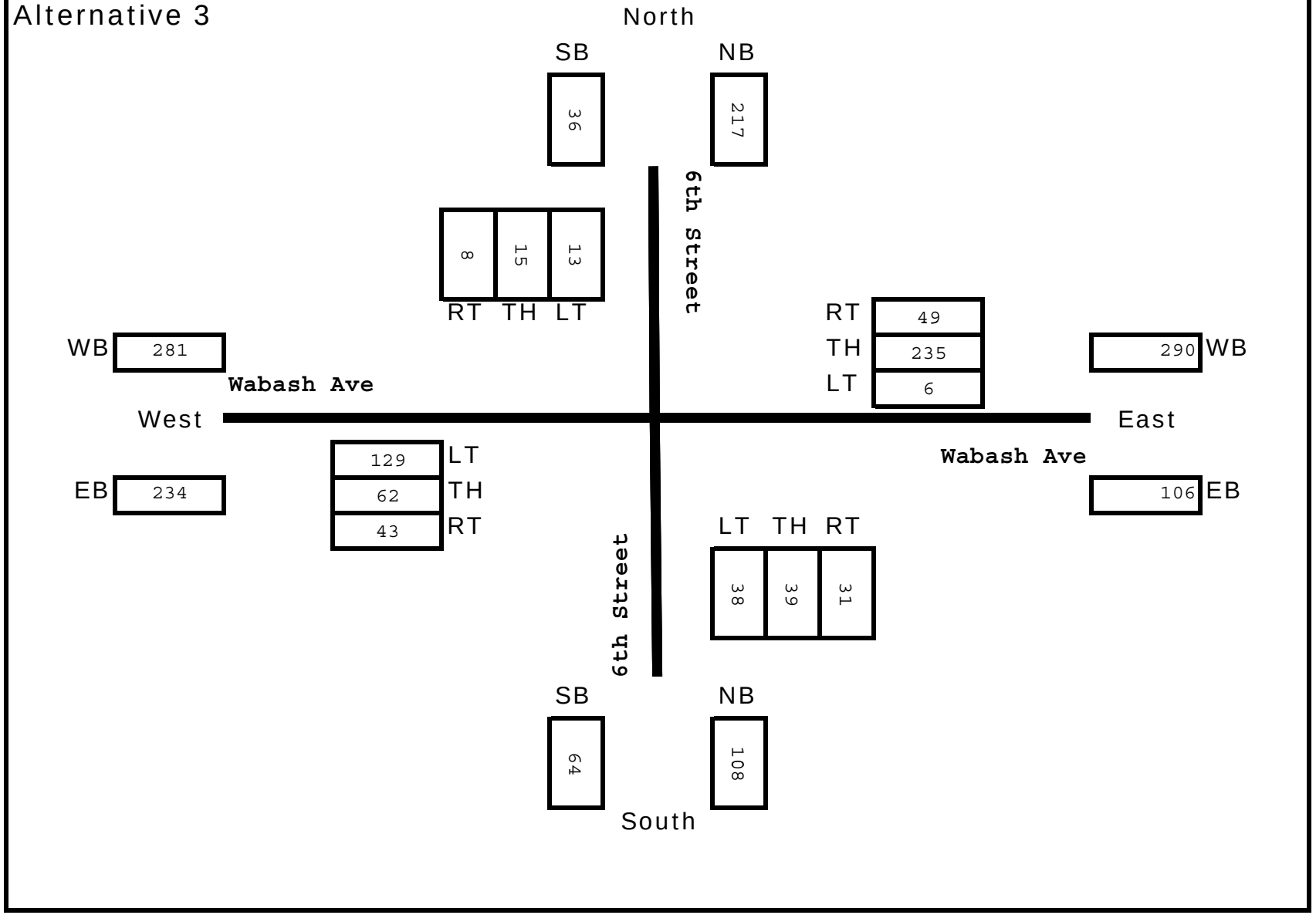
Wabash Ave at 4th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



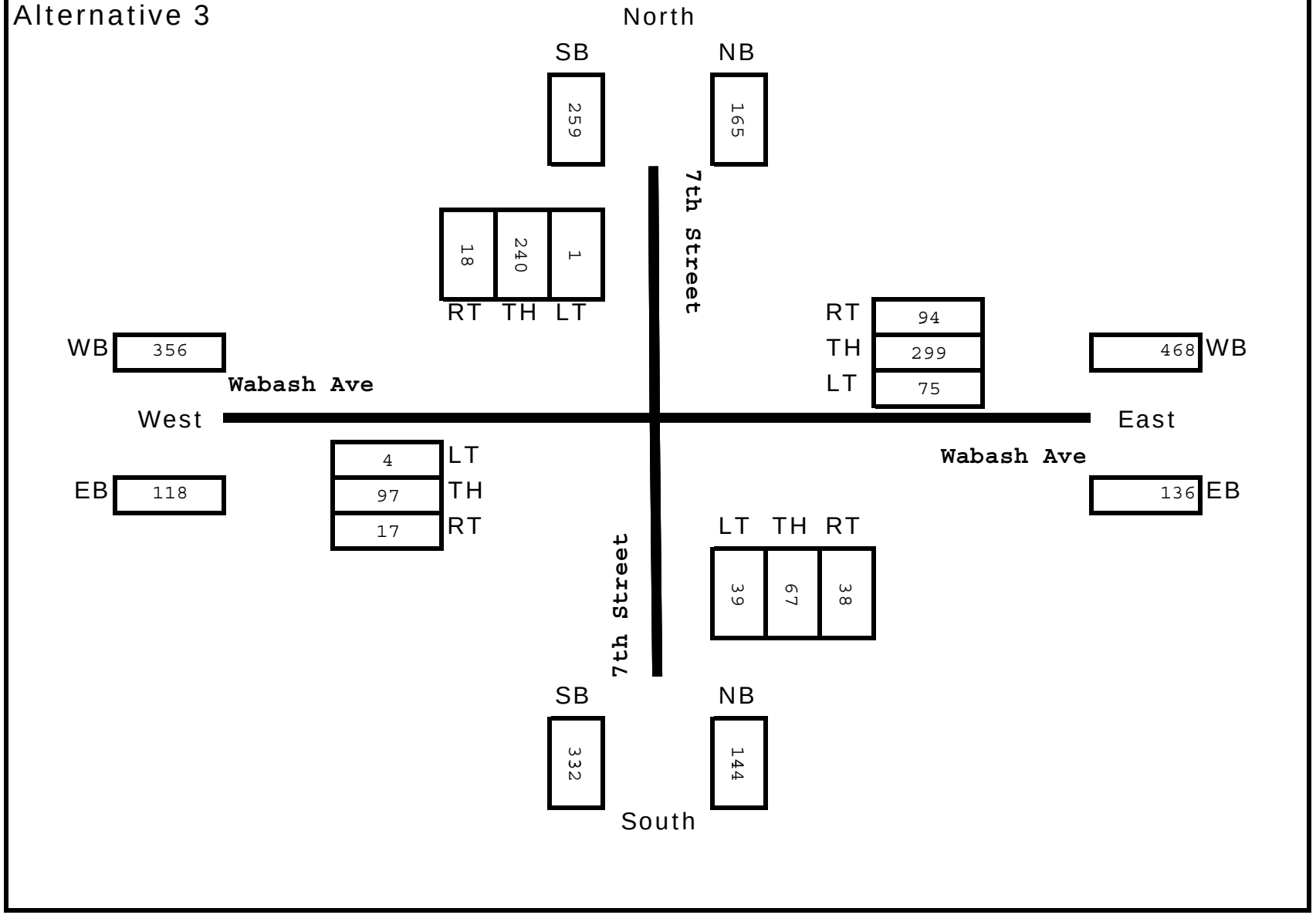
Wabash Ave at 5th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



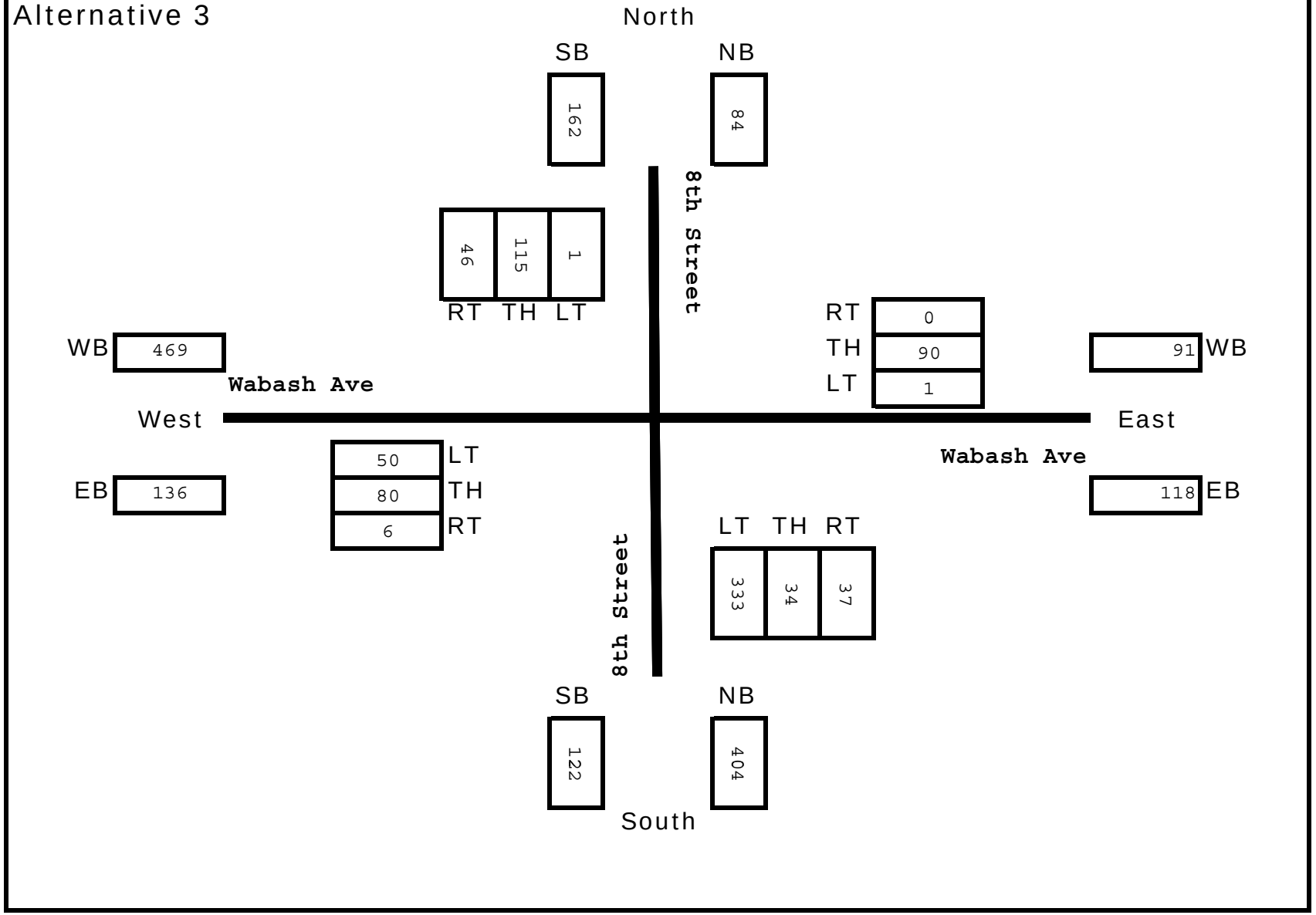
Wabash Ave at 6th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



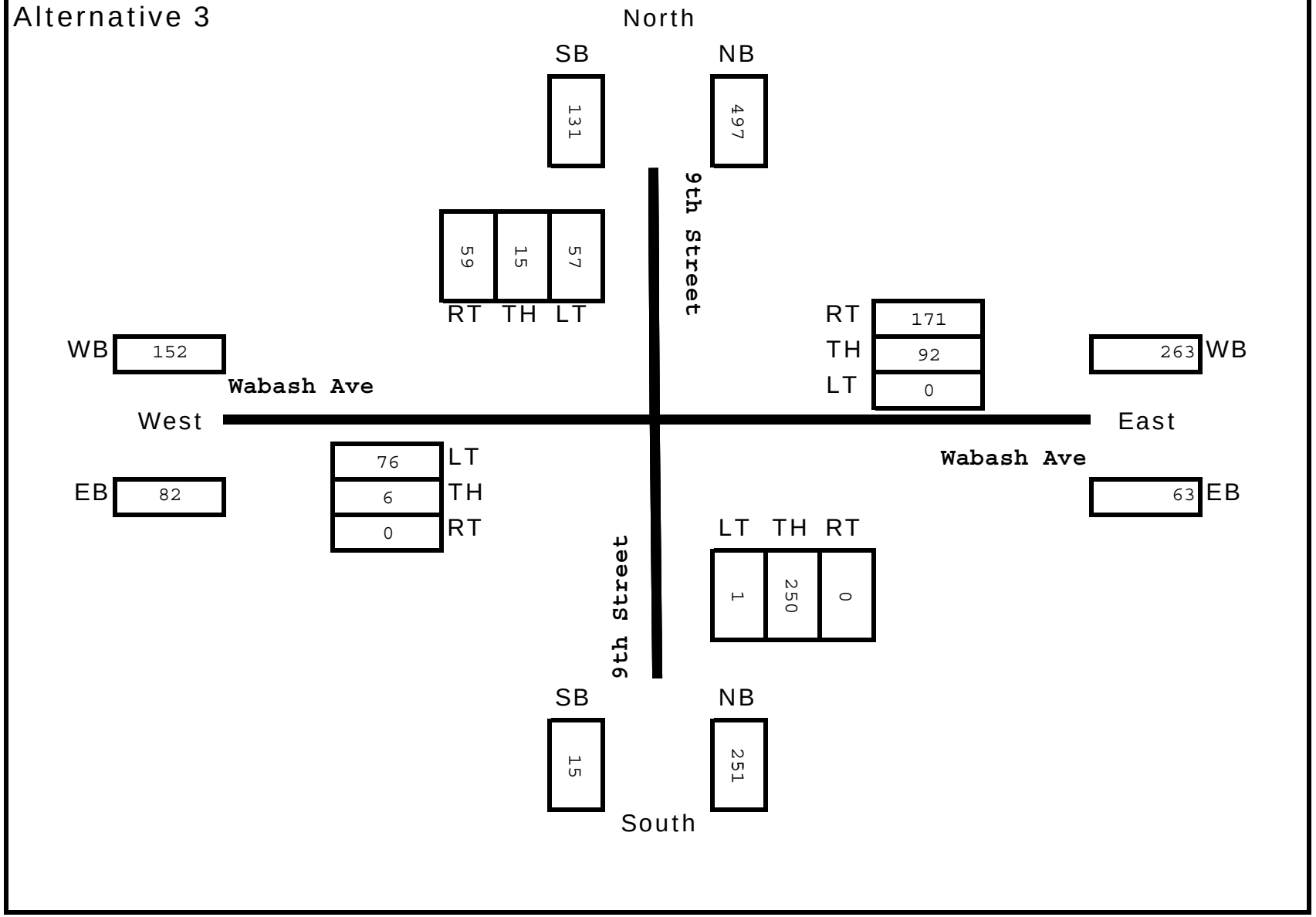
Wabash Ave at 7th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



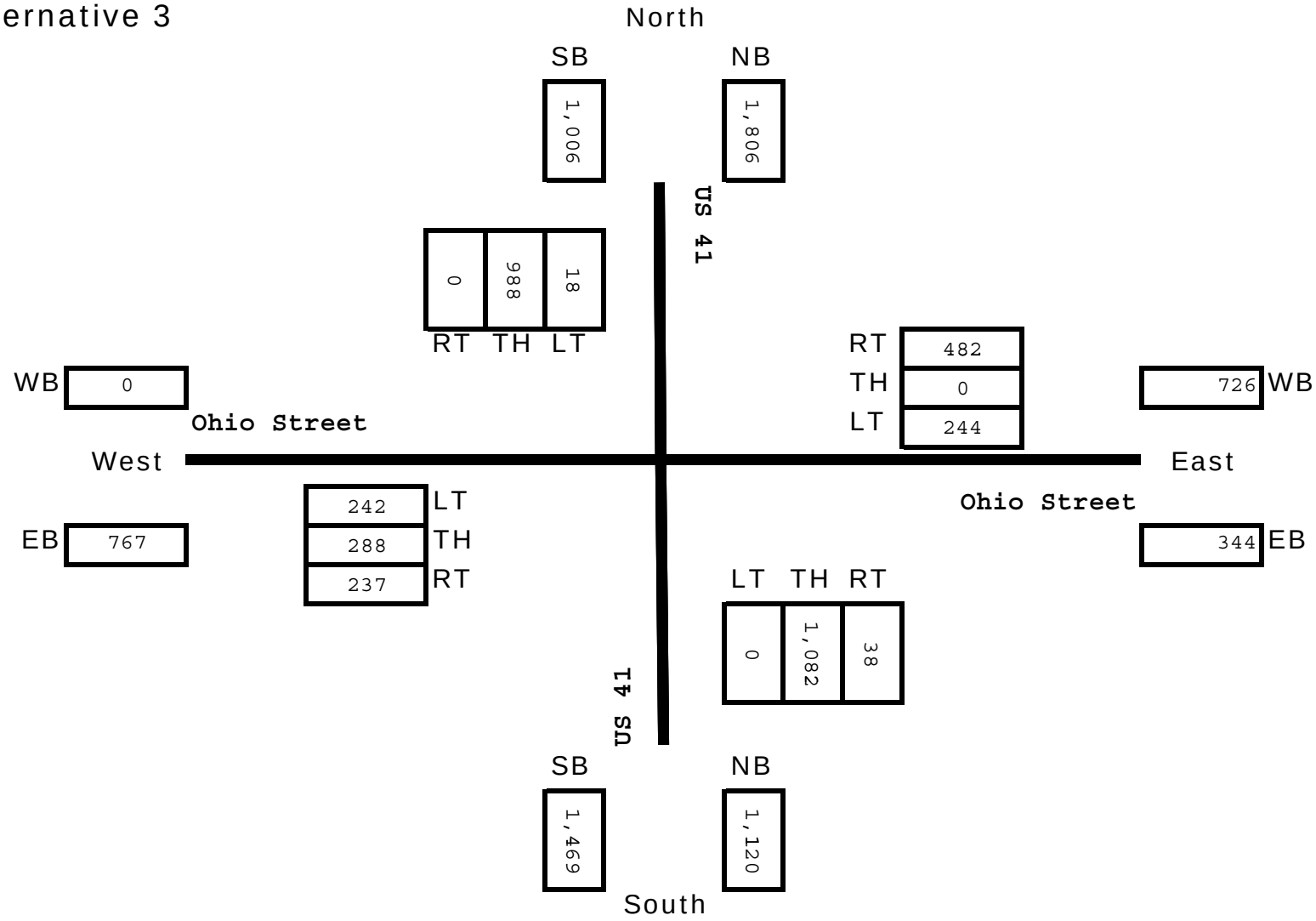
Wabash Ave at 8th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



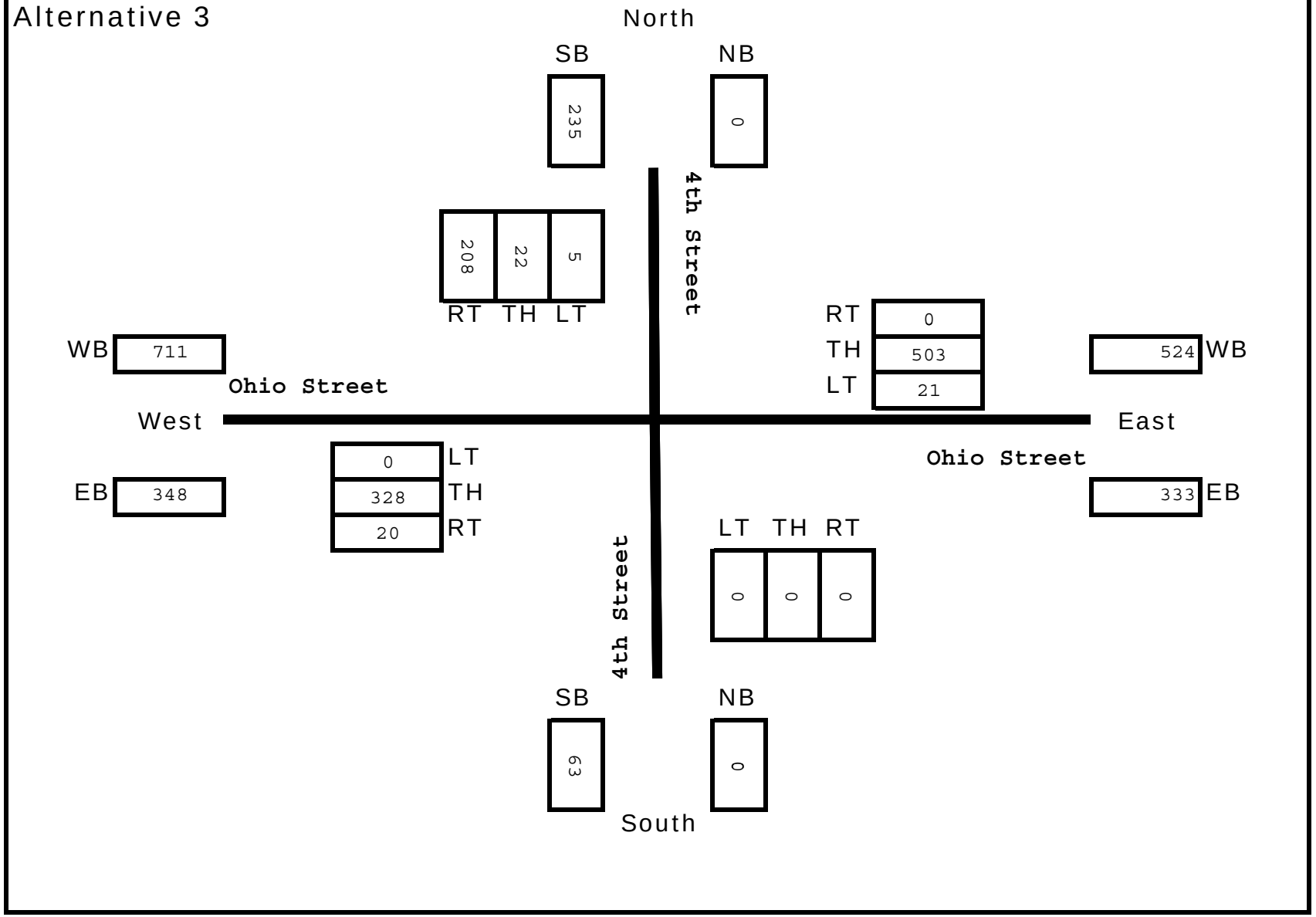
Wabash Ave at 9th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



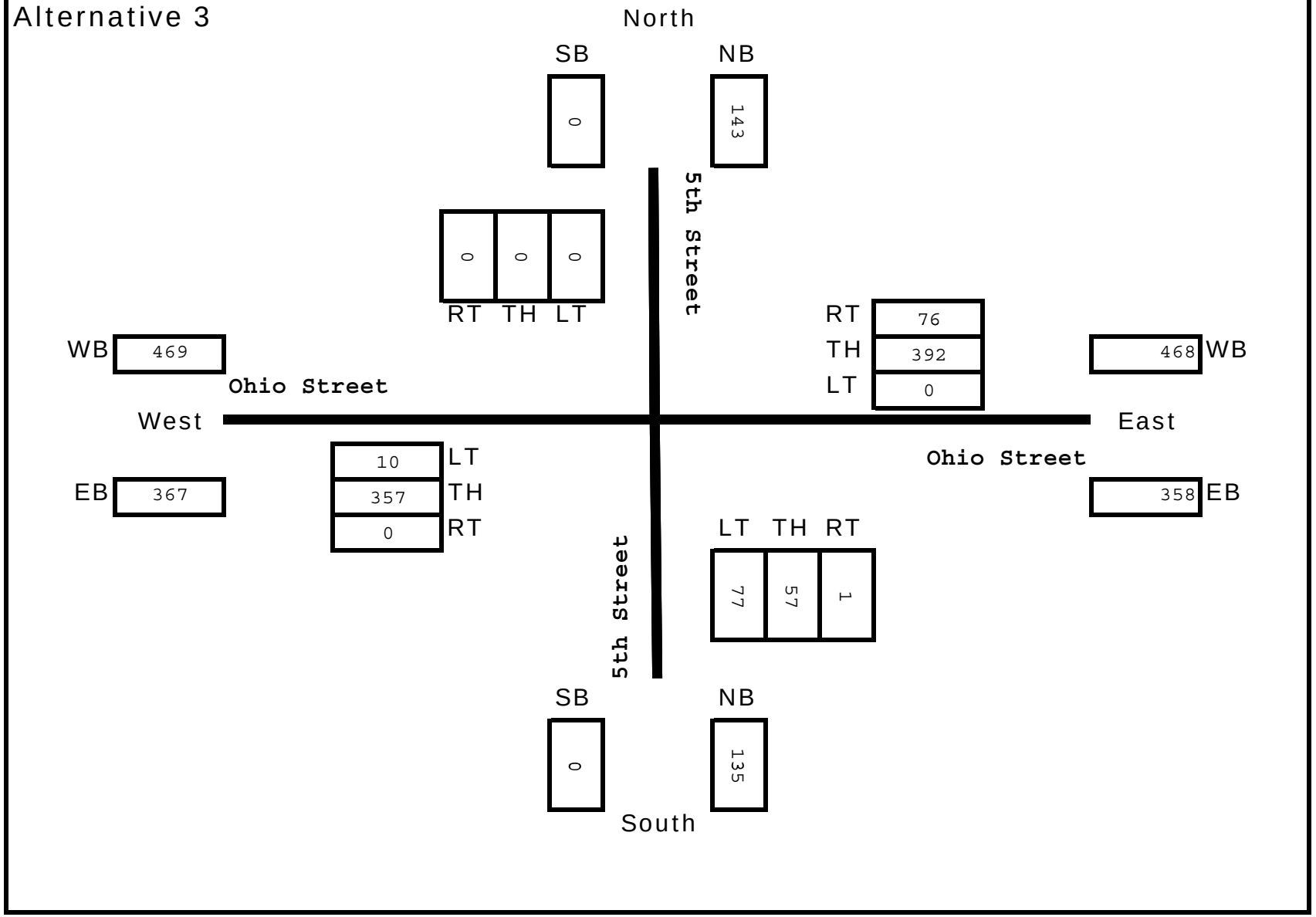
Ohio Street at US 41
PM Turning Movement Forecast
Year 2012
Alternative 3



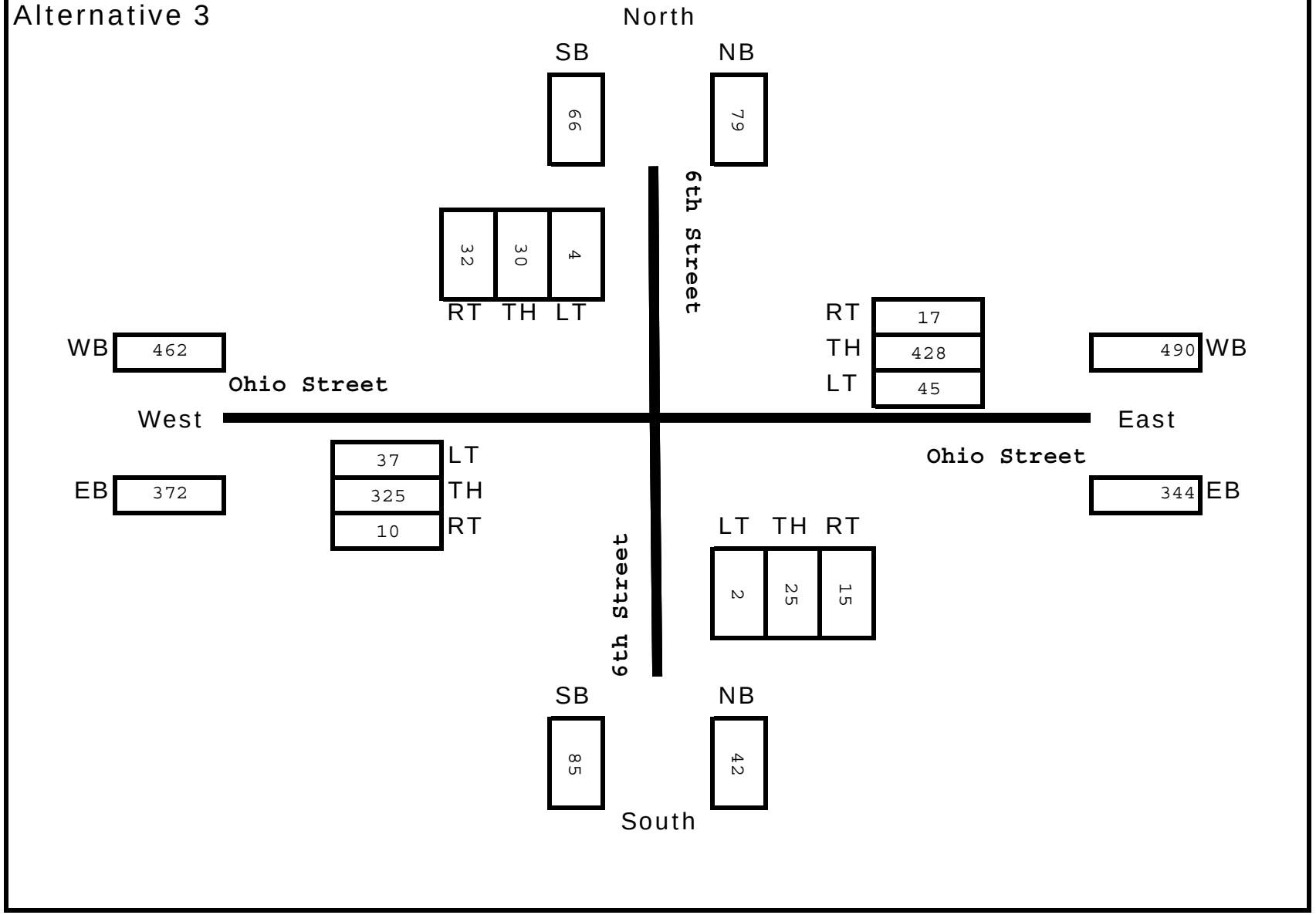
Ohio Street at 4th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



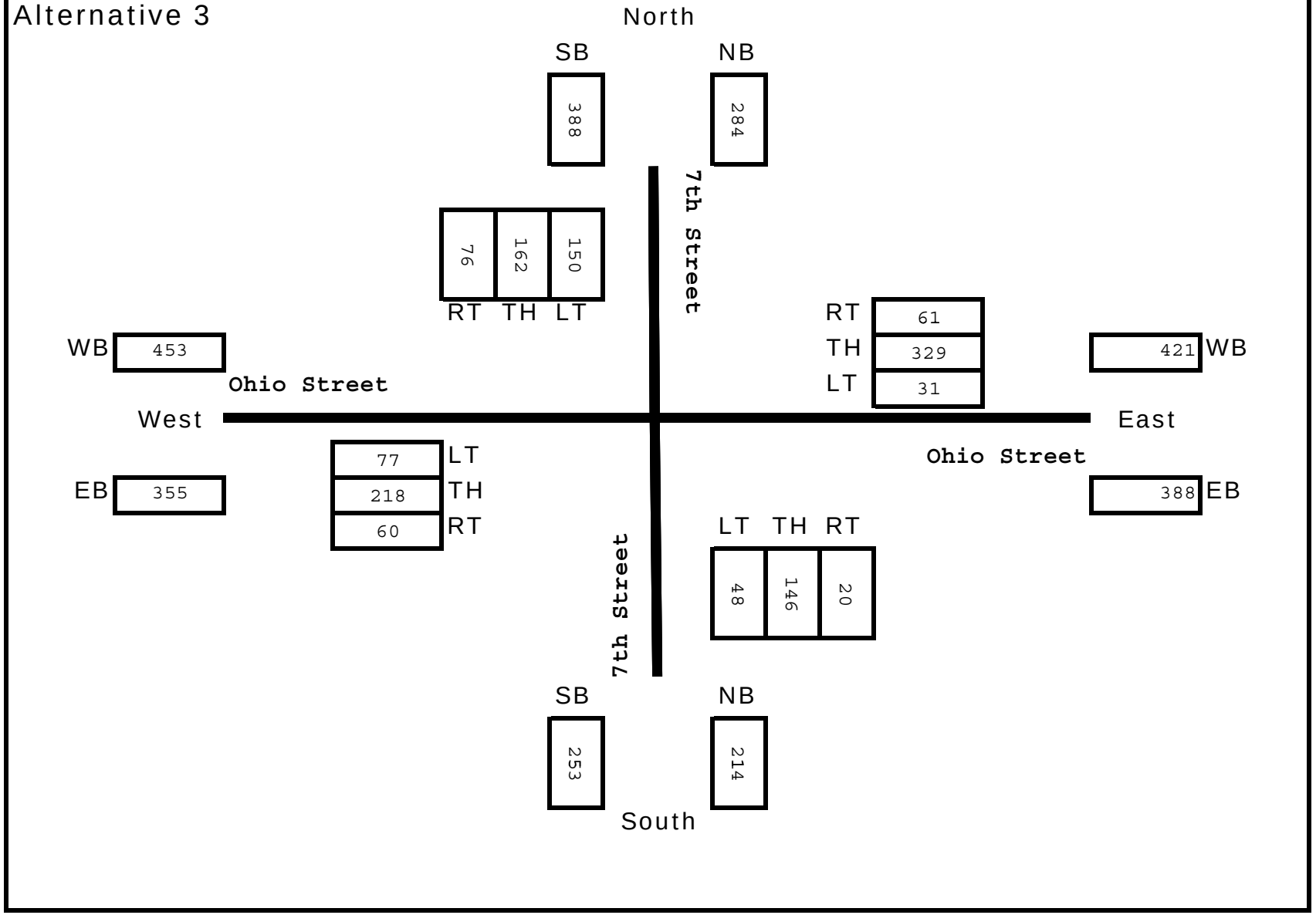
Ohio Street at 5th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



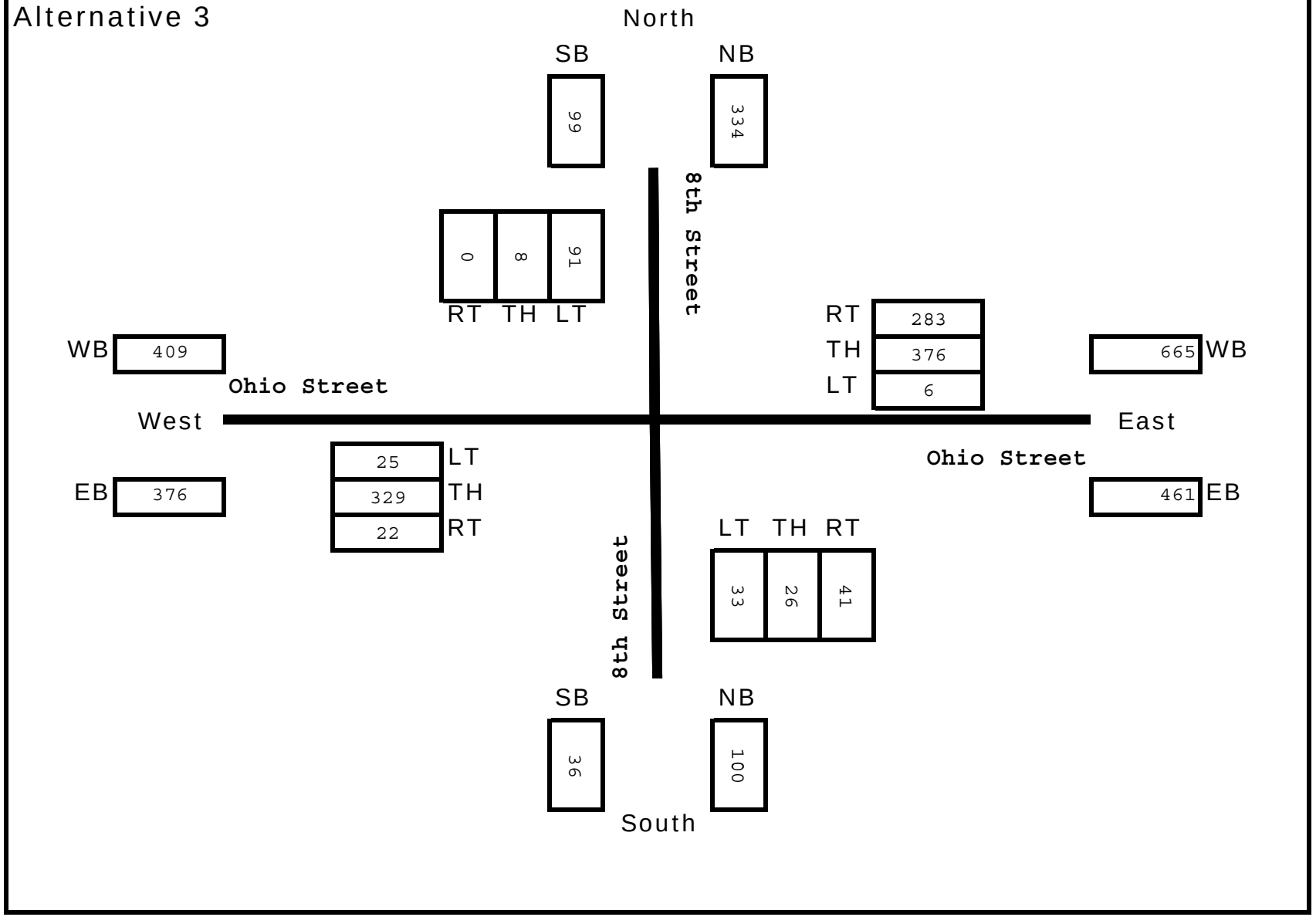
Ohio Street at 6th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



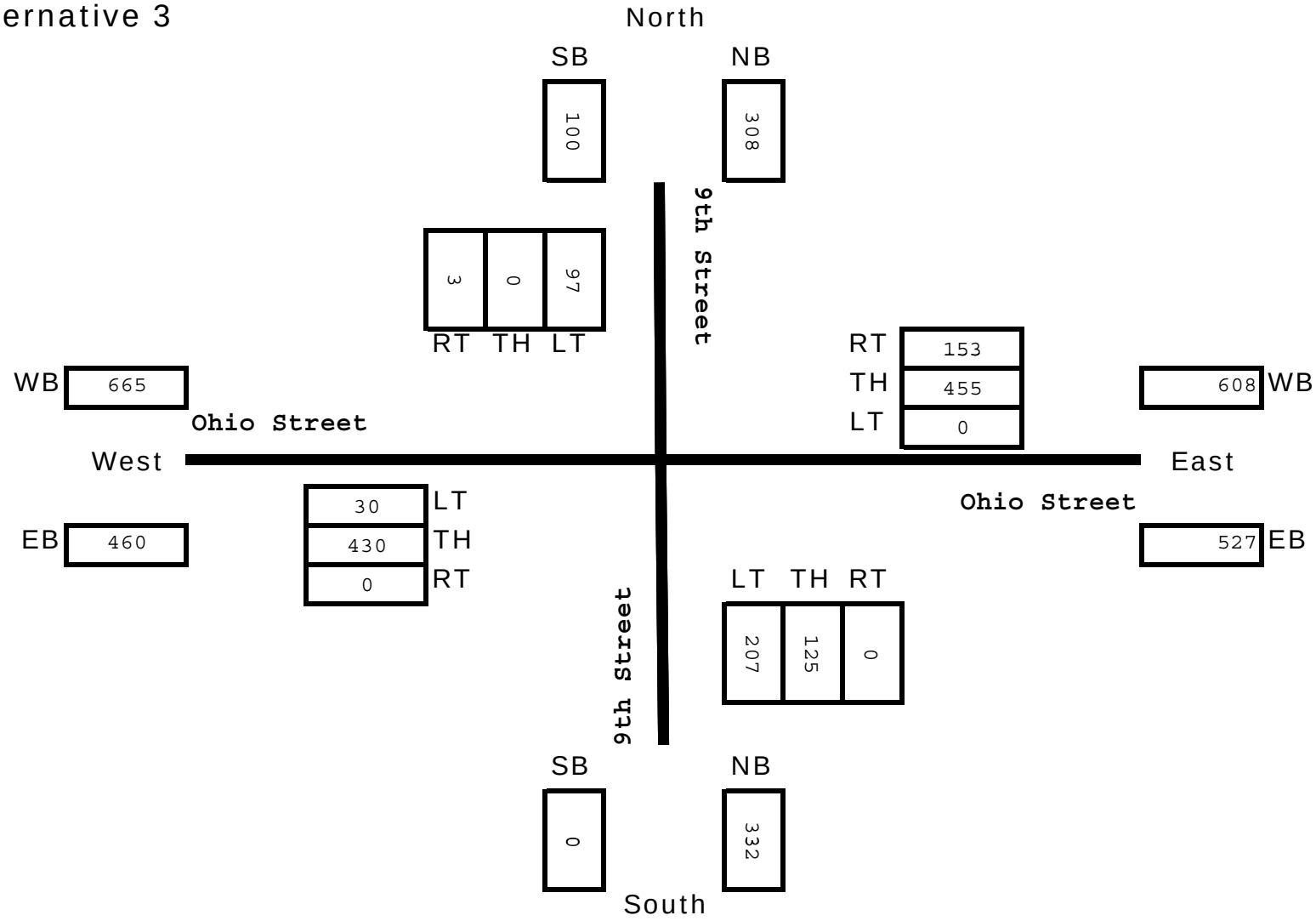
Ohio Street at 7th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



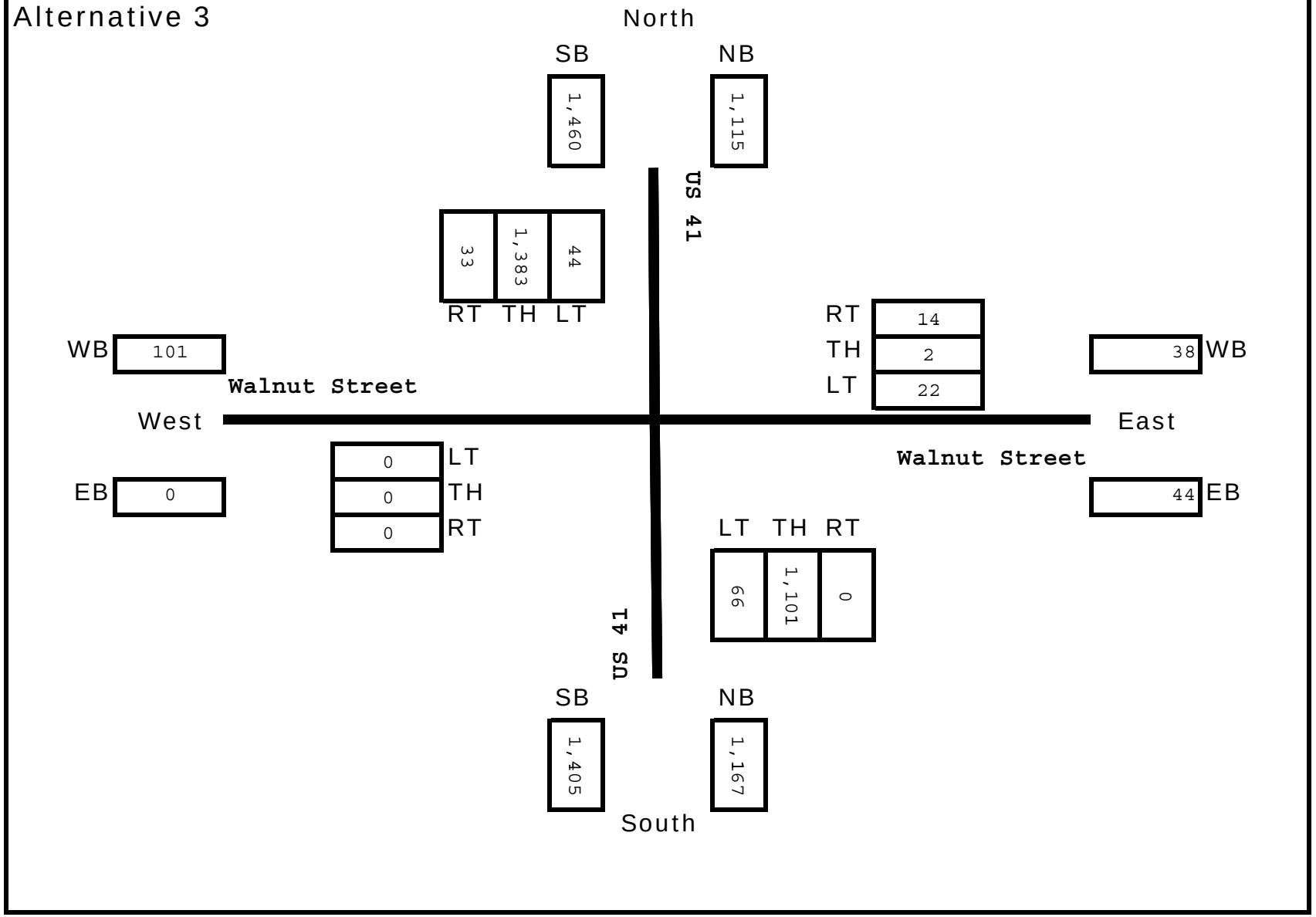
Ohio Street at 8th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



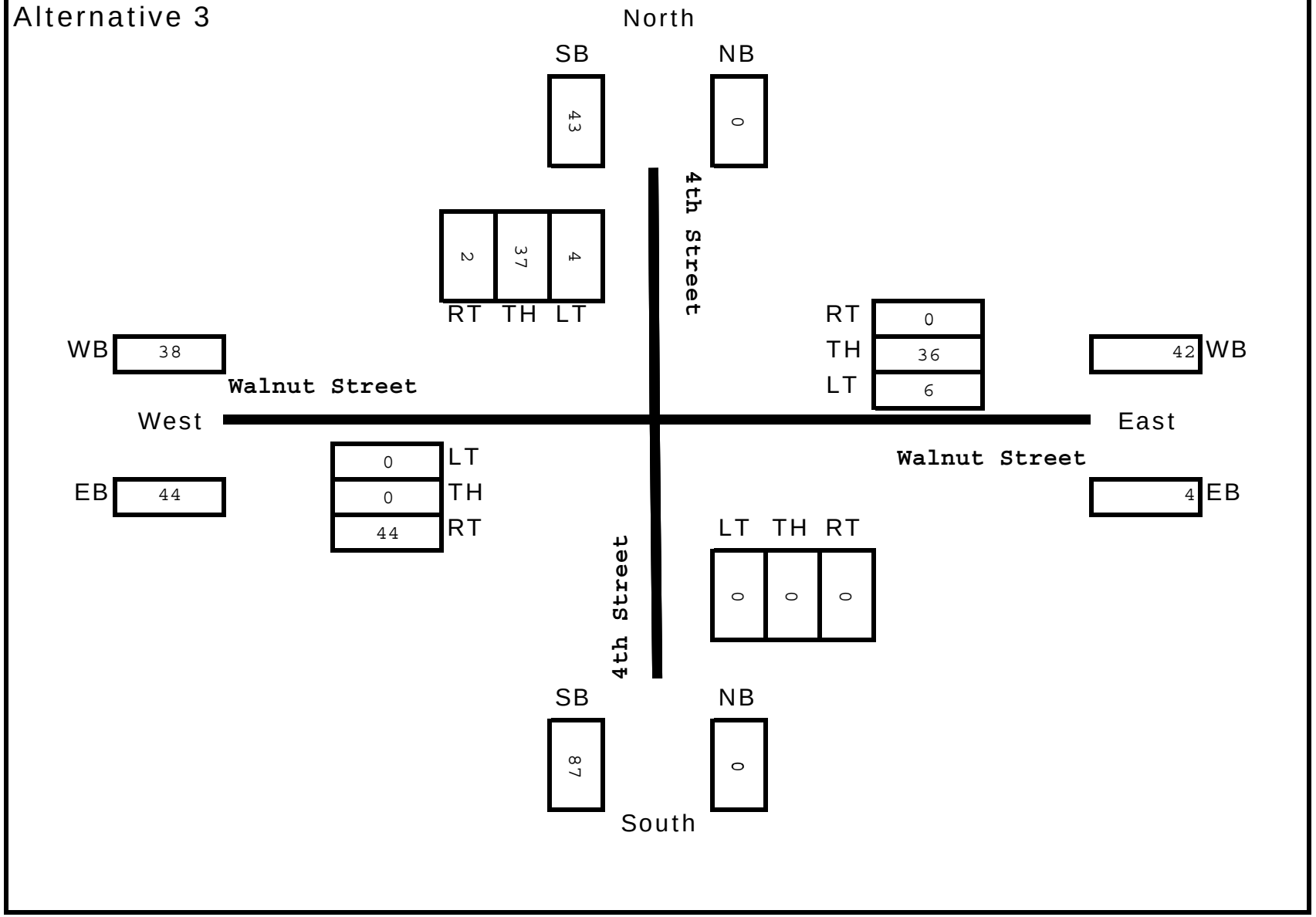
Ohio Street at 9th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



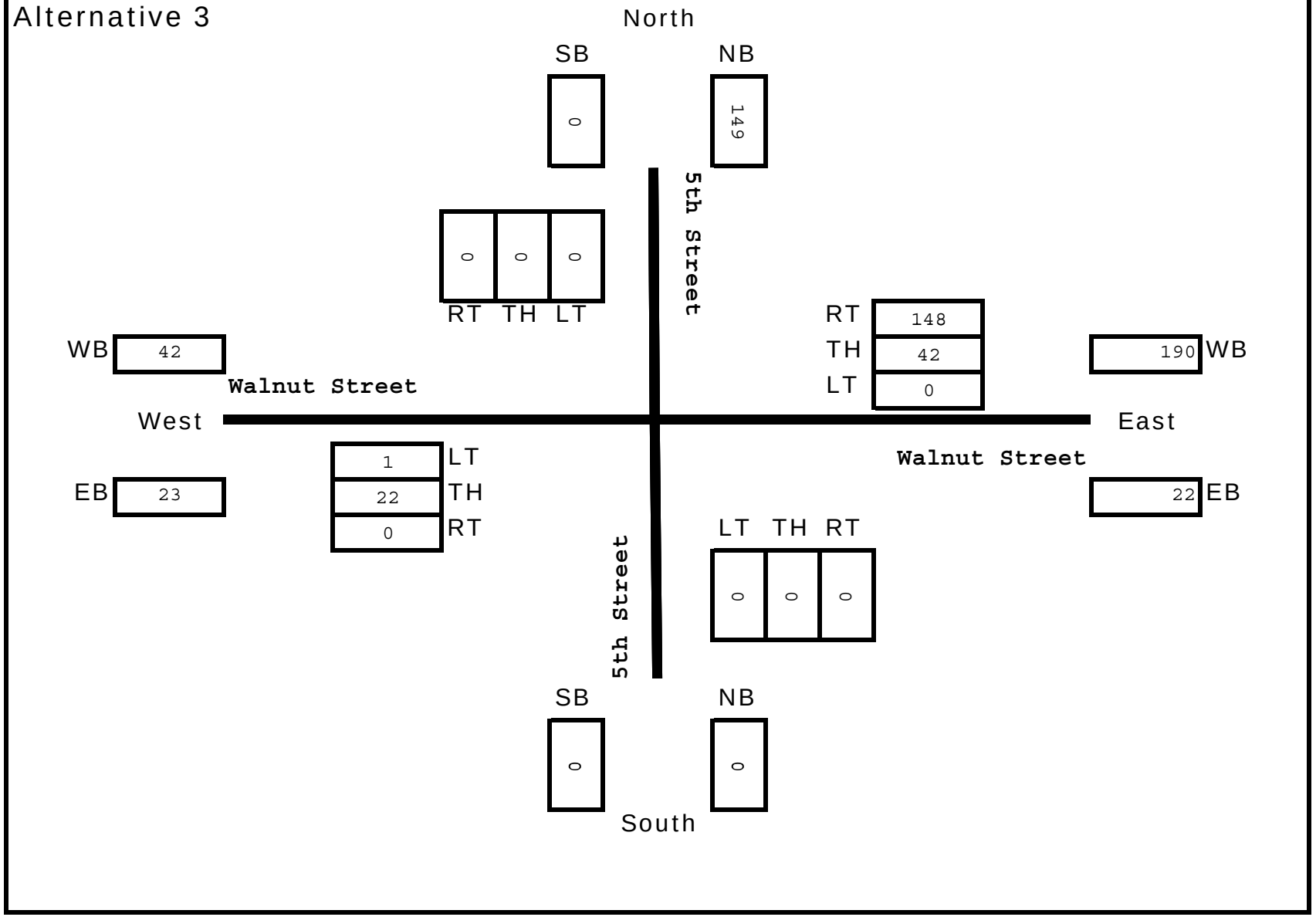
Walnut Street at US 41
PM Turning Movement Forecast
Year 2012
Alternative 3



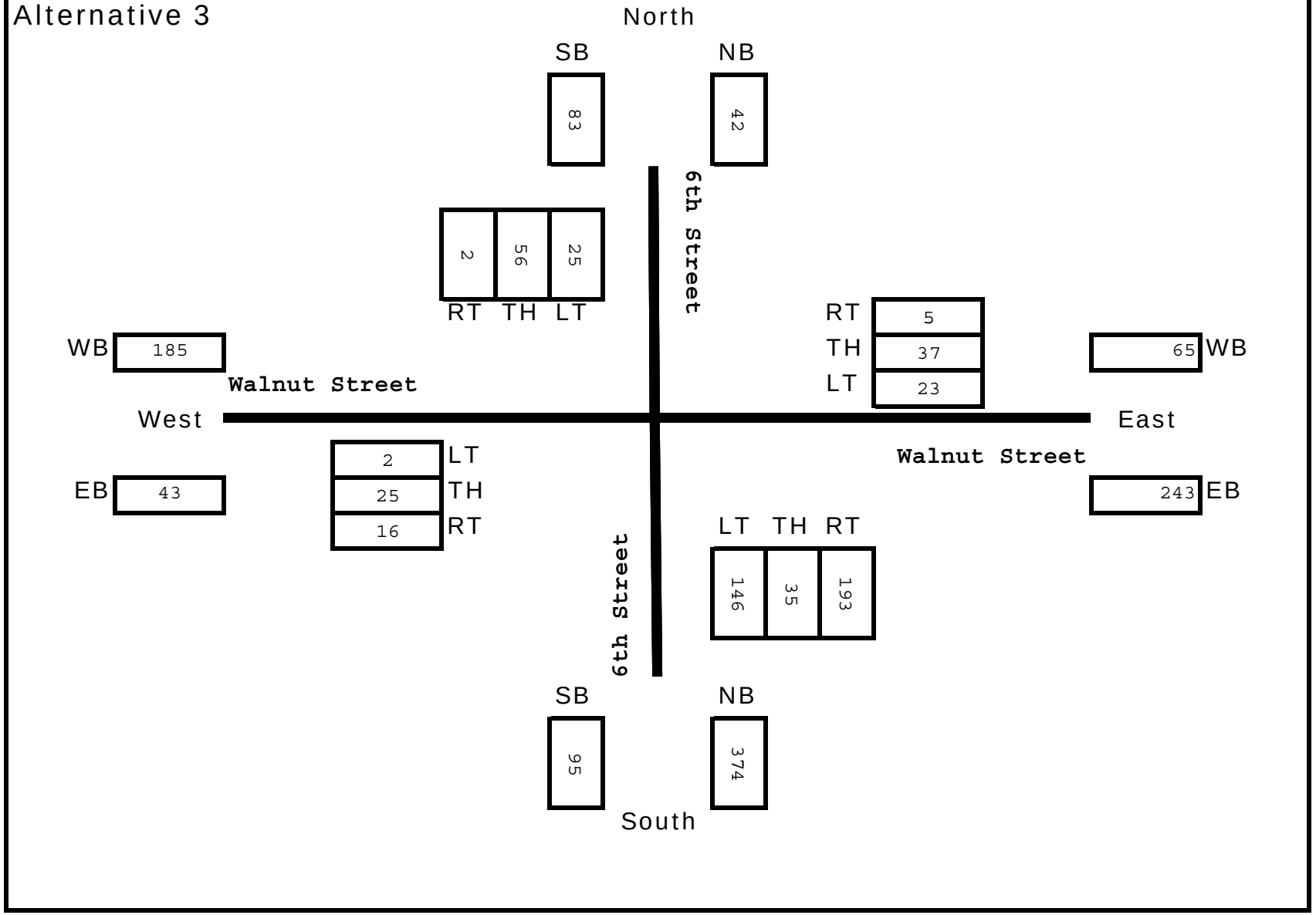
Walnut Street at 4th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



Walnut Street at 5th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



Walnut Street at 6th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



Walnut Street at 7th Street
PM Turning Movement Forecast
Year 2012
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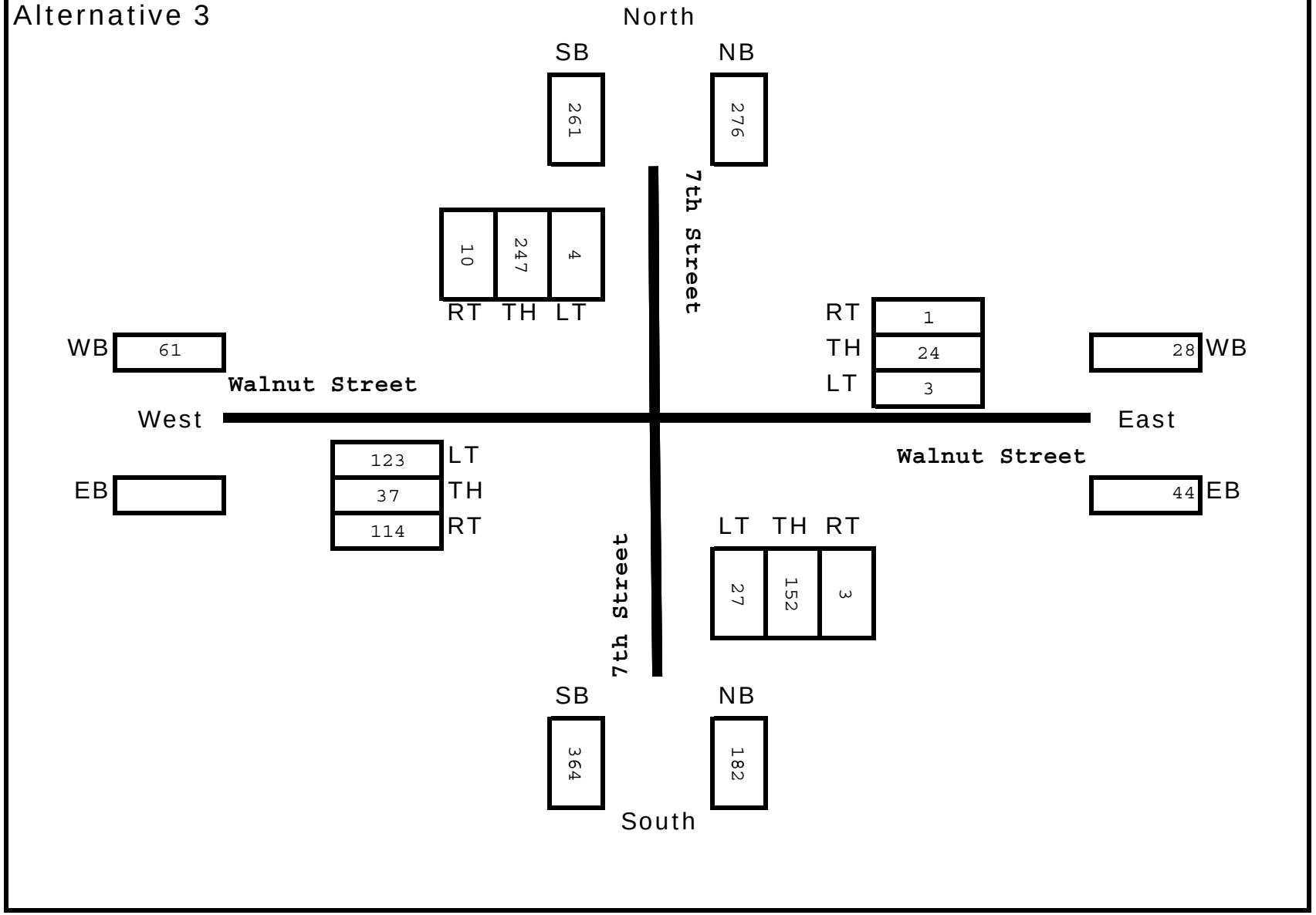
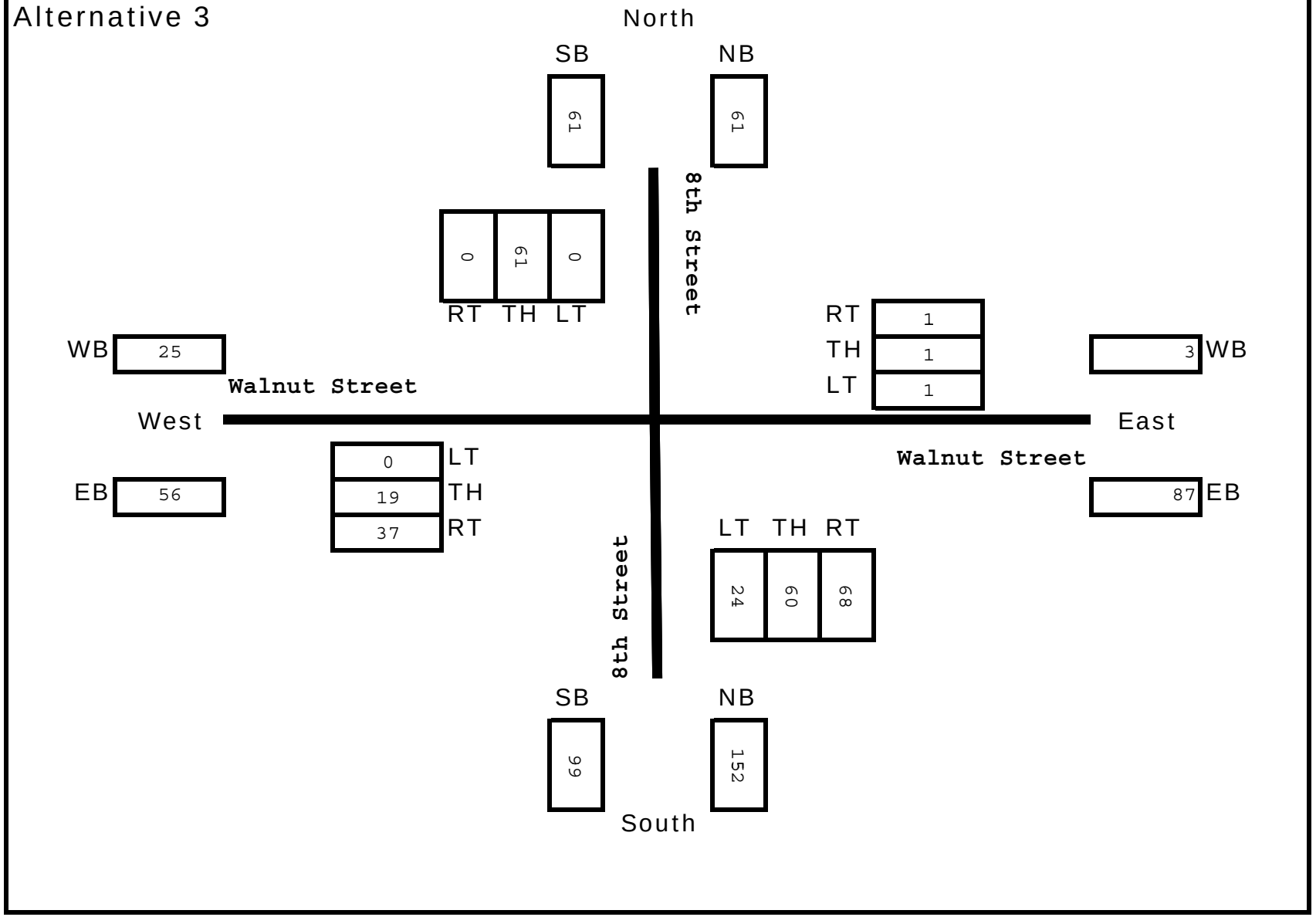
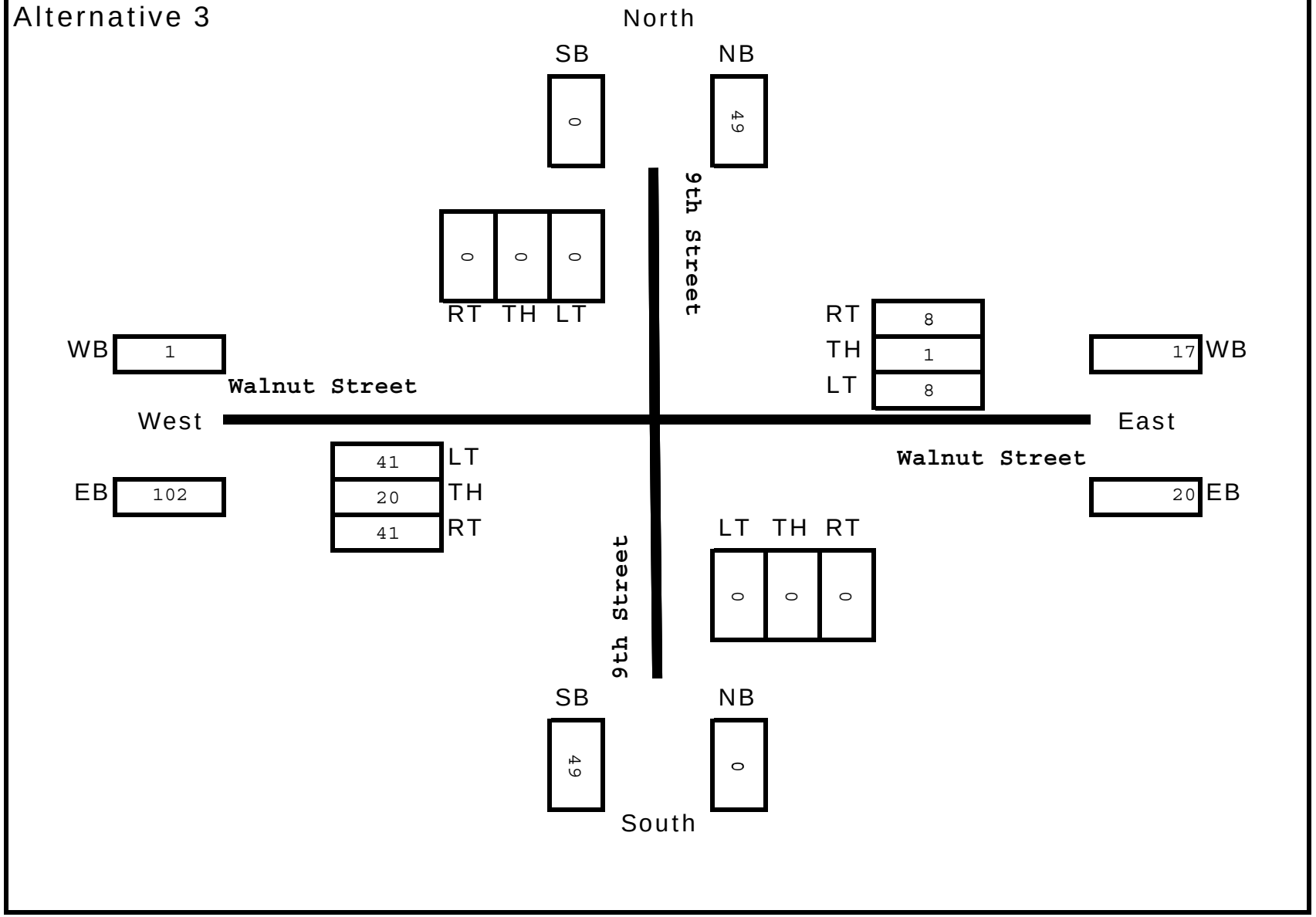


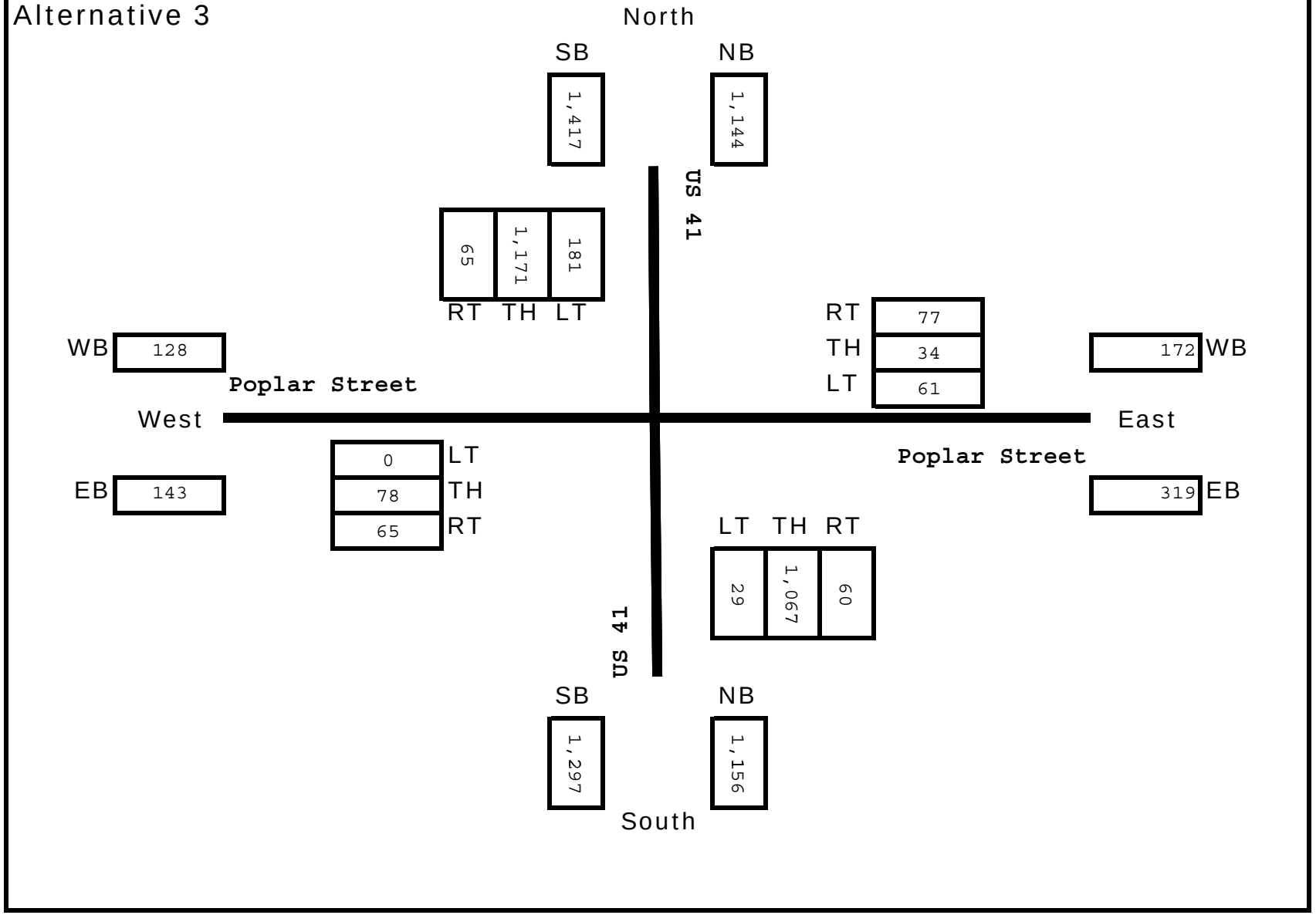
Walnut Street at 8th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



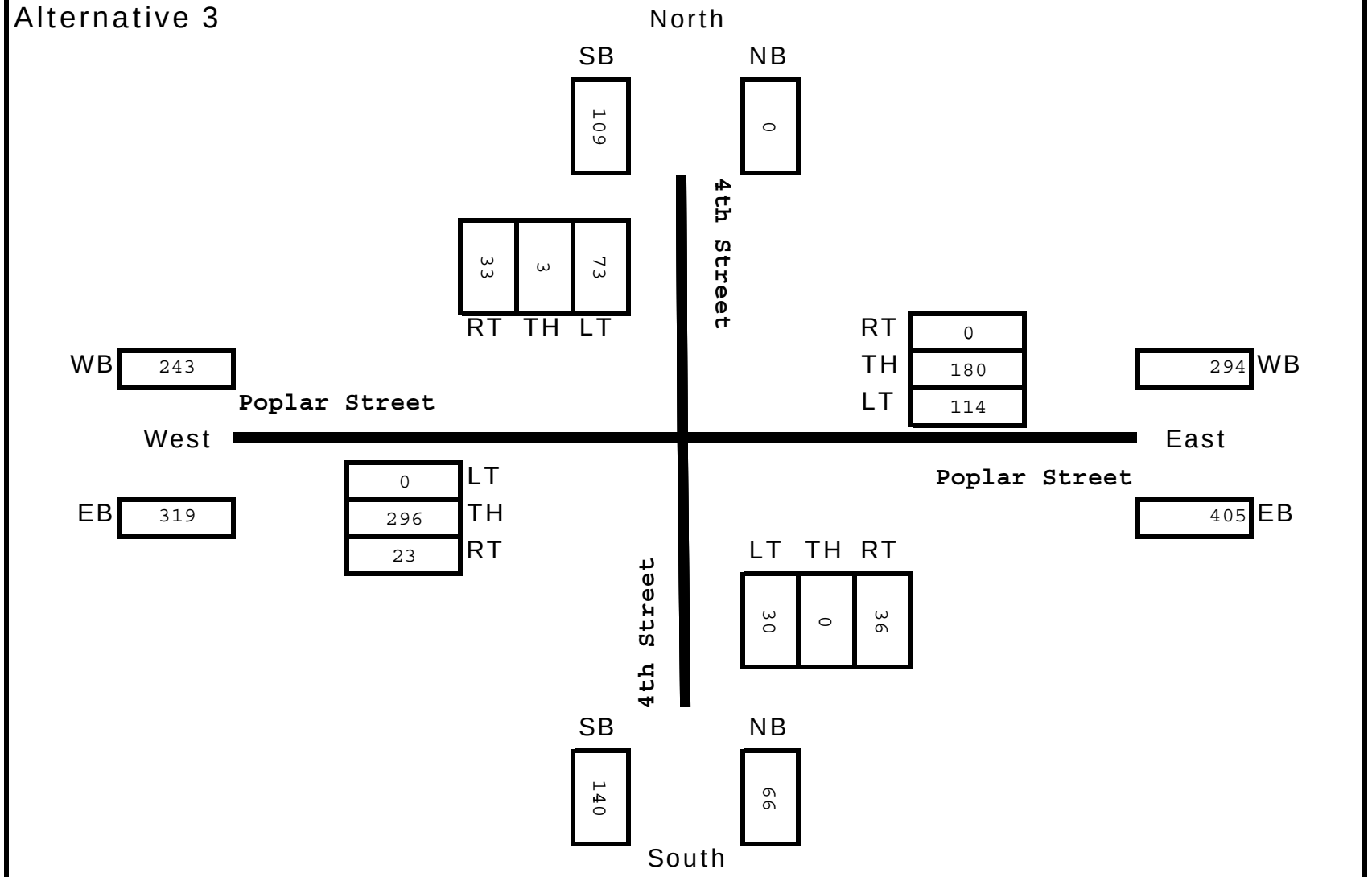
Walnut Street at 9th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



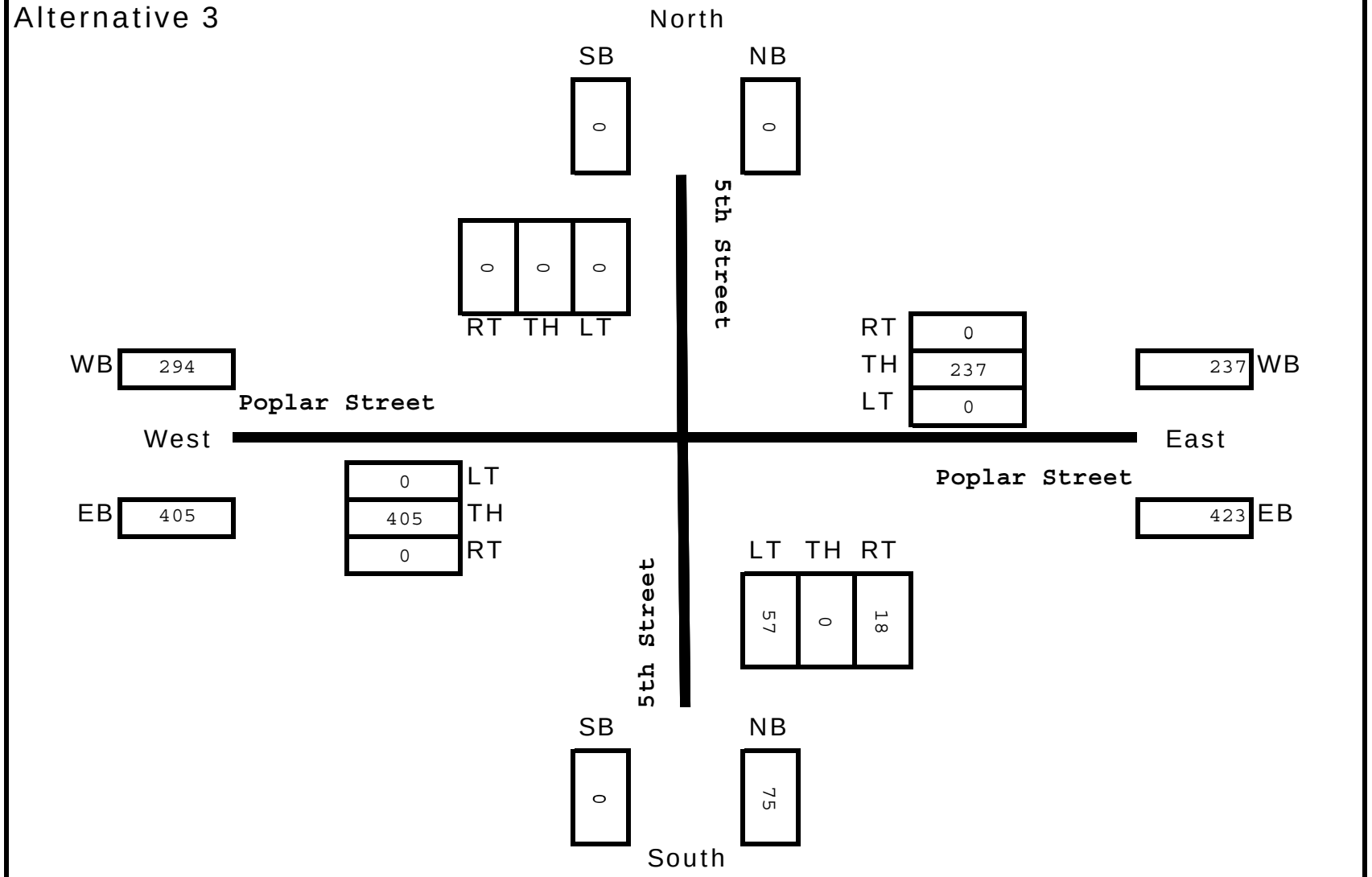
Poplar Street at US 41
PM Turning Movement Forecast
Year 2012
Alternative 3



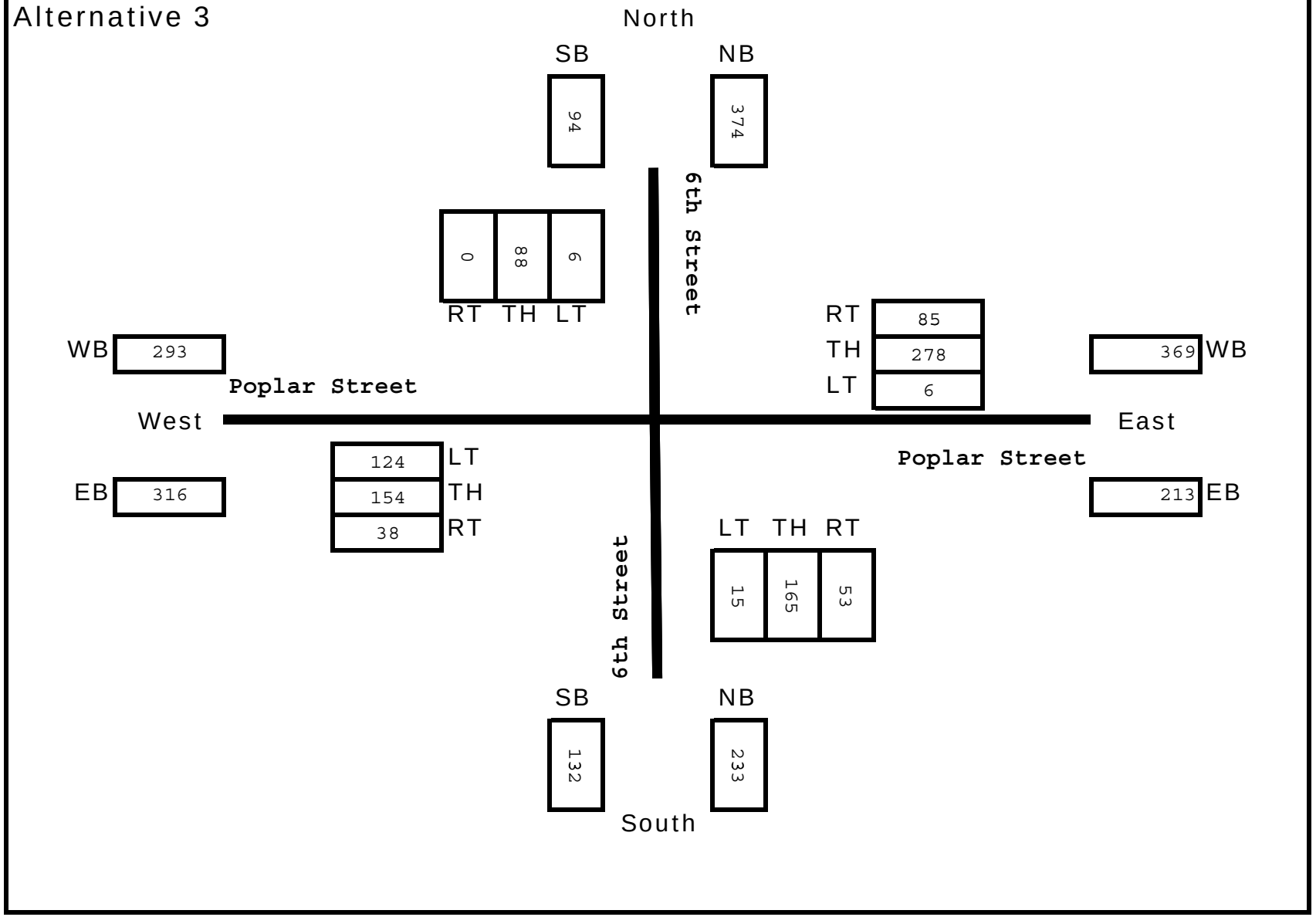
Poplar Street at 4th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



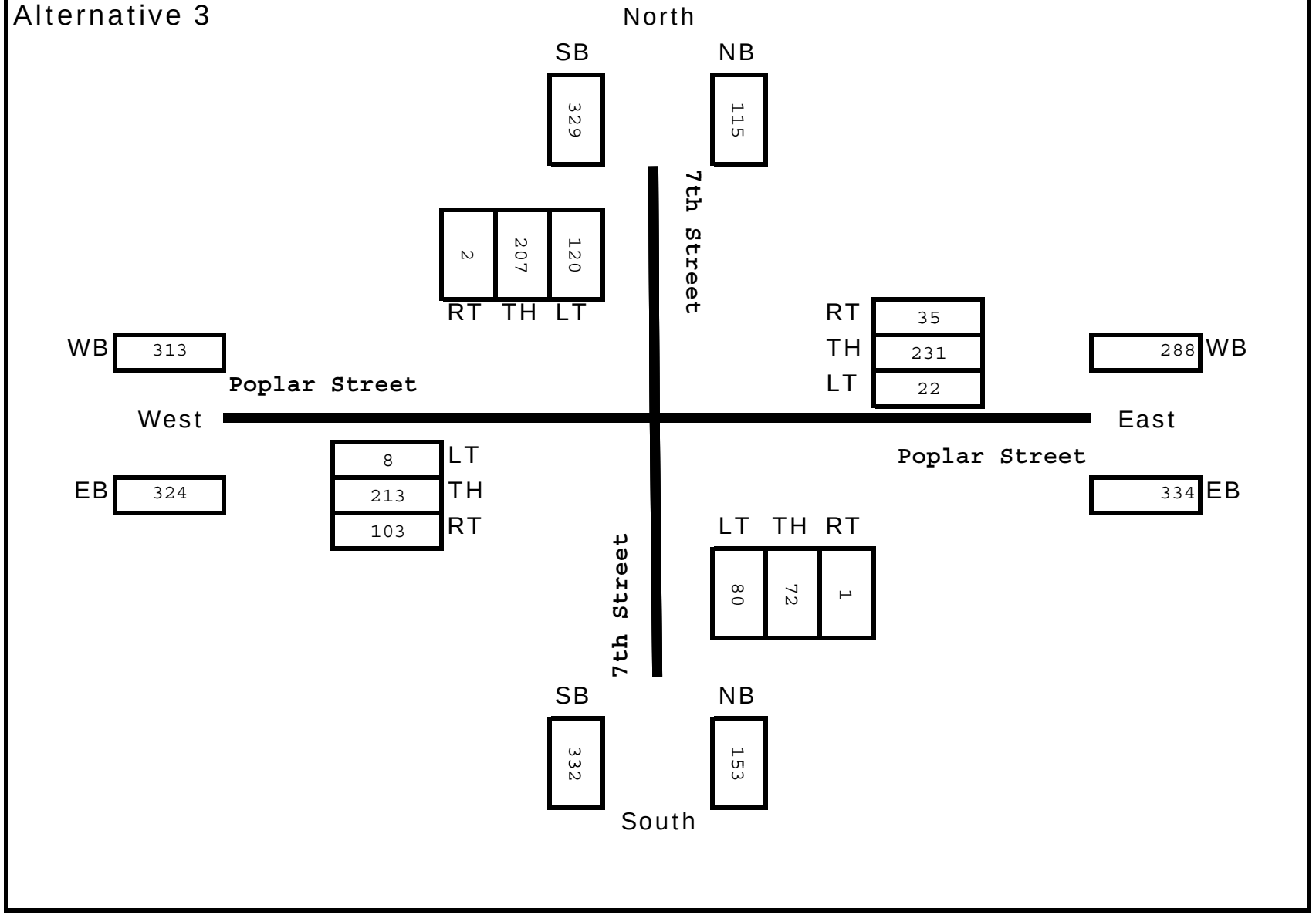
Poplar Street at 5th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



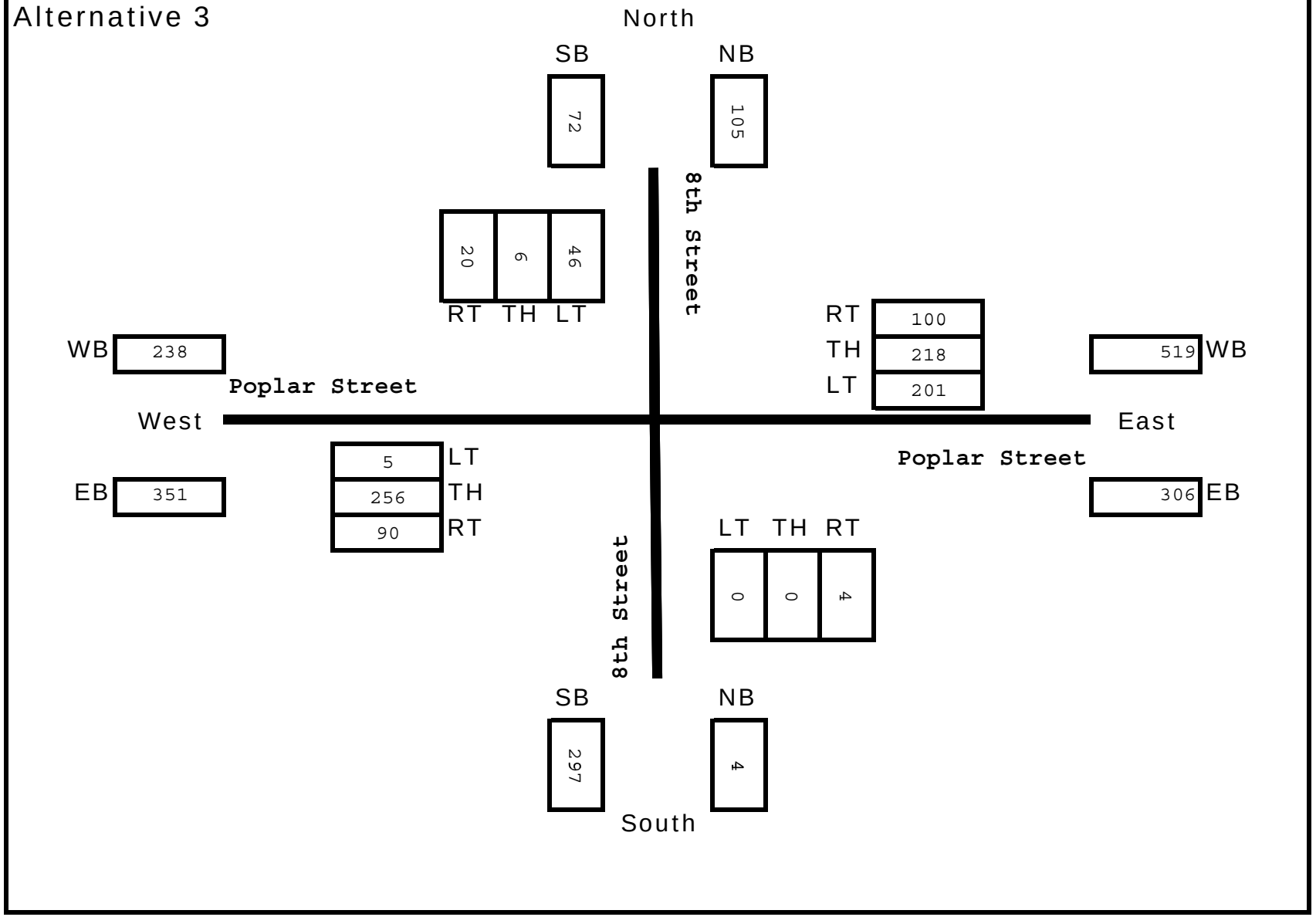
Poplar Street at 6th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



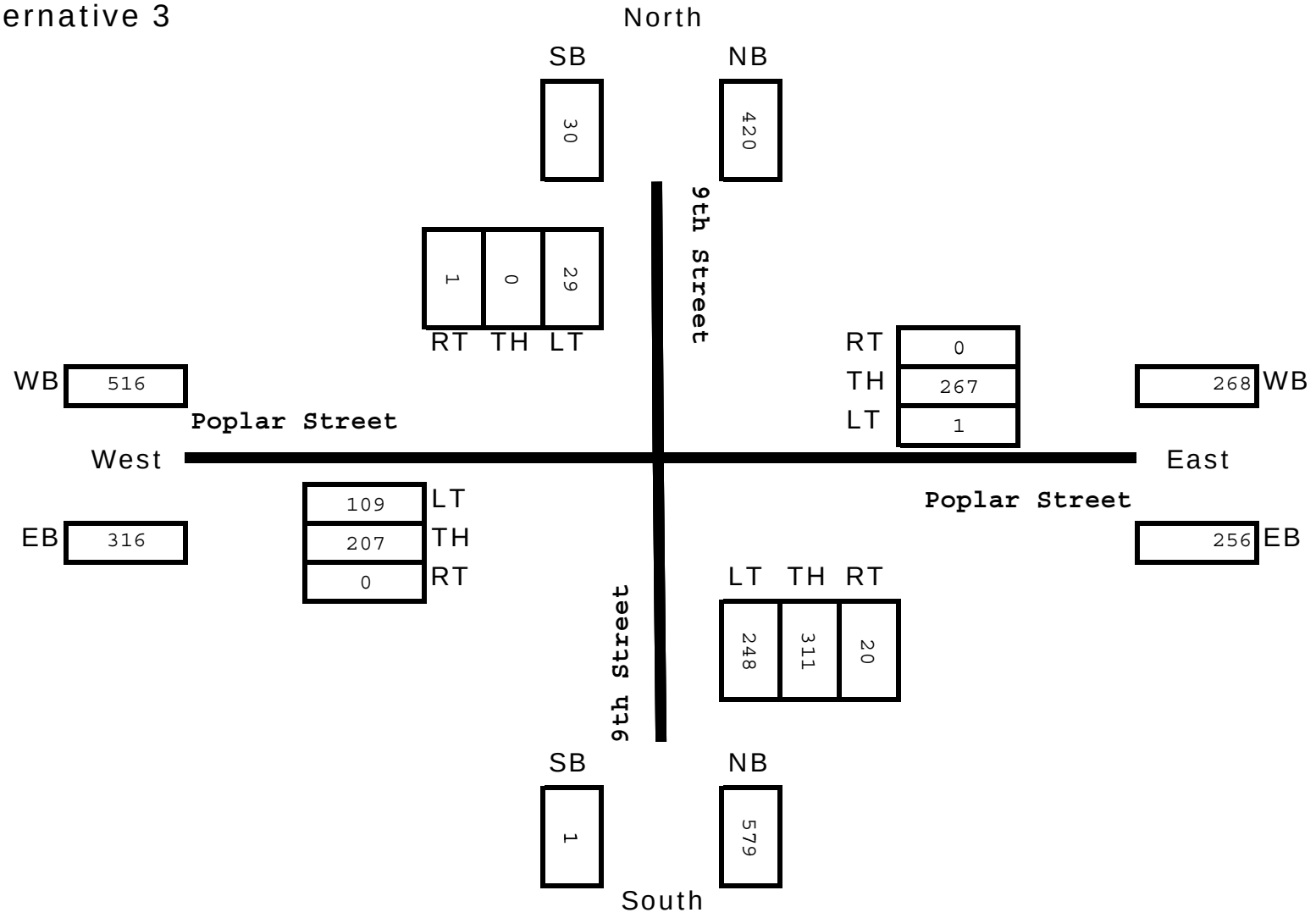
Poplar Street at 7th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



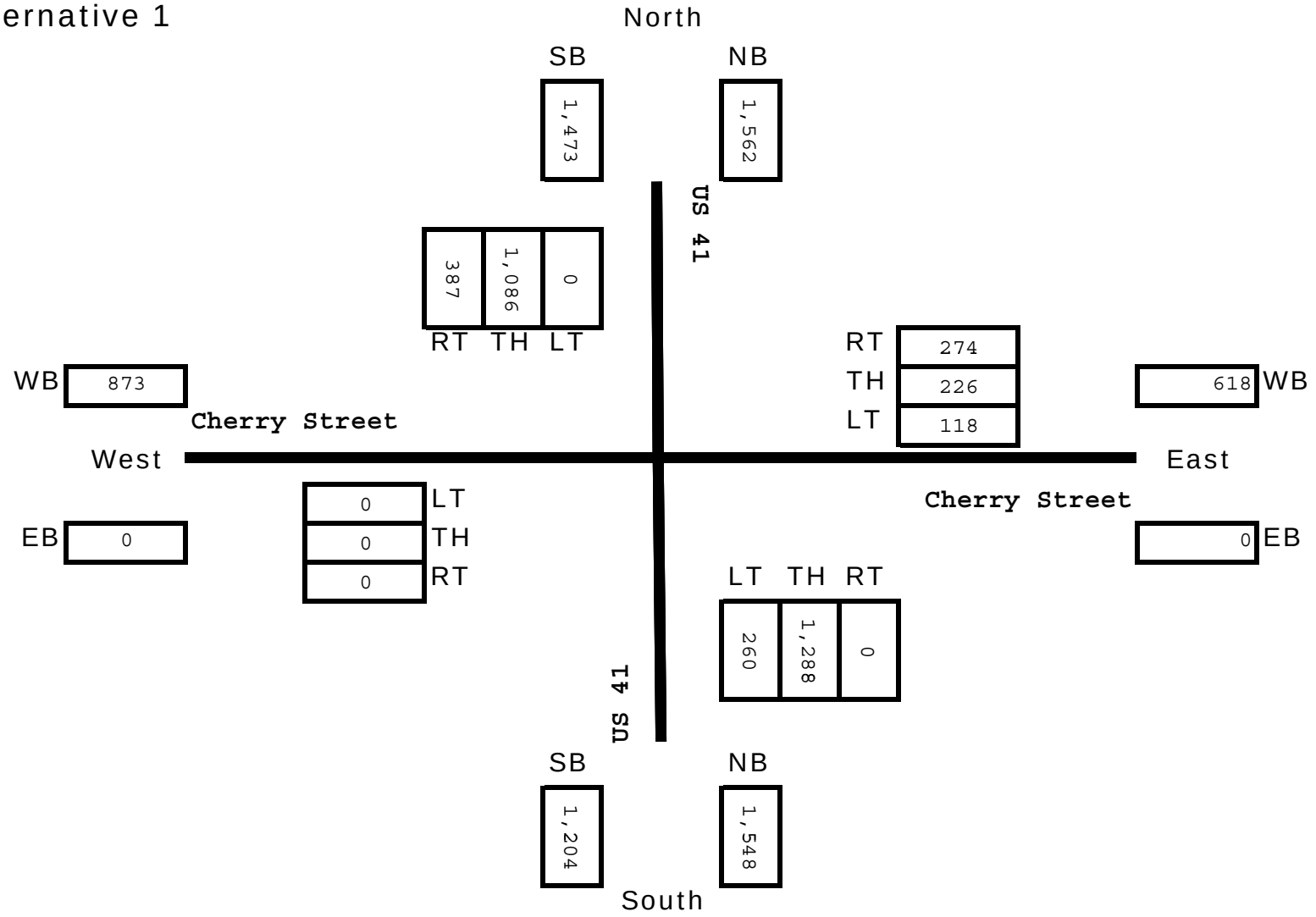
Poplar Street at 8th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



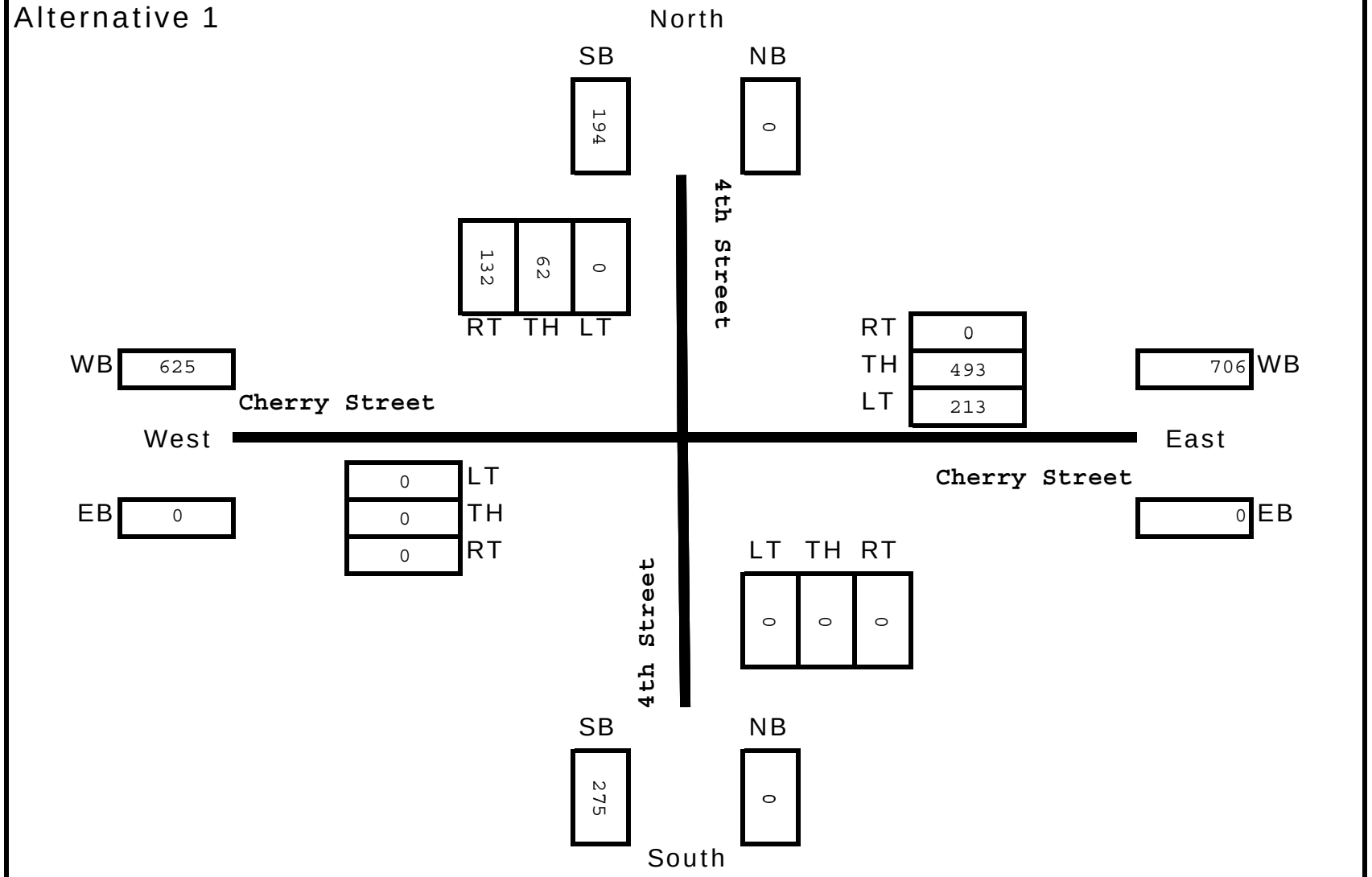
Poplar Street at 9th Street
PM Turning Movement Forecast
Year 2012
Alternative 3



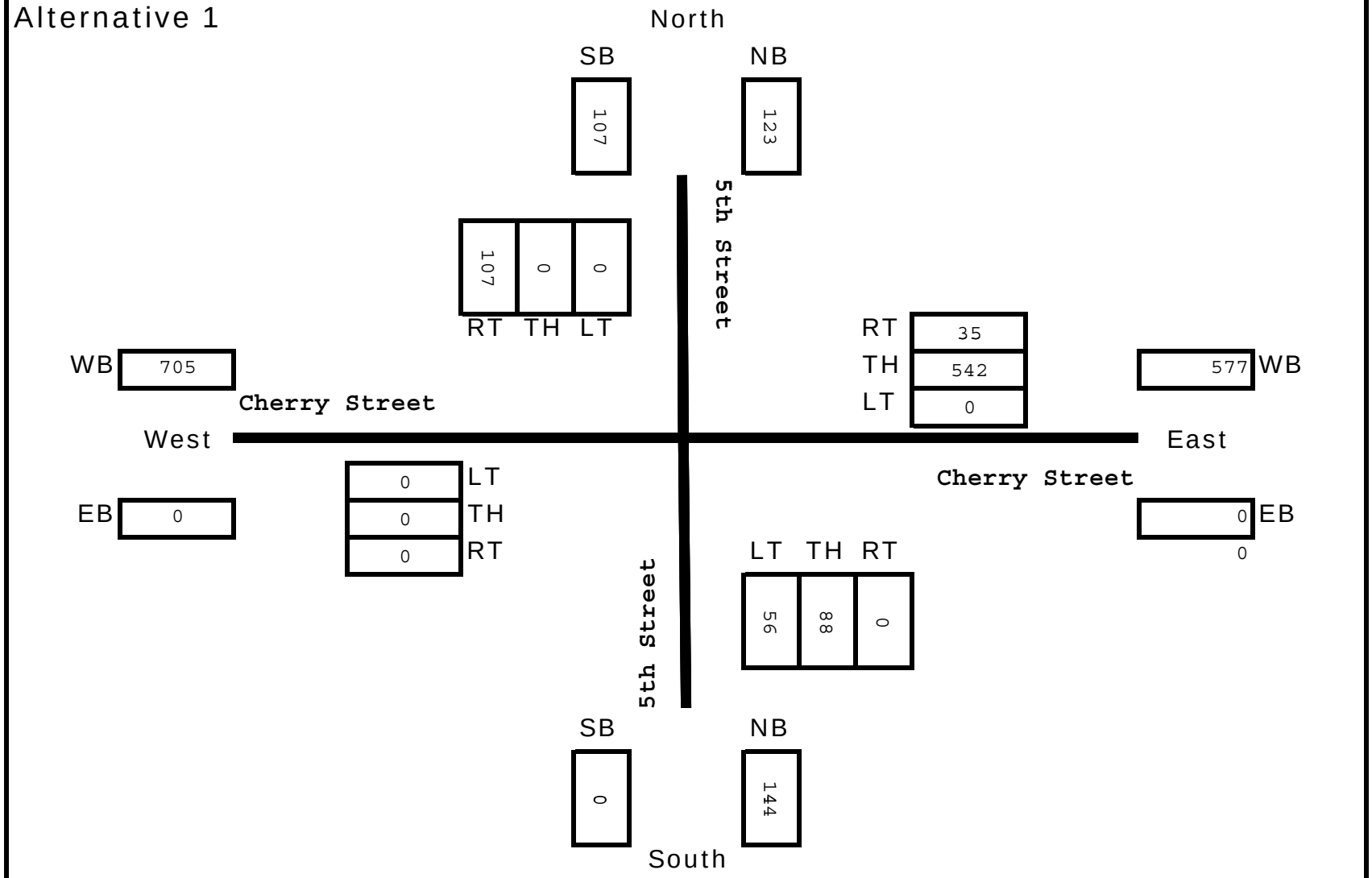
Cherry Street at US 41
PM Turning Movement Forecast
Year 2022
Alternative 1



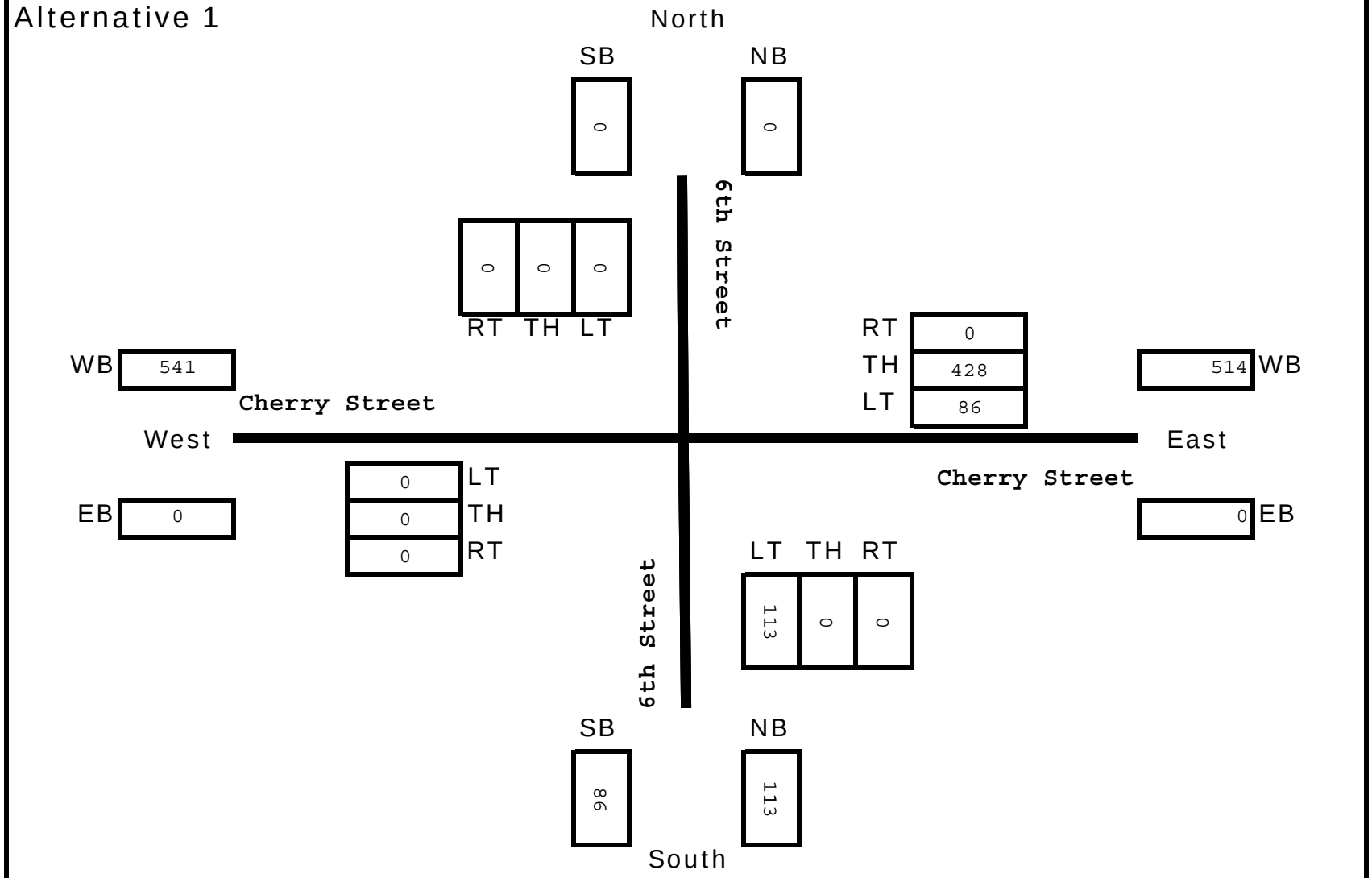
Cherry Street at 4th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



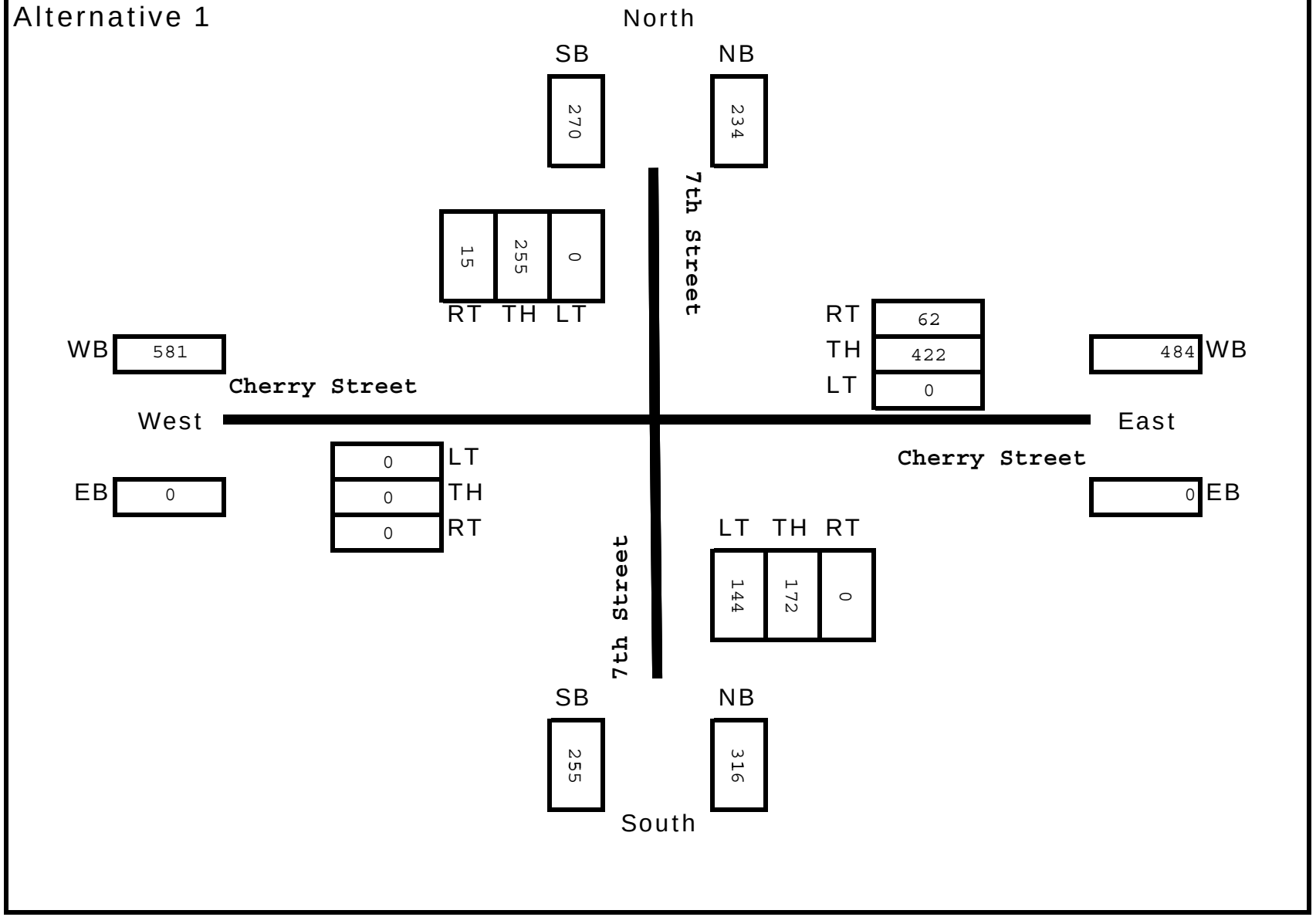
Cherry Street at 5th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



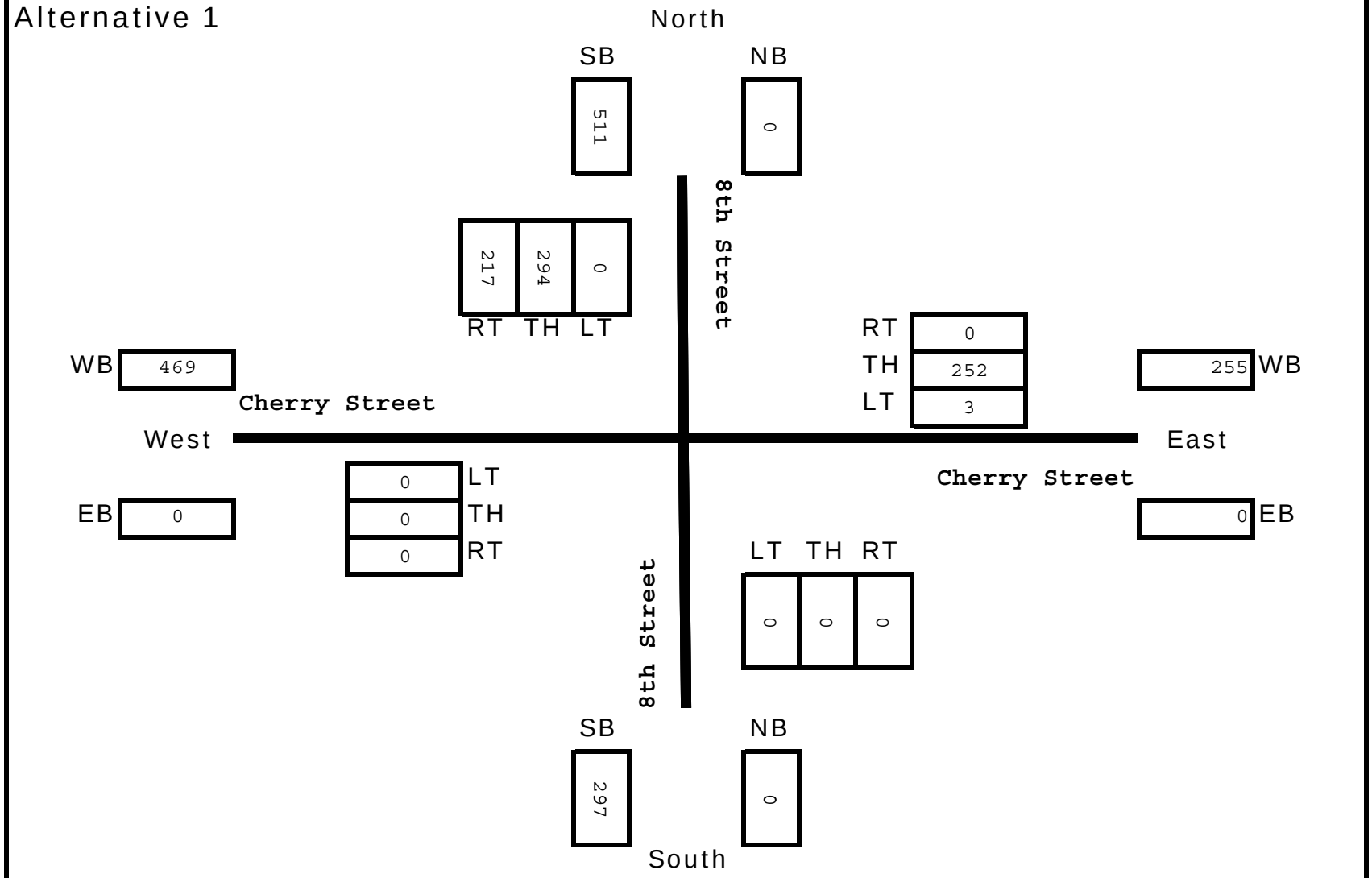
Cherry Street at 6th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



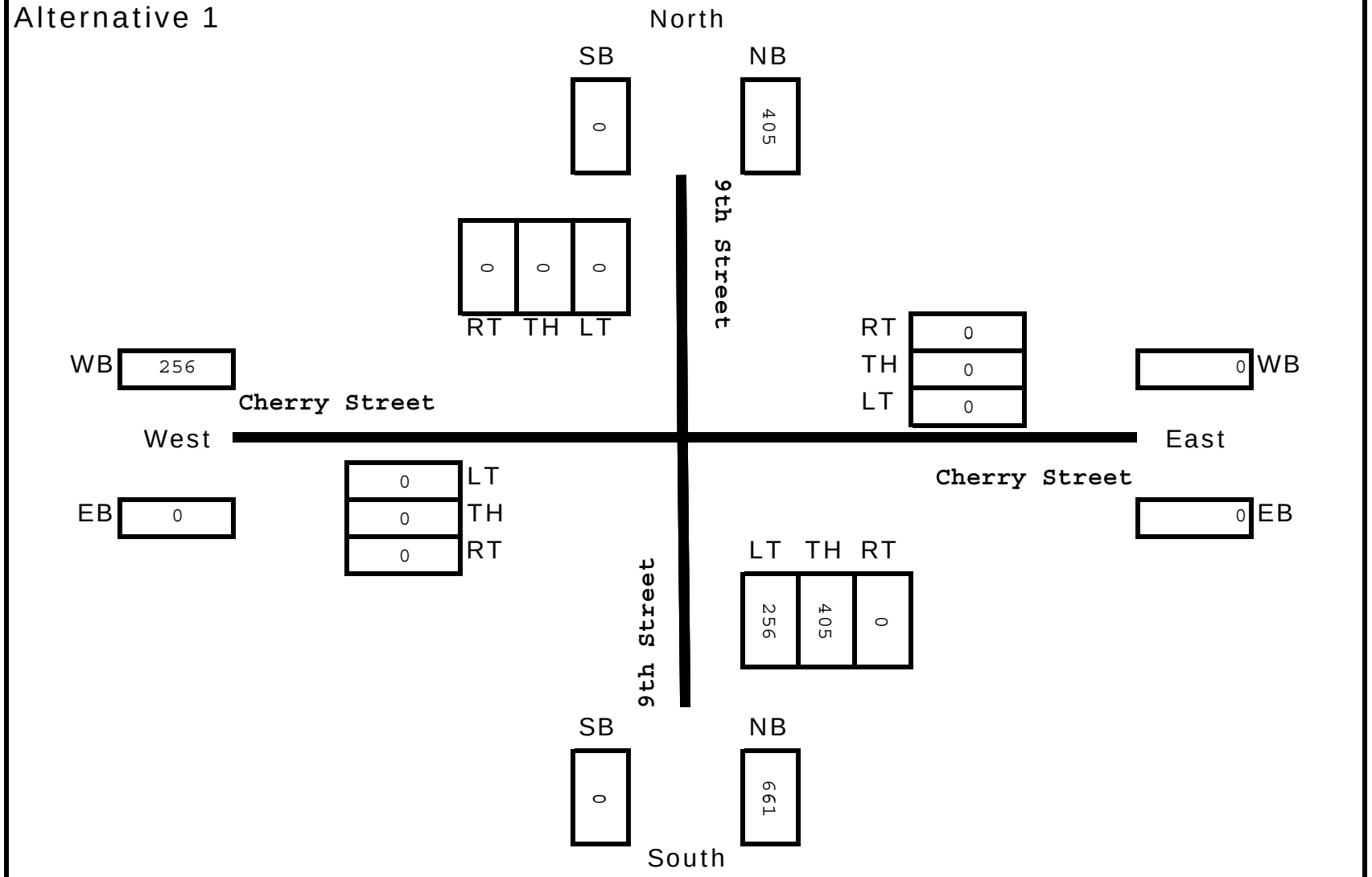
Cherry Street at 7th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



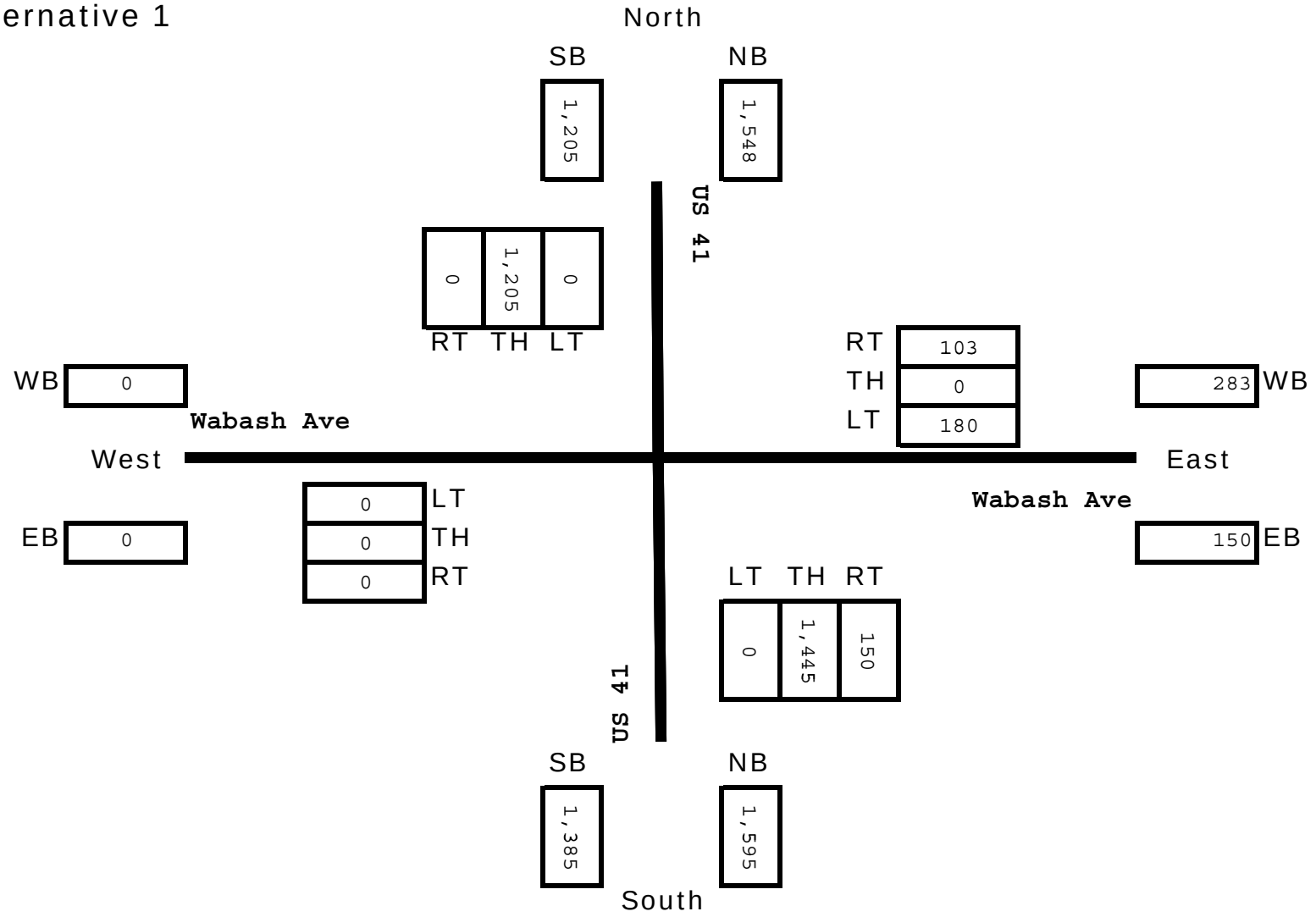
Cherry Street at 8th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



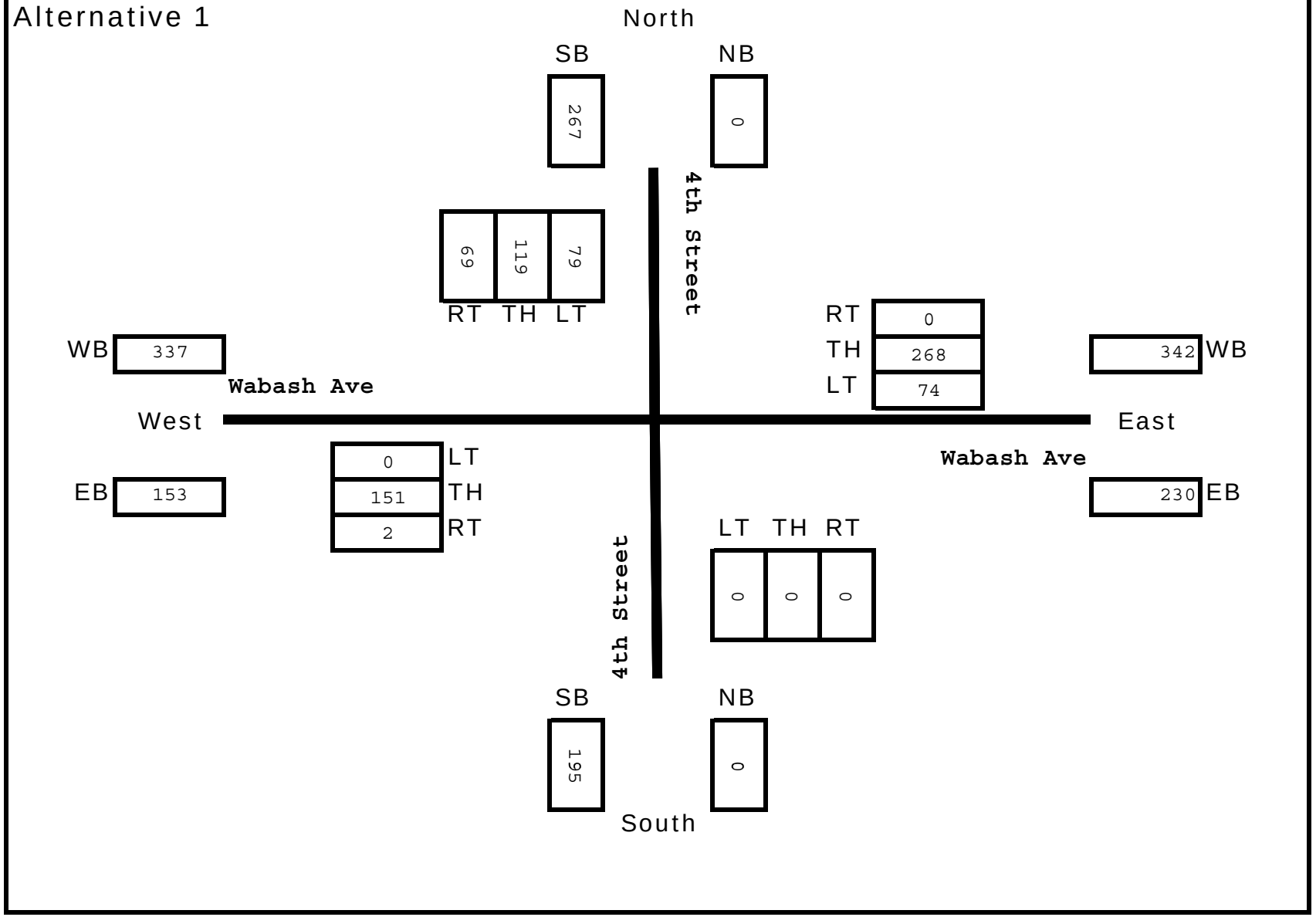
Cherry Street at 9th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



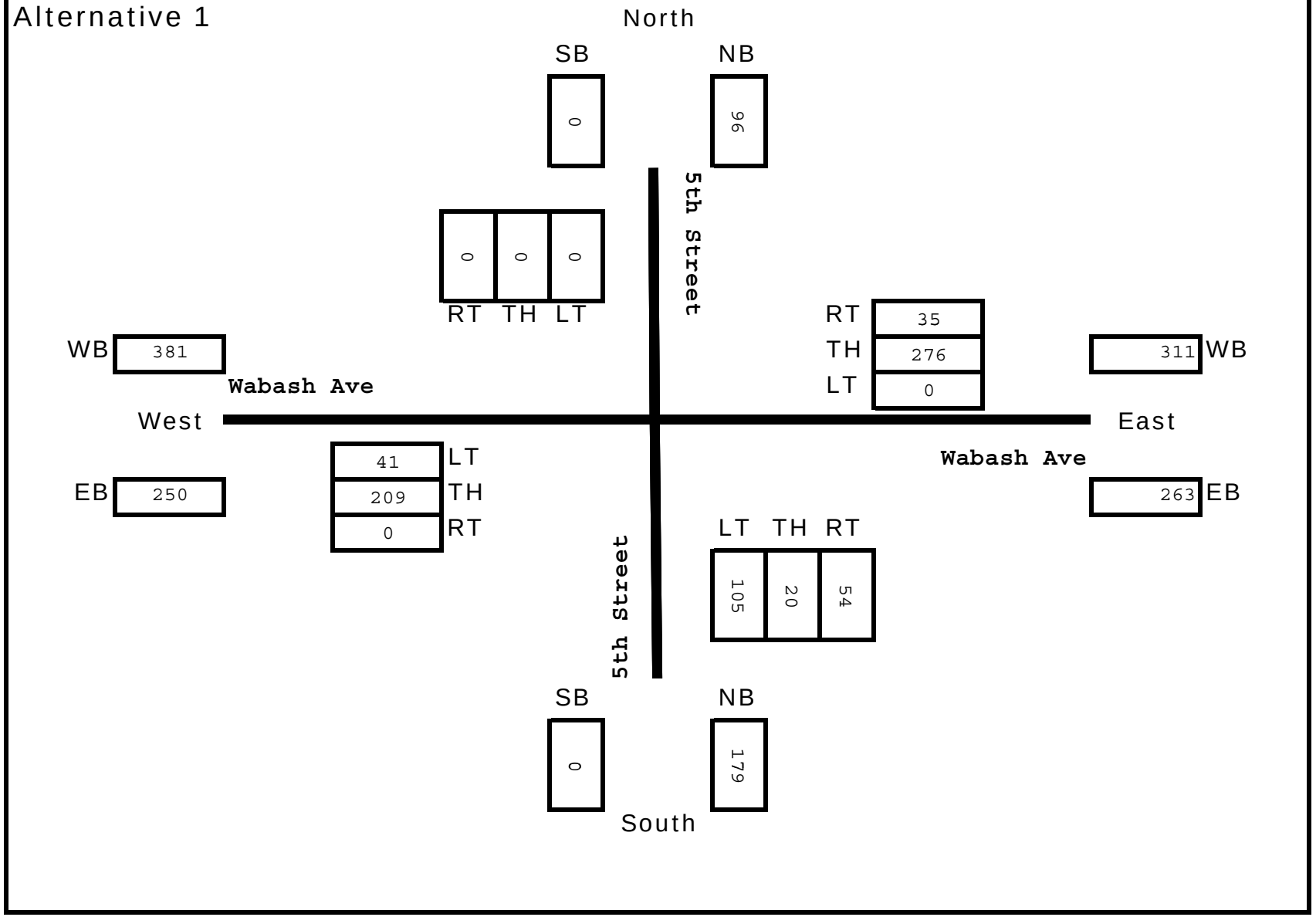
Wabash Ave at US 41
PM Turning Movement Forecast
Year 2022
Alternative 1



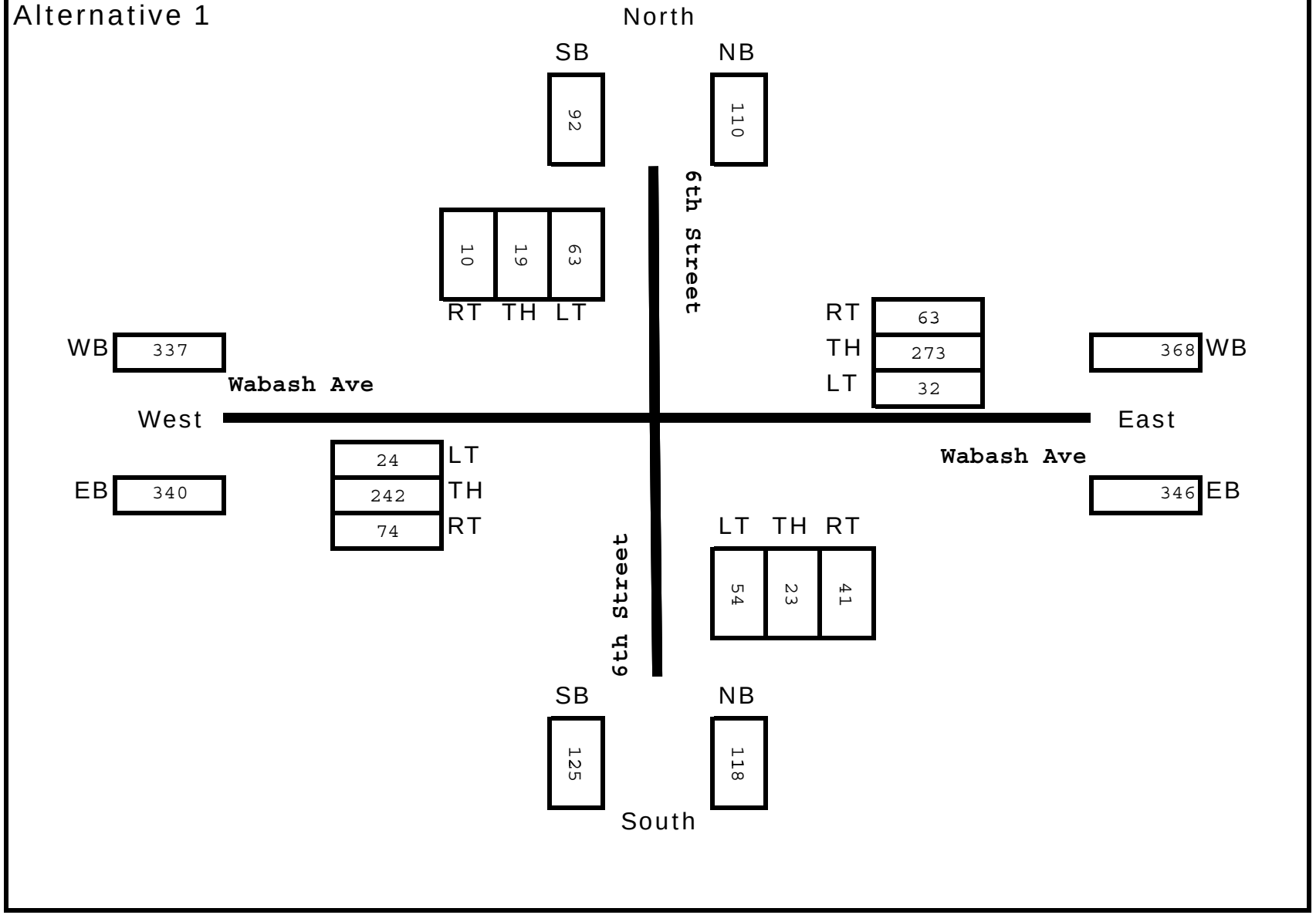
Wabash Ave at 4th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



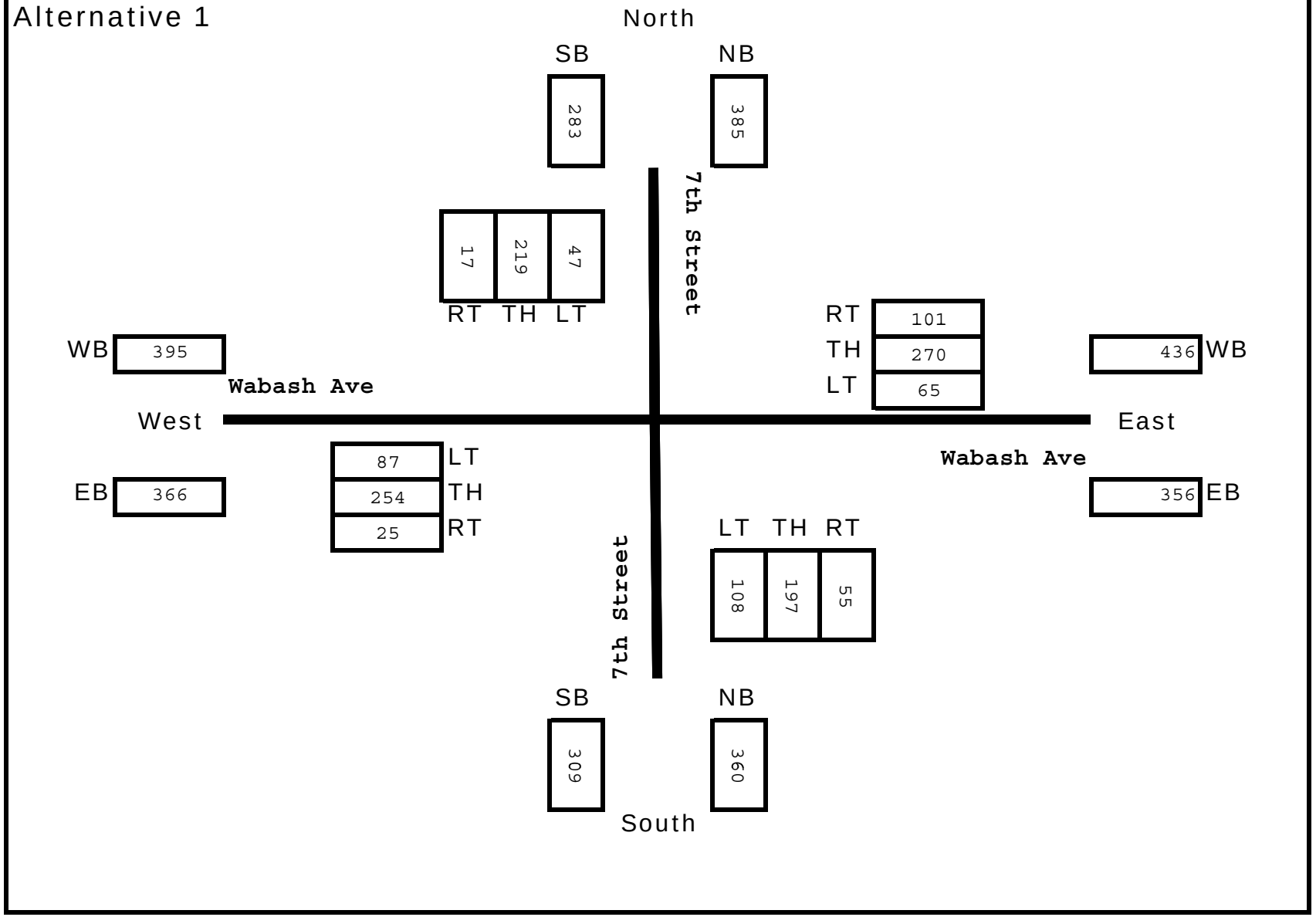
Wabash Ave at 5th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



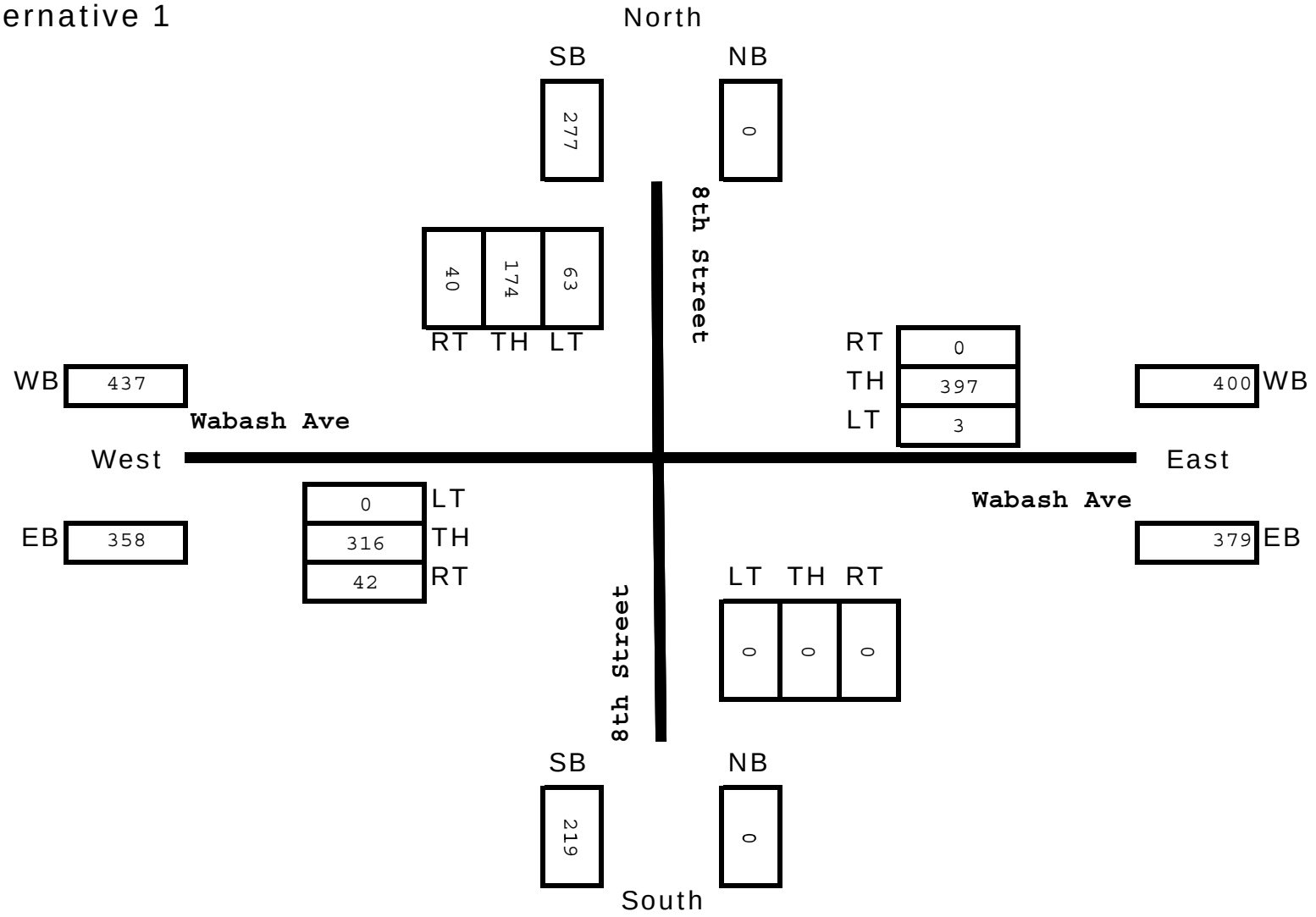
Wabash Ave at 6th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



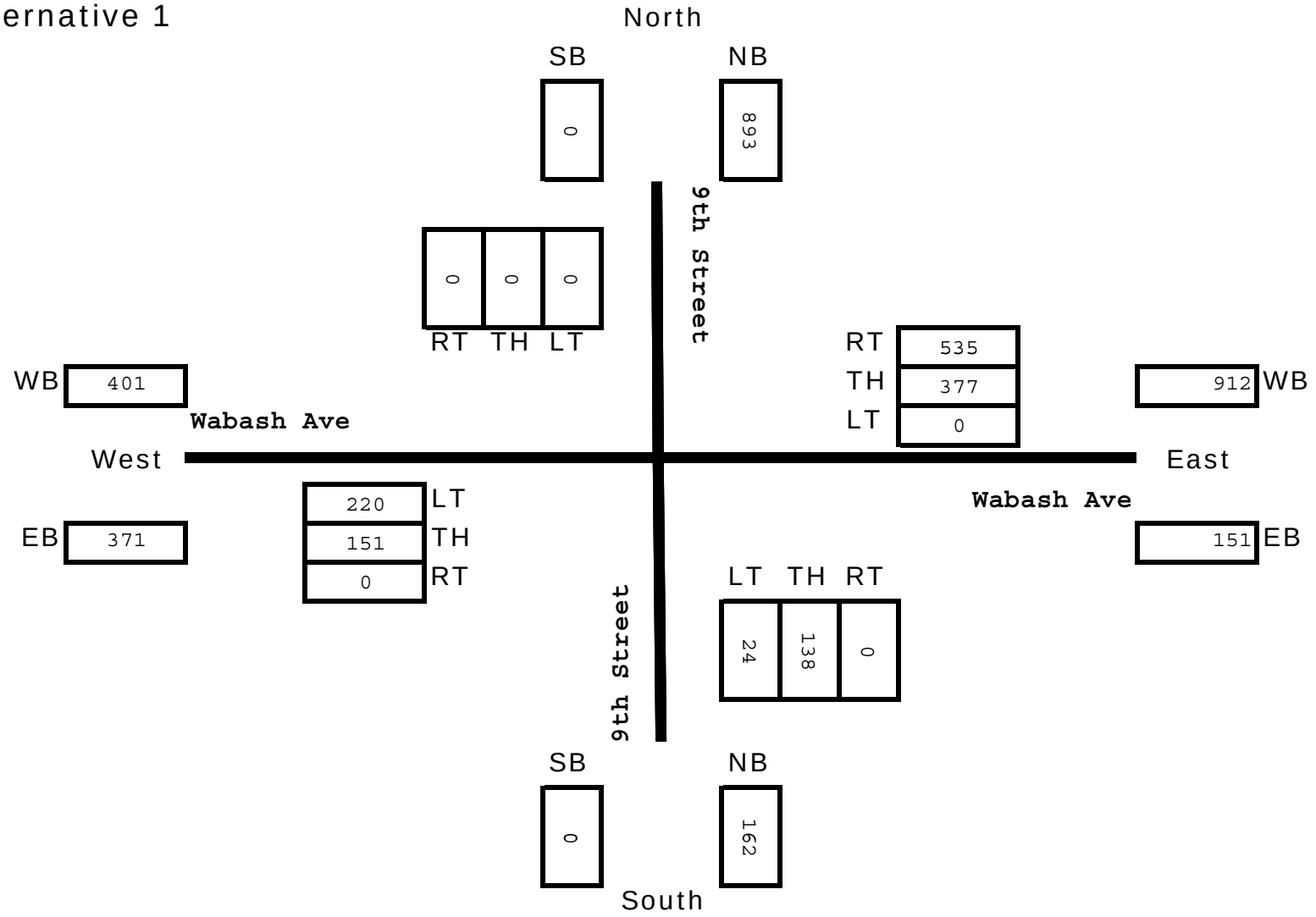
Wabash Ave at 7th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



Wabash Ave at 8th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



Wabash Ave at 9th Street
PM Turning Movement Forecast
Year 2022
Alternative 1

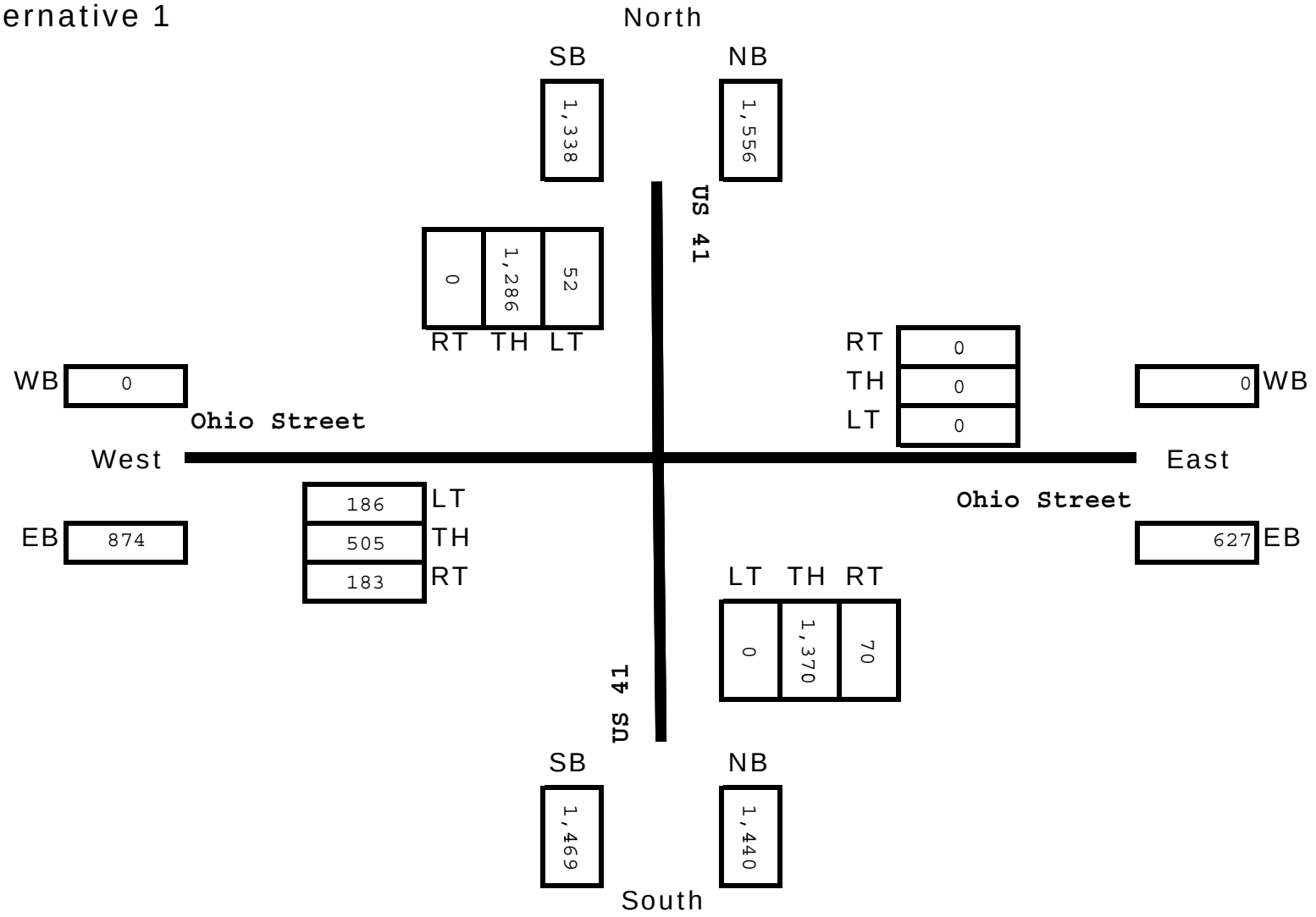


Ohio Street at US 41

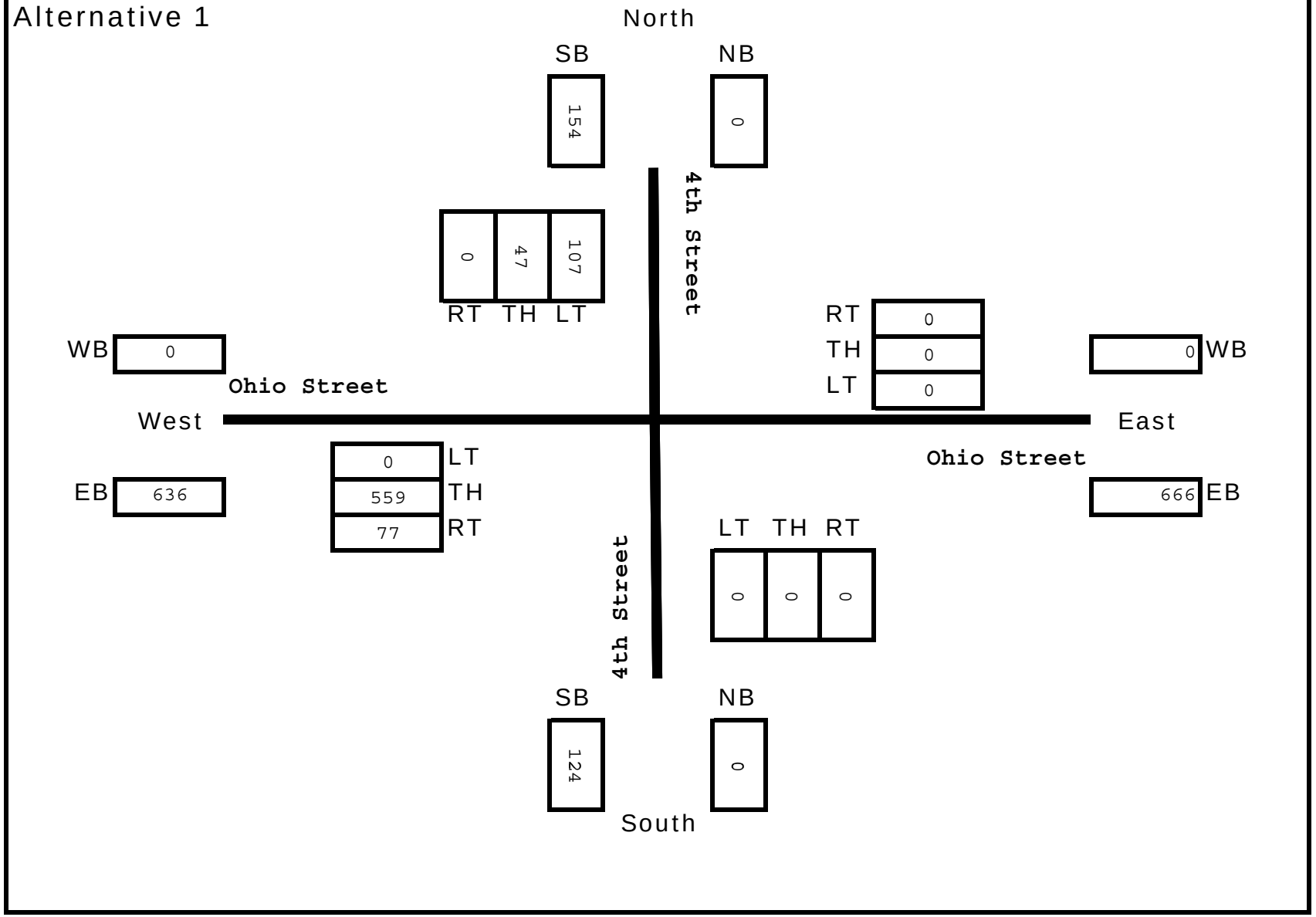
PM Turning Movement Forecast

Year 2022

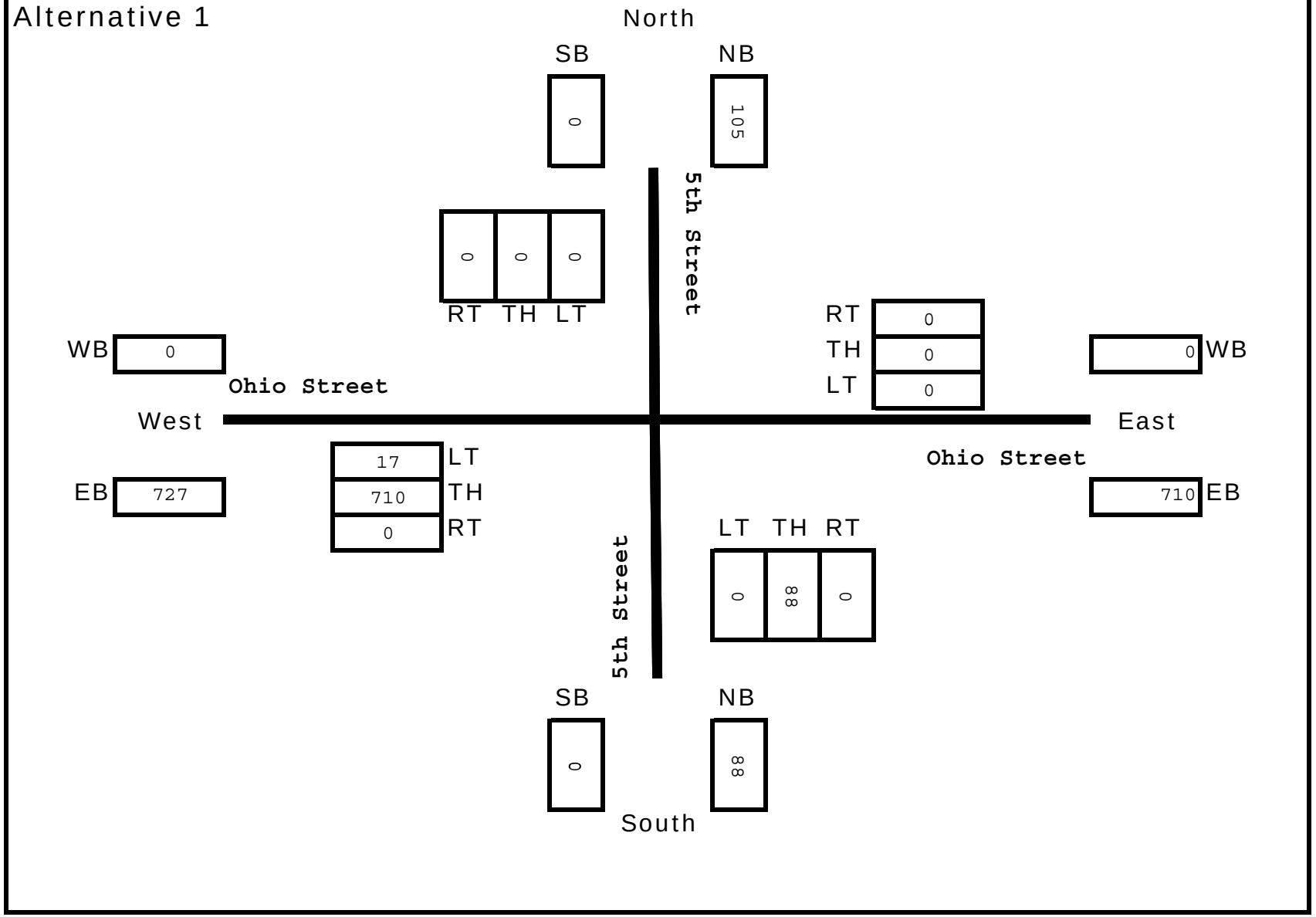
Alternative 1



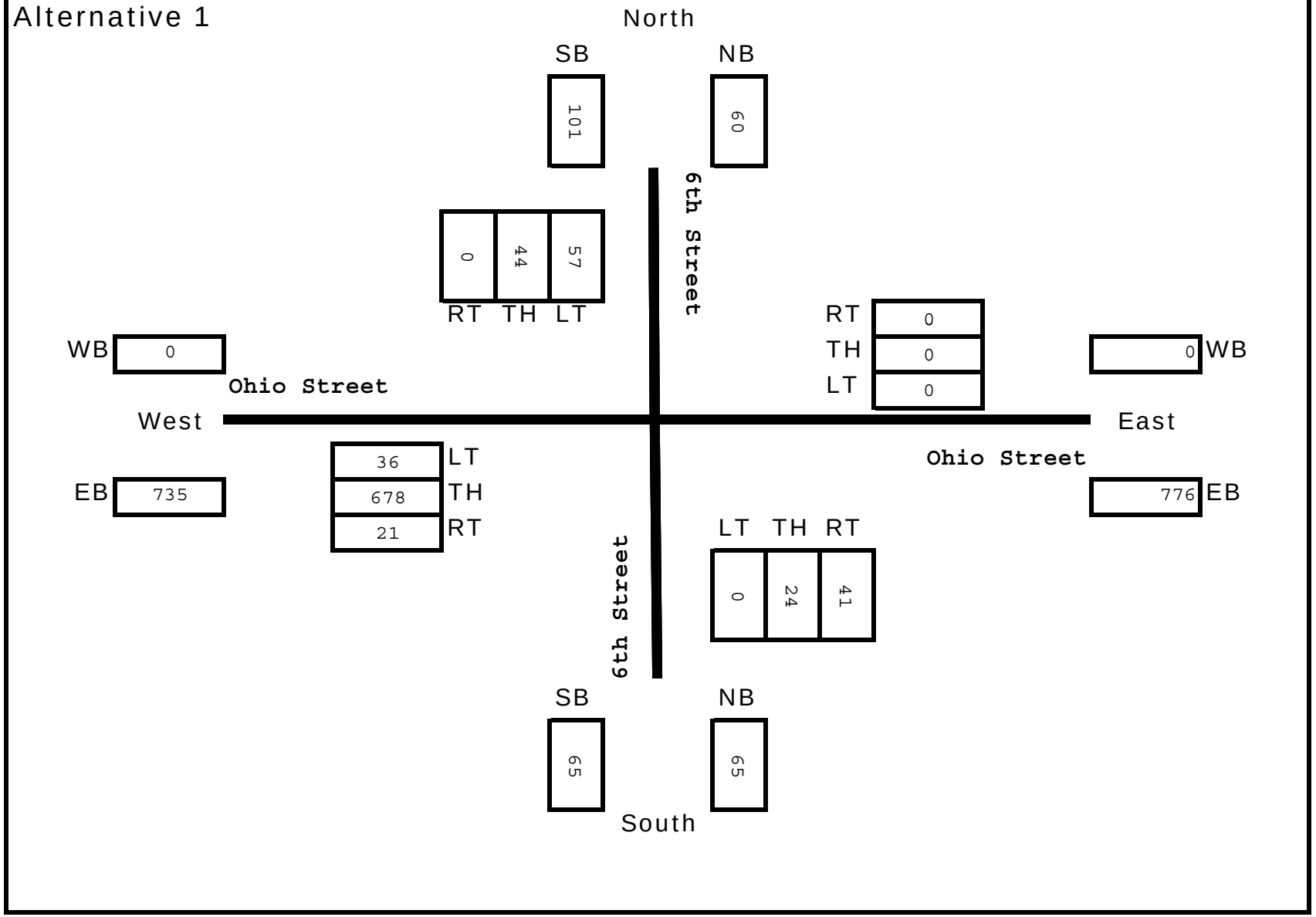
Ohio Street at 4th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



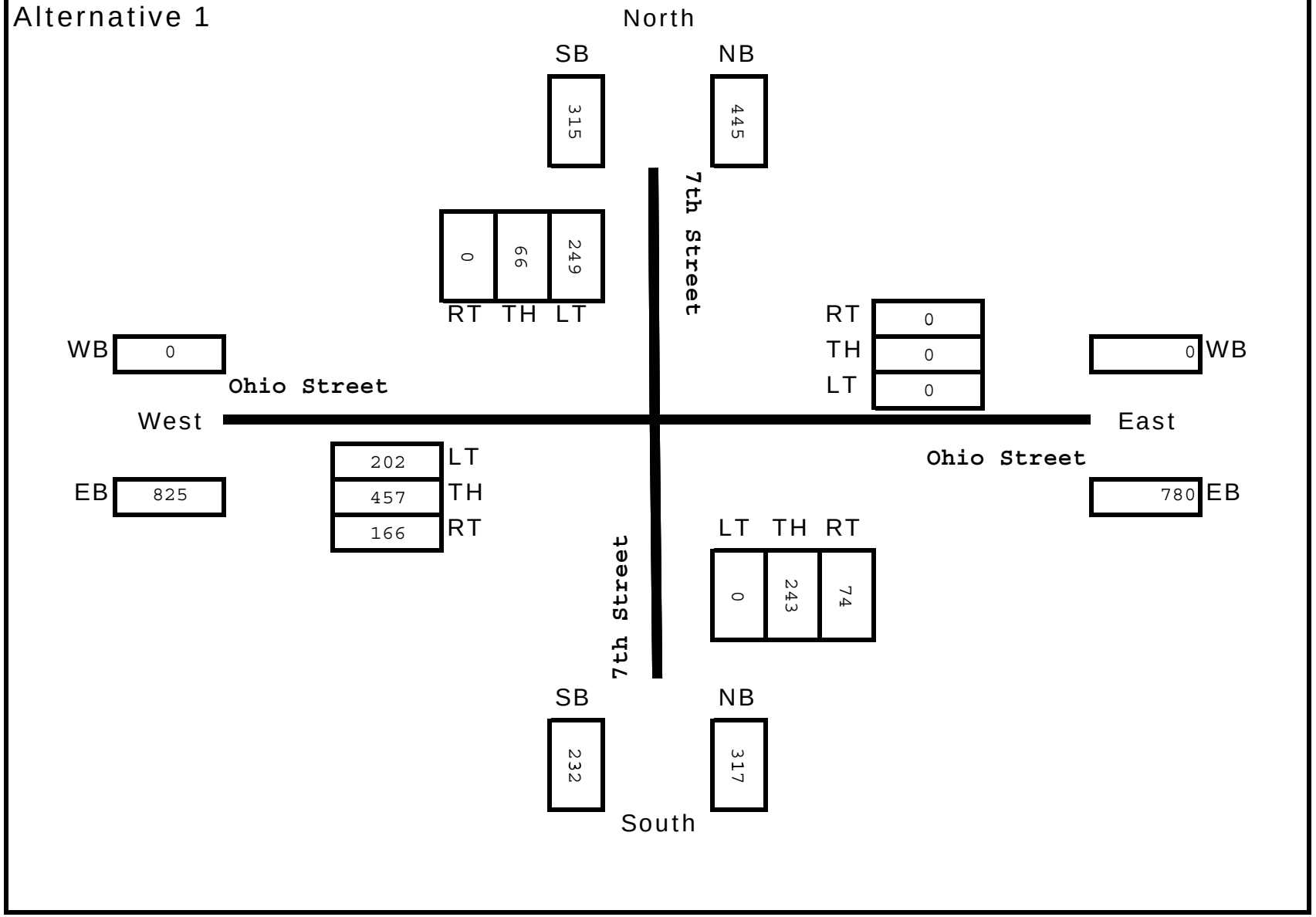
Ohio Street at 5th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



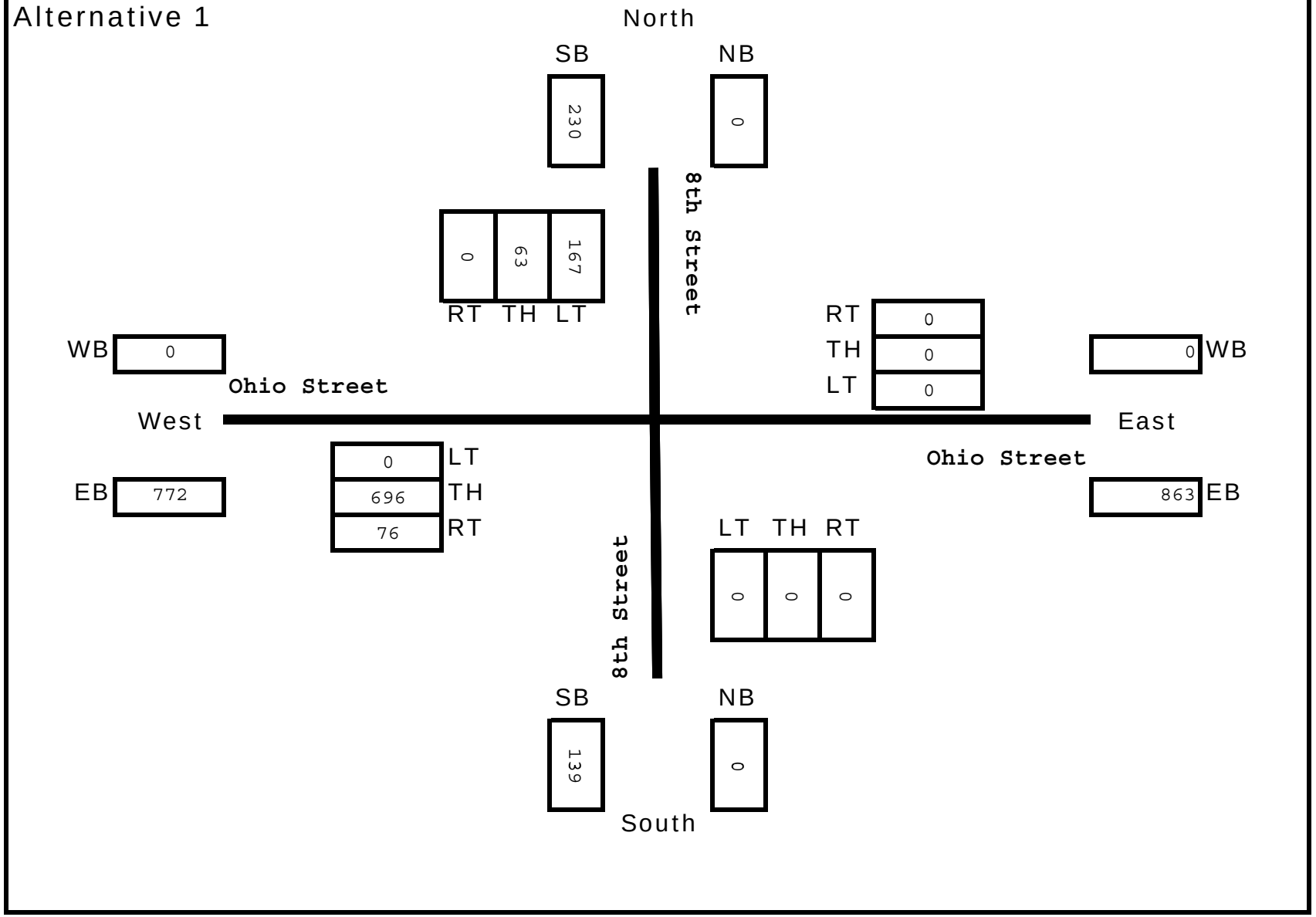
Ohio Street at 6th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



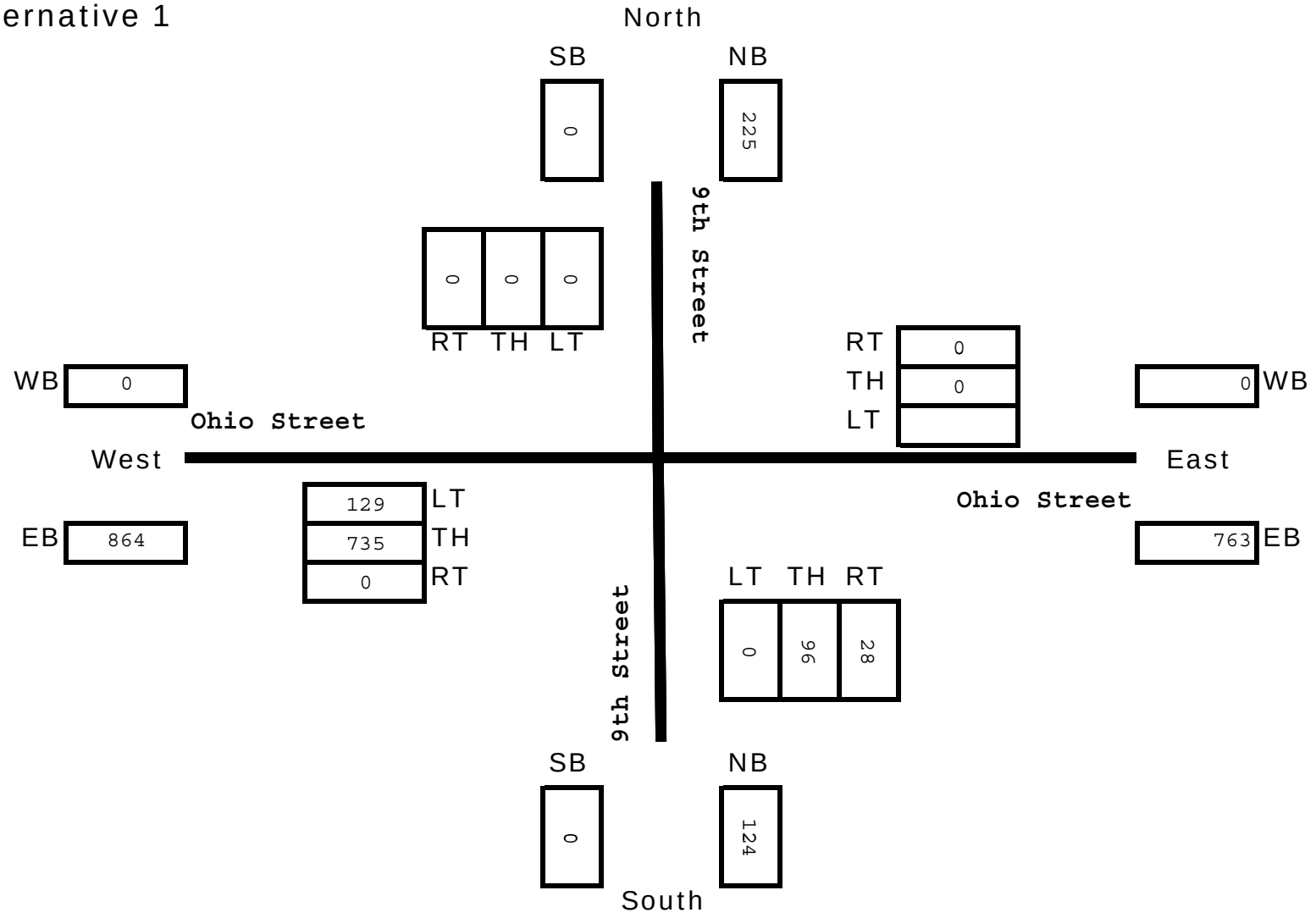
Ohio Street at 7th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



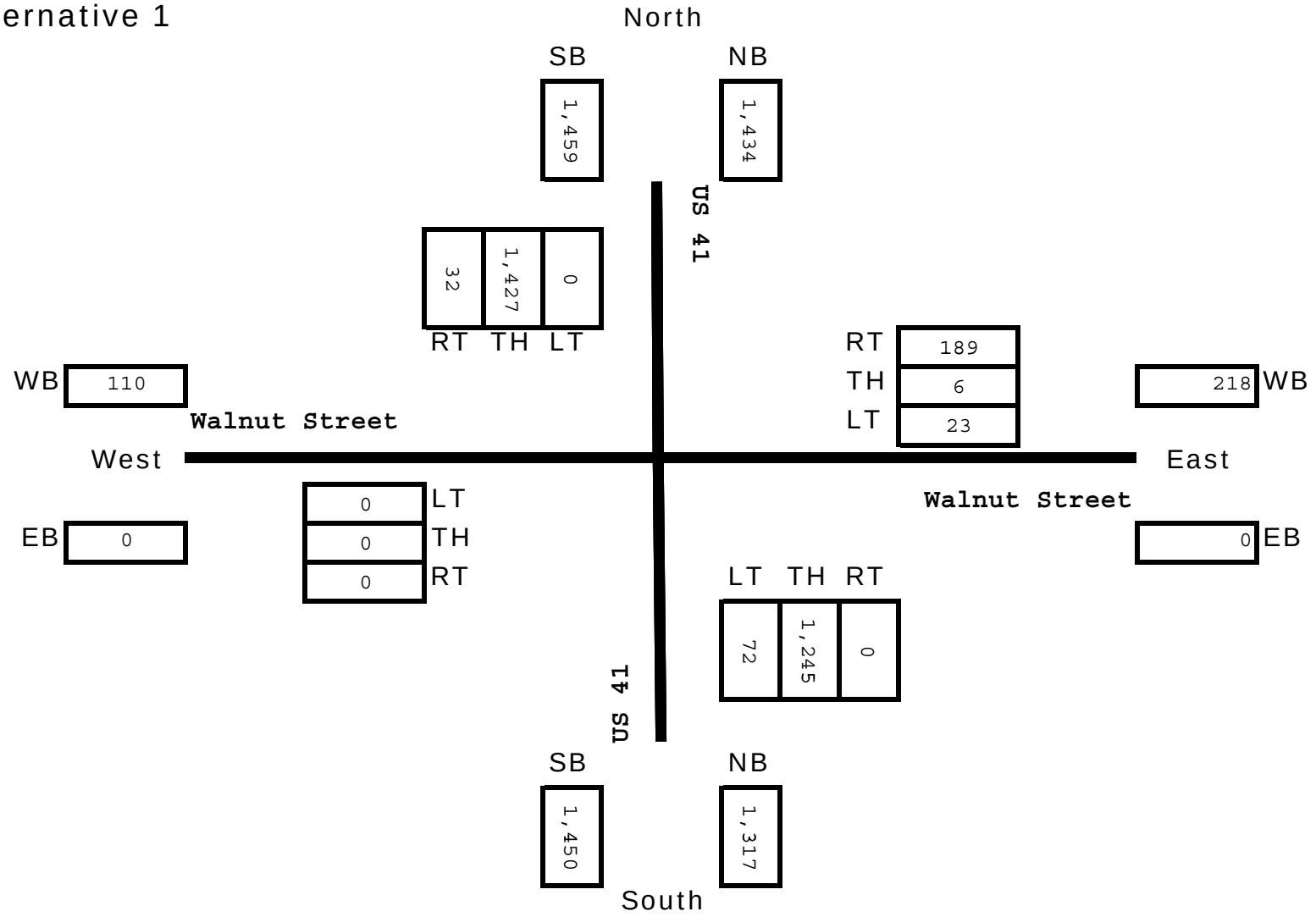
Ohio Street at 8th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



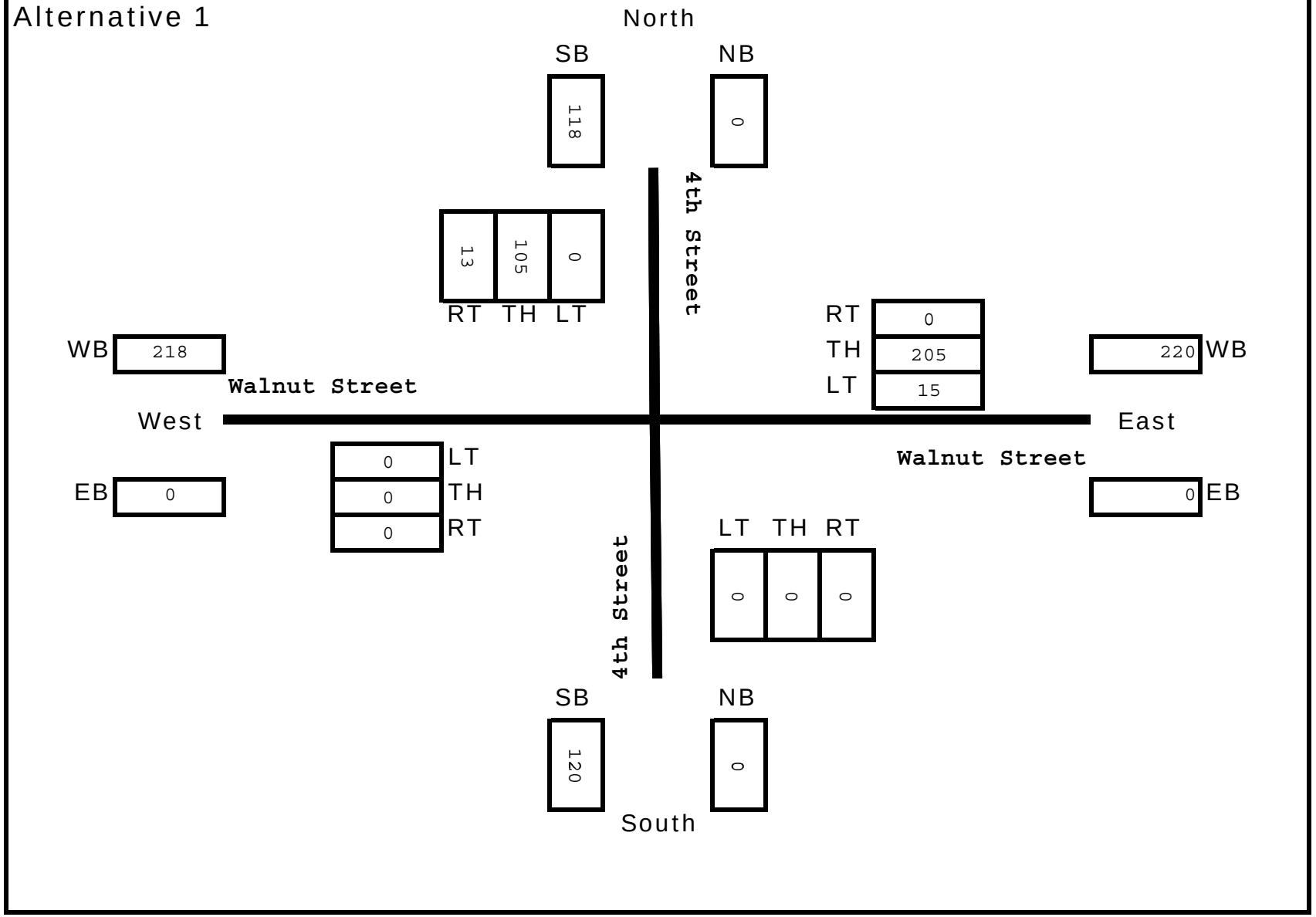
Ohio Street at 9th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



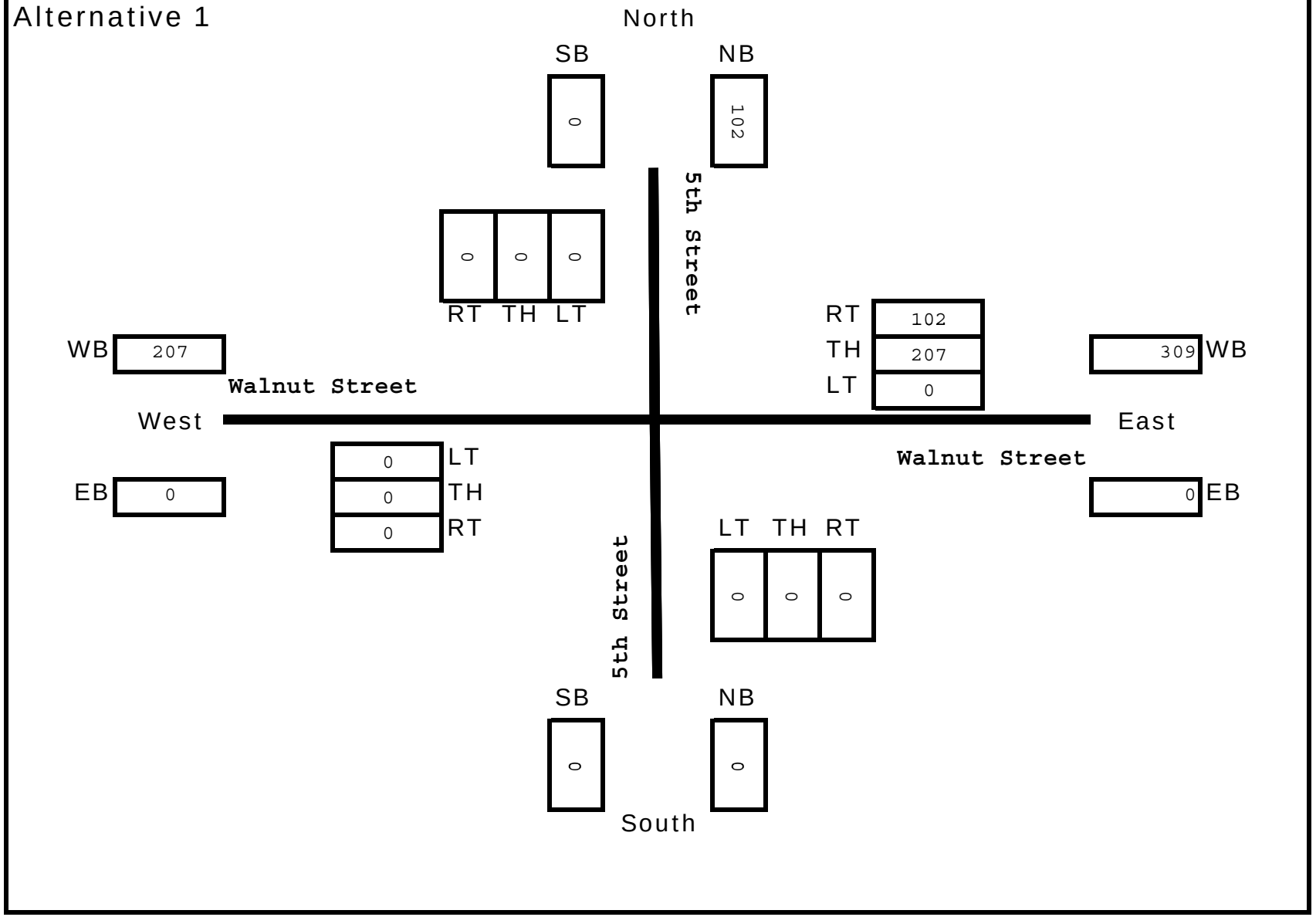
Walnut Street at US 41
PM Turning Movement Forecast
Year 2022
Alternative 1



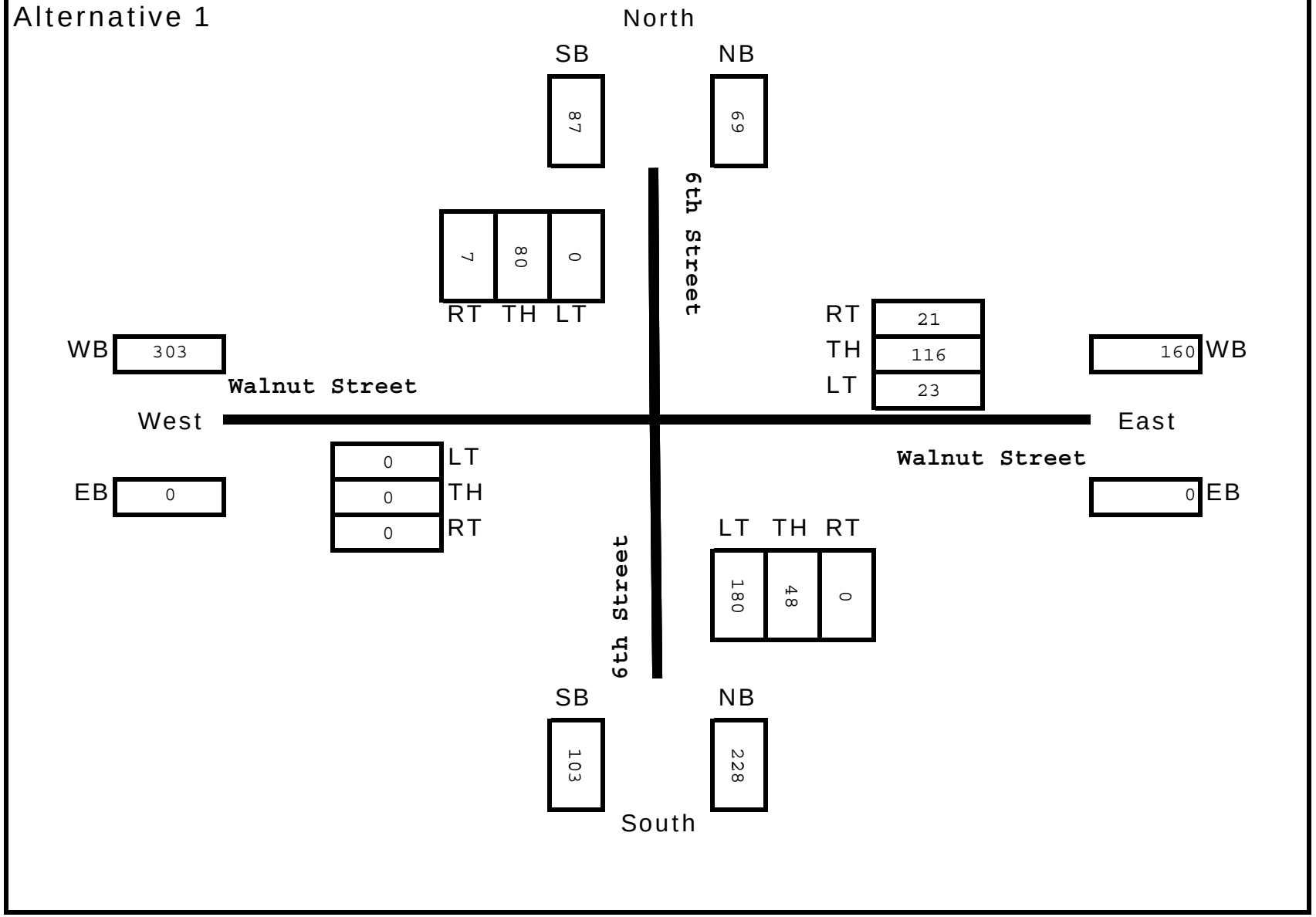
Walnut Street at 4th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



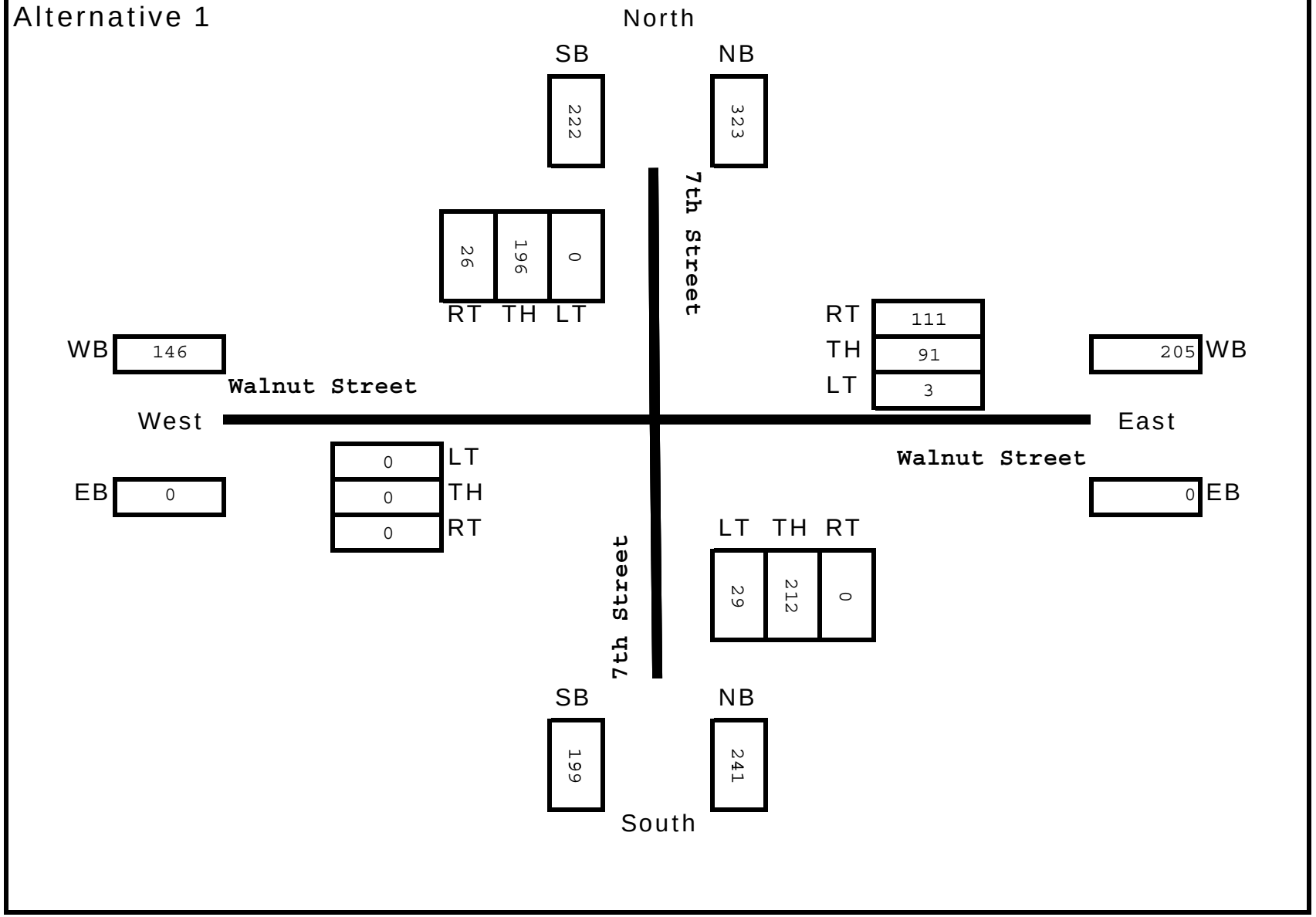
Walnut Street at 5th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



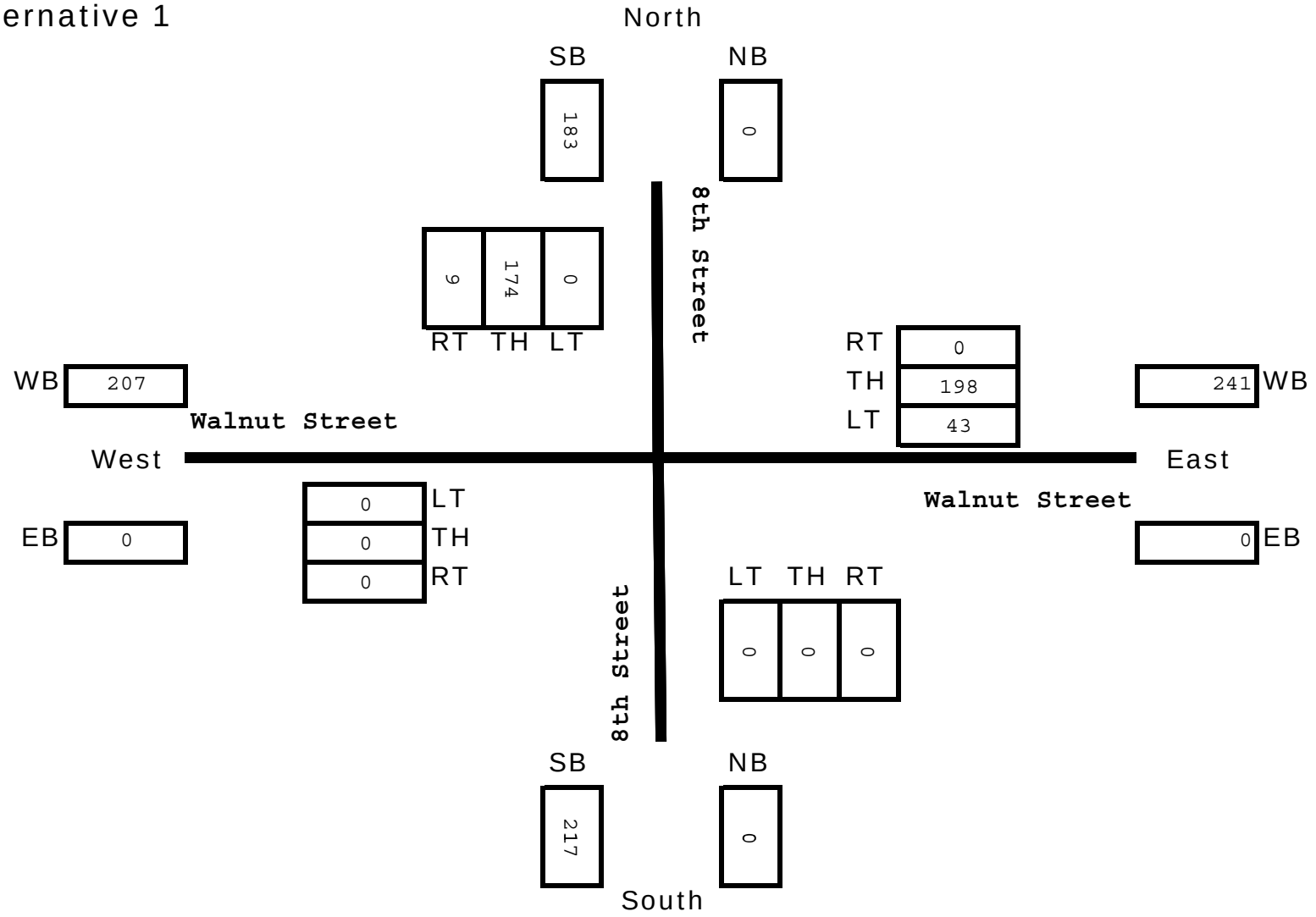
Walnut Street at 6th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



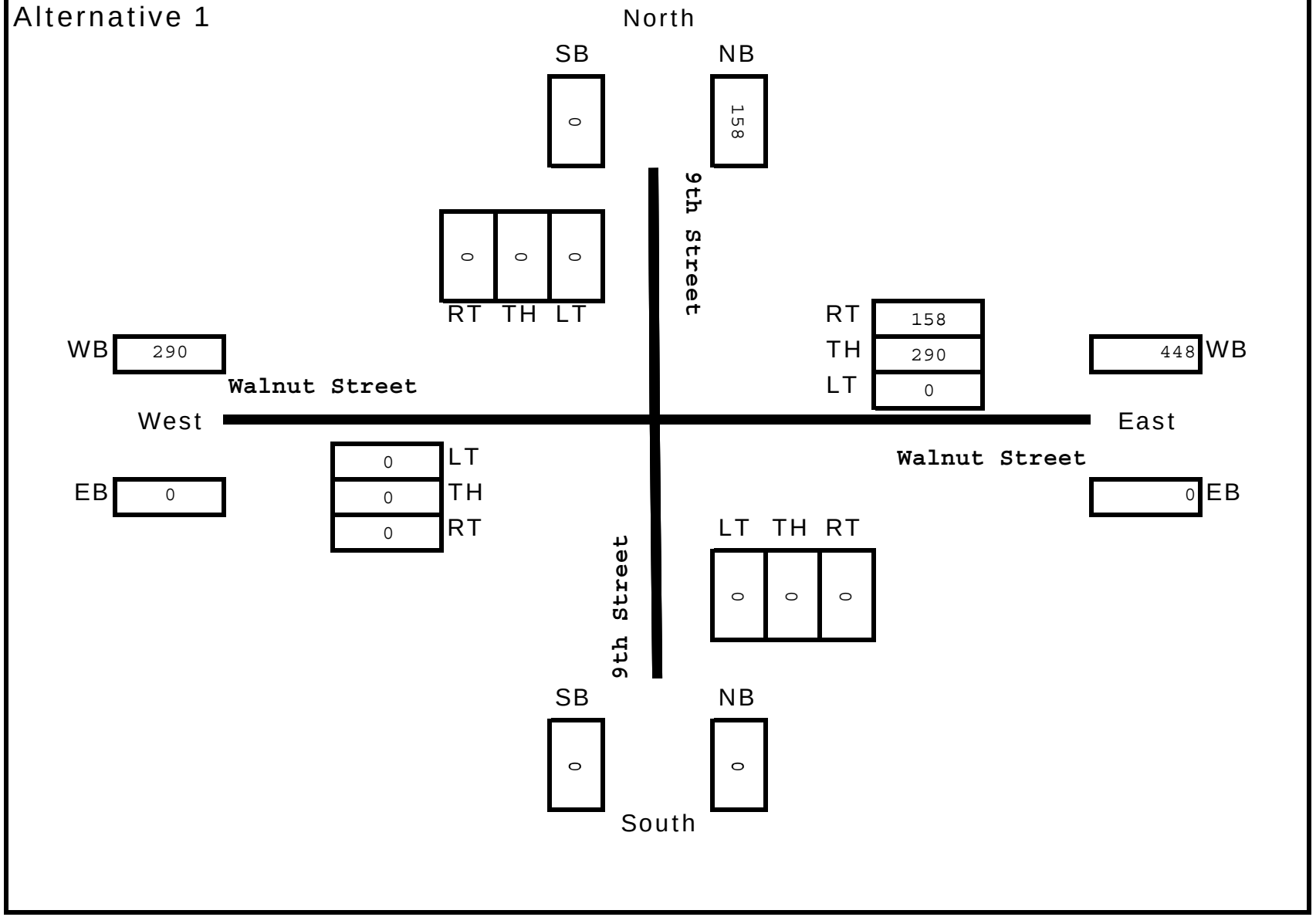
Walnut Street at 7th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



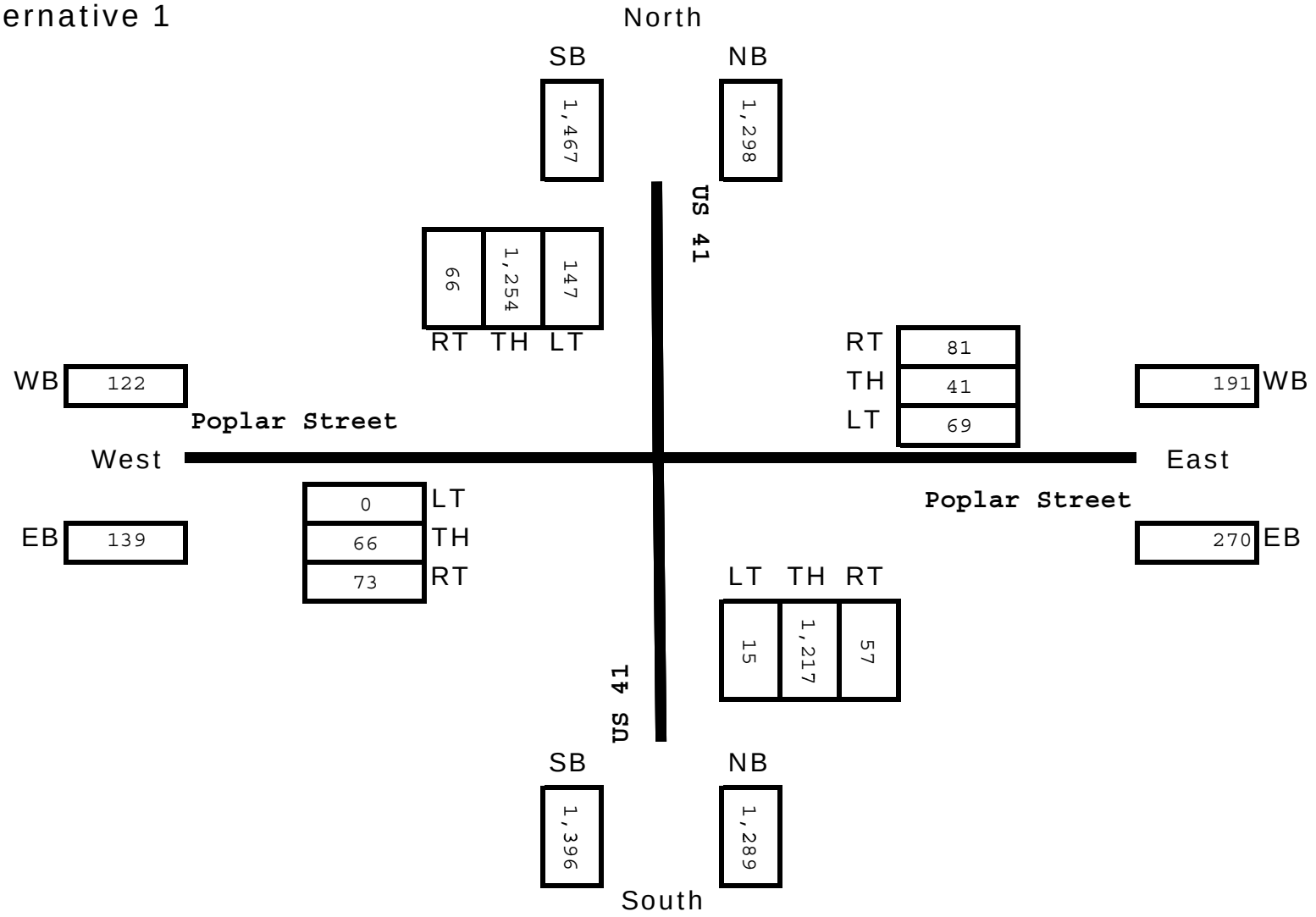
Walnut Street at 8th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



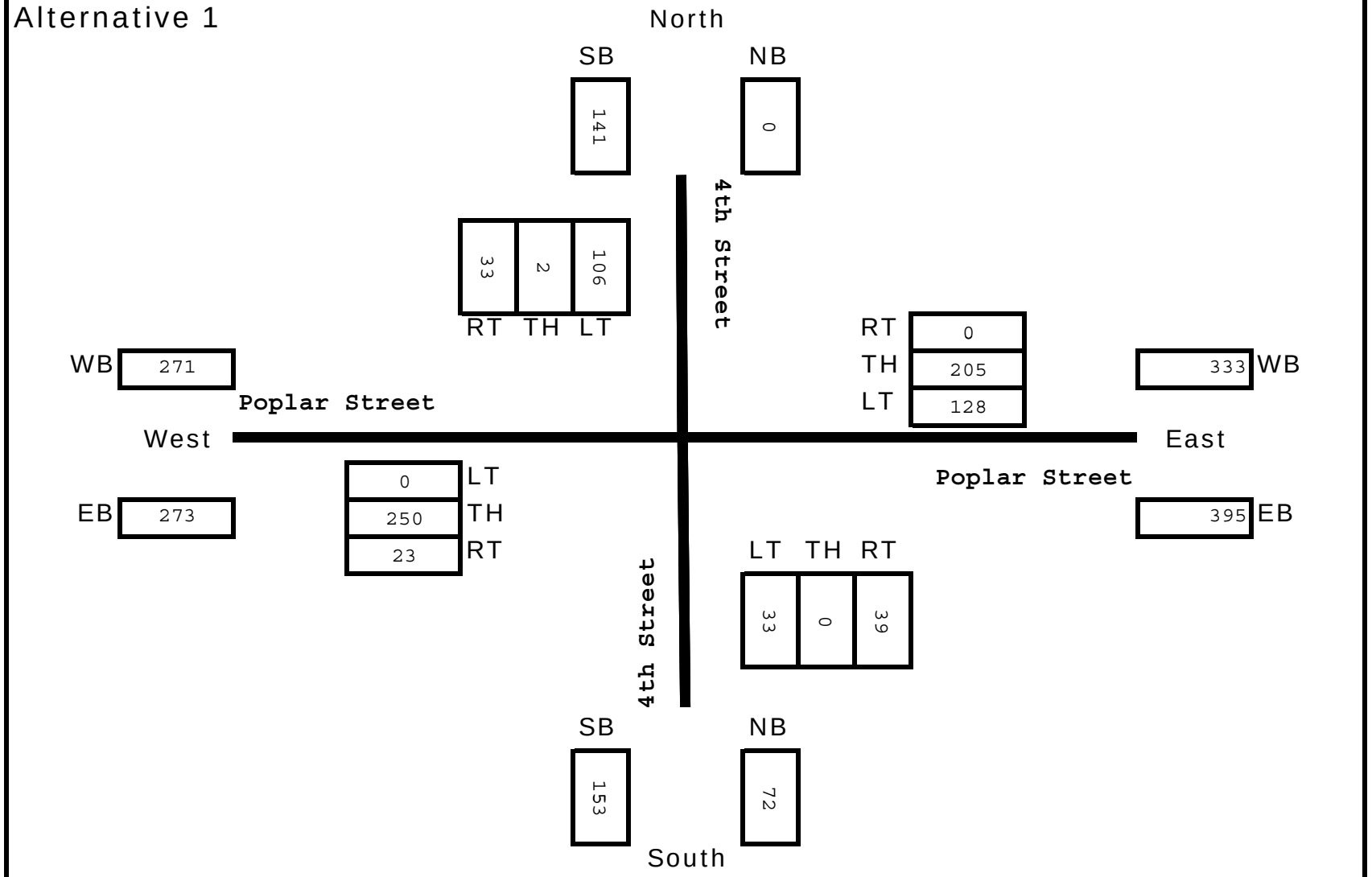
Walnut Street at 9th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



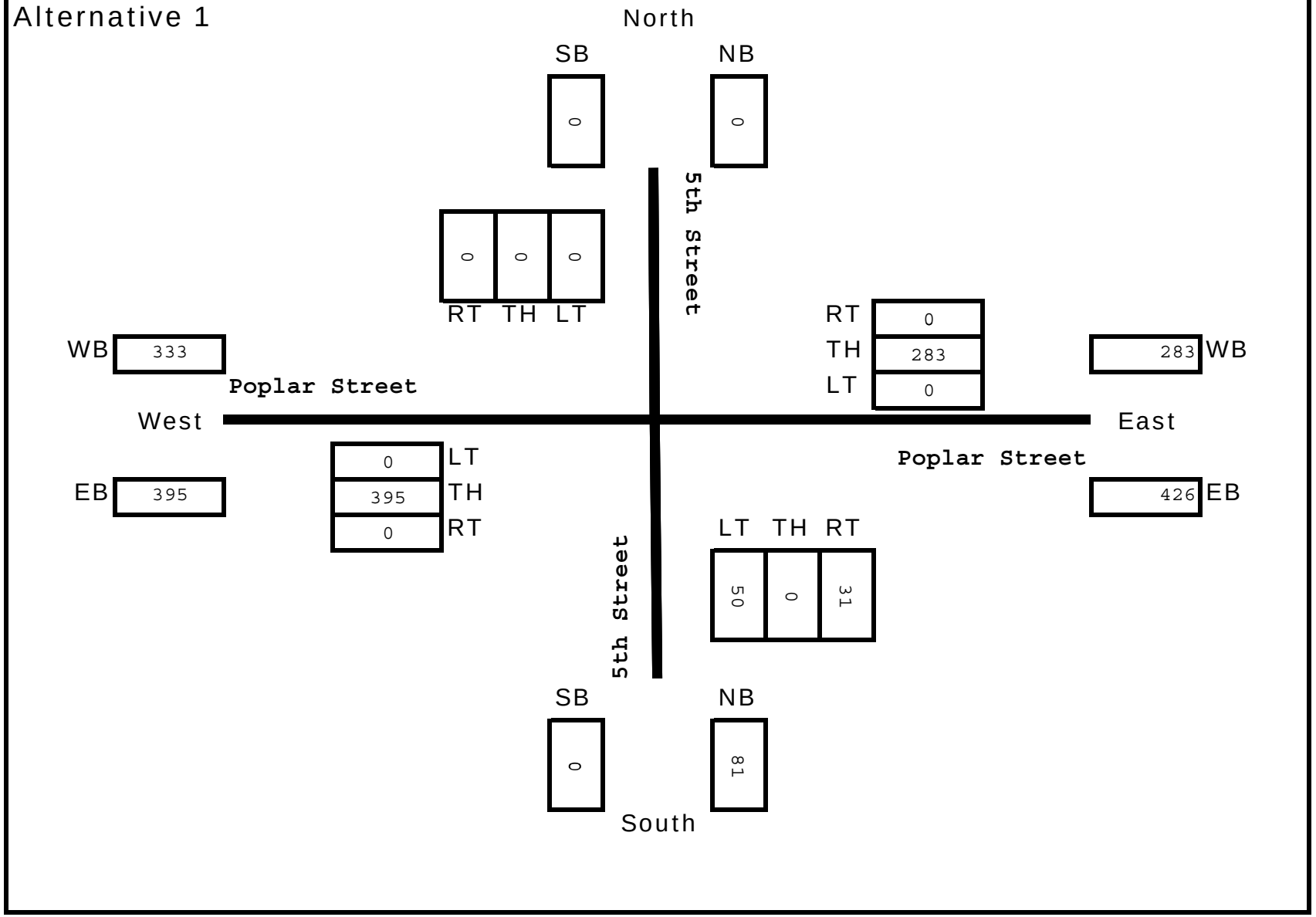
Poplar Street at US 41
PM Turning Movement Forecast
Year 2022
Alternative 1



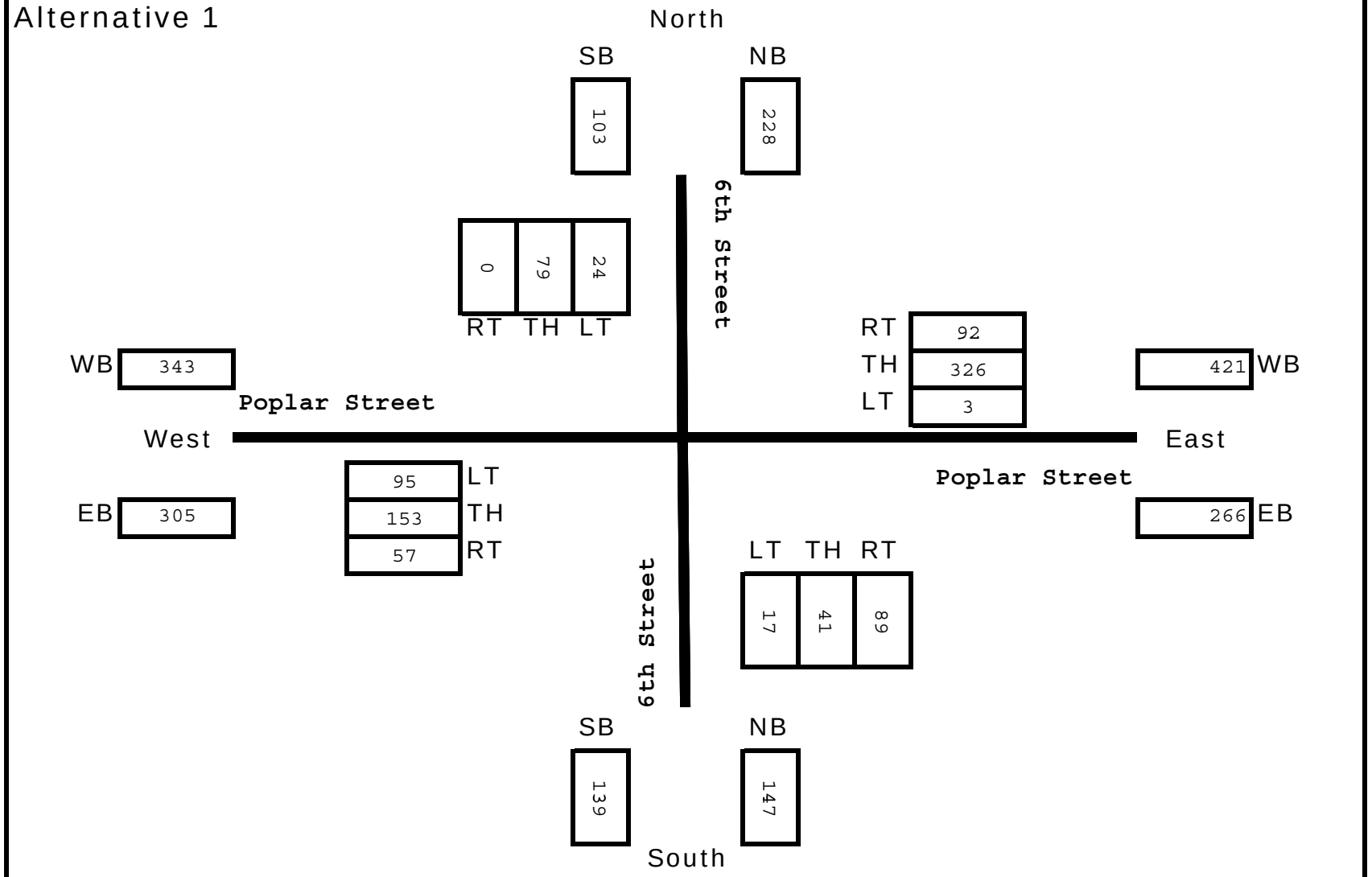
Poplar Street at 4th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



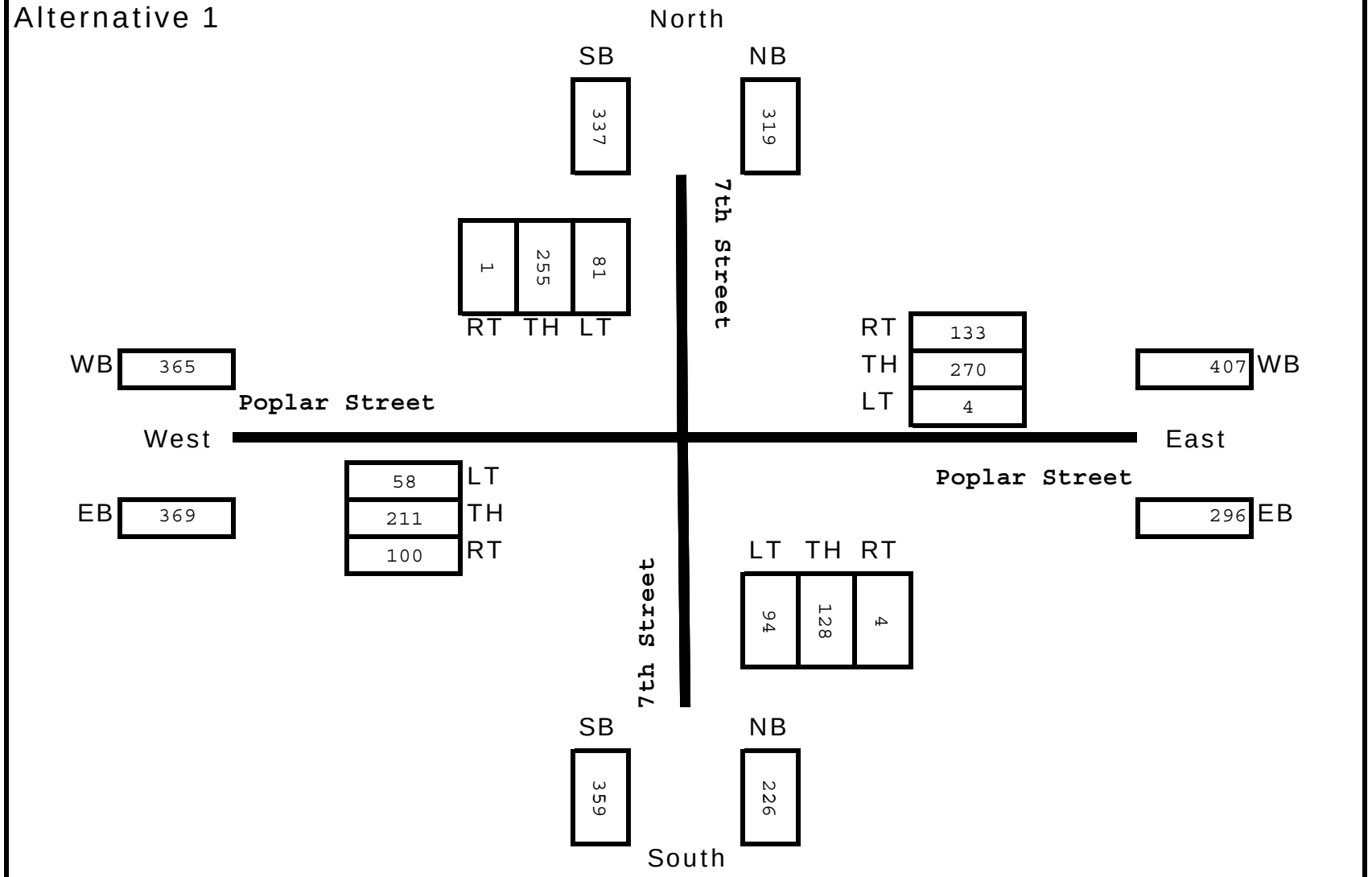
Poplar Street at 5th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



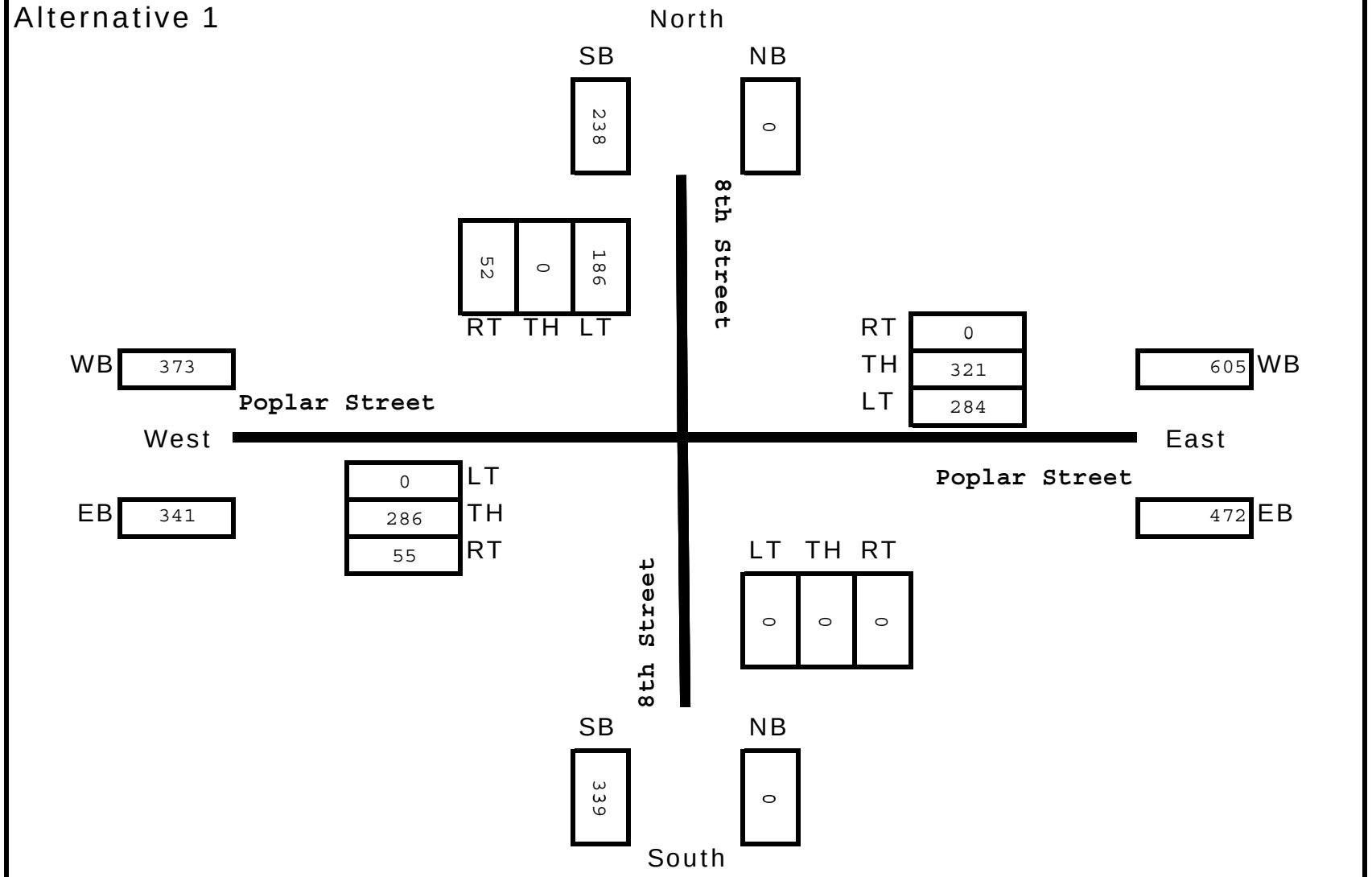
Poplar Street at 6th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



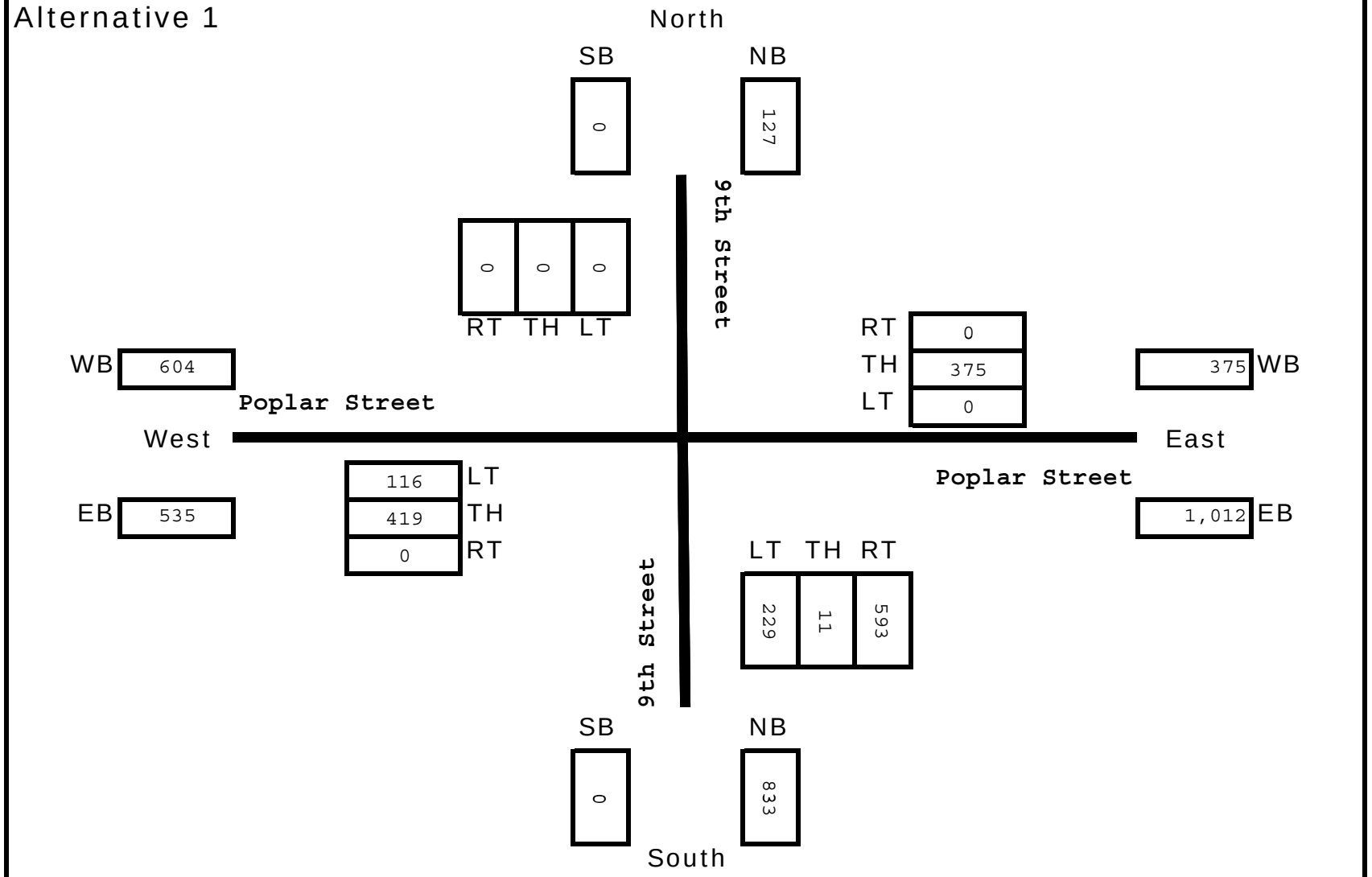
Poplar Street at 7th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



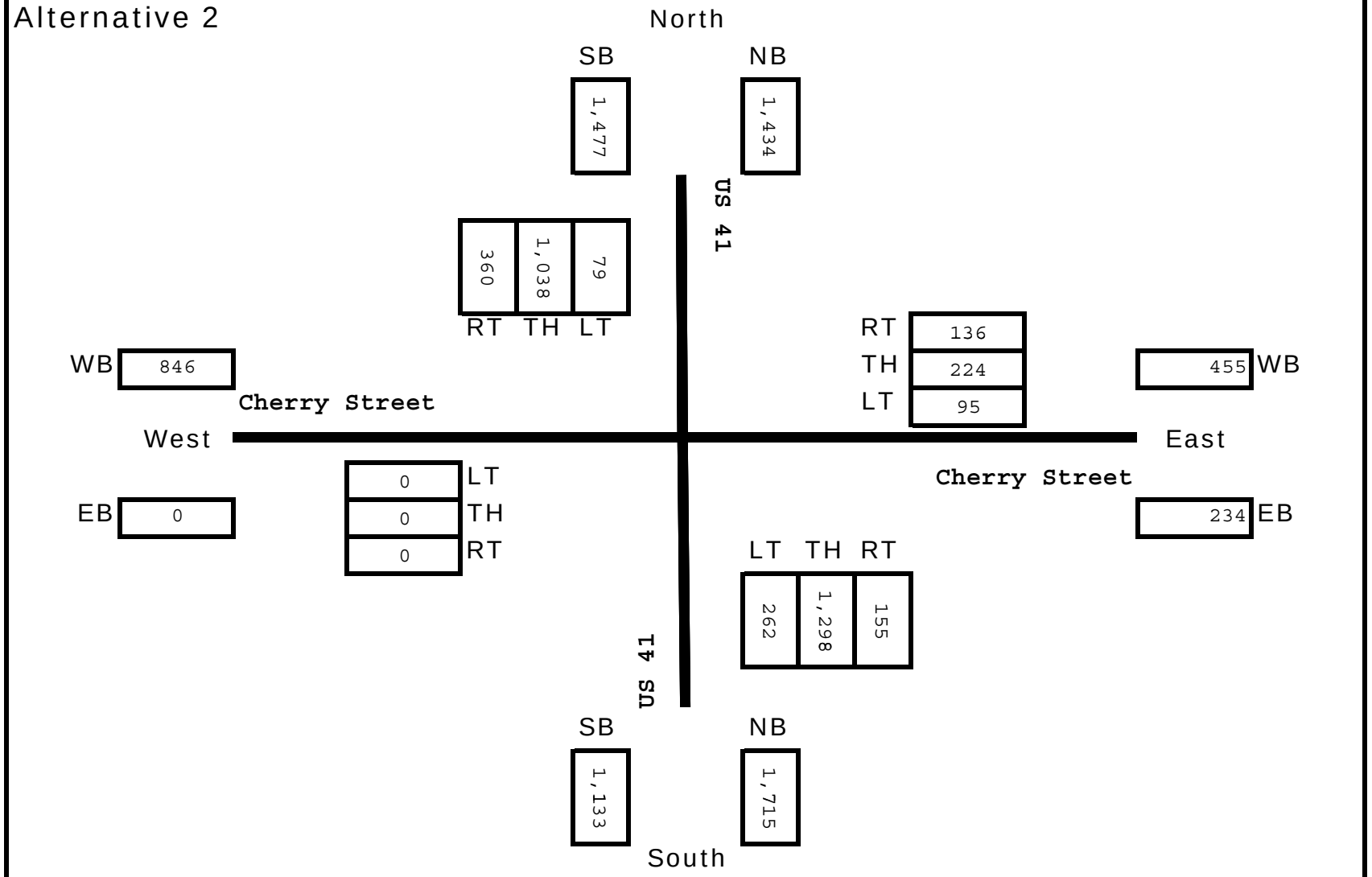
Poplar Street at 8th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



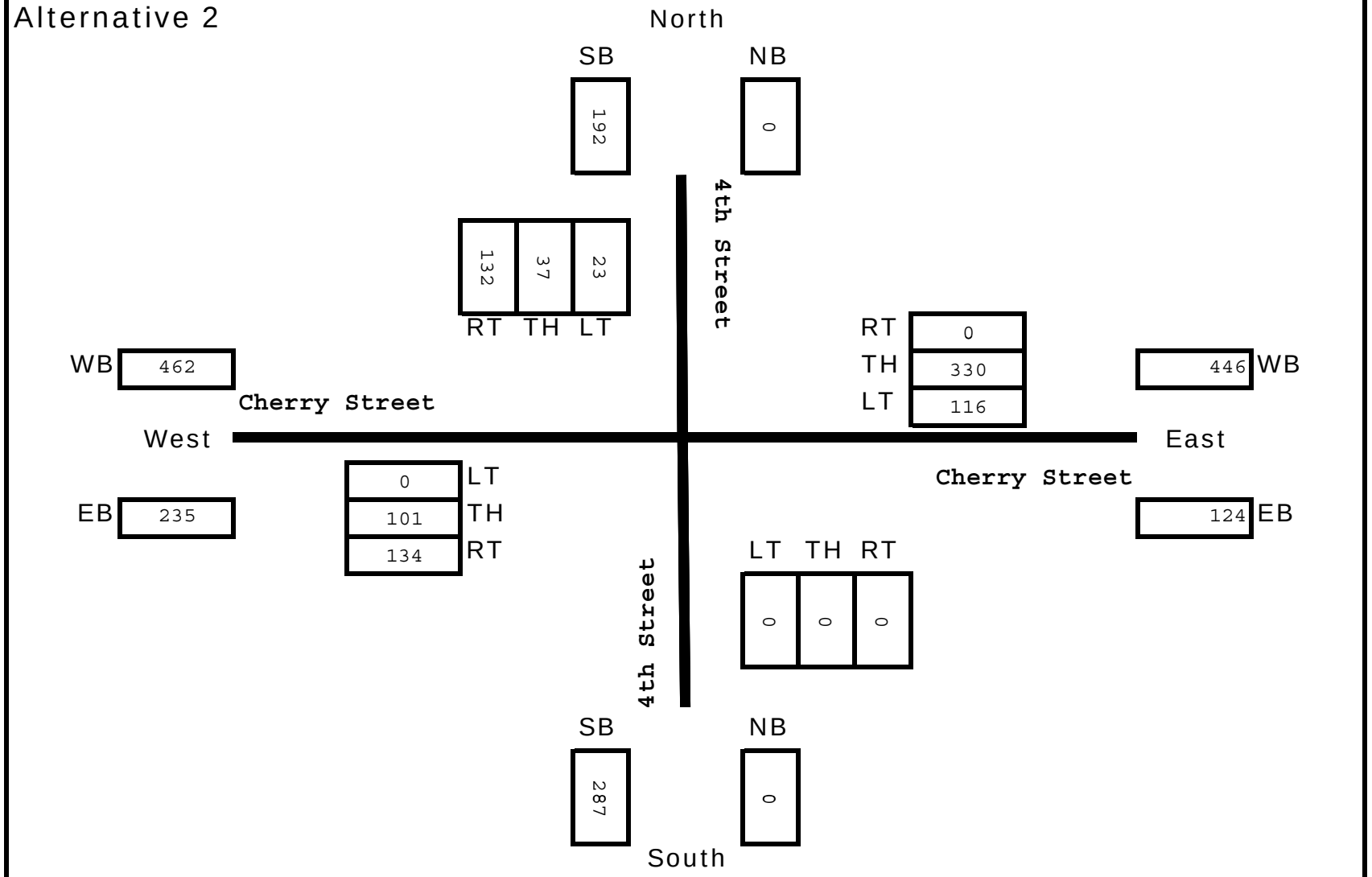
Poplar Street at 9th Street
PM Turning Movement Forecast
Year 2022
Alternative 1



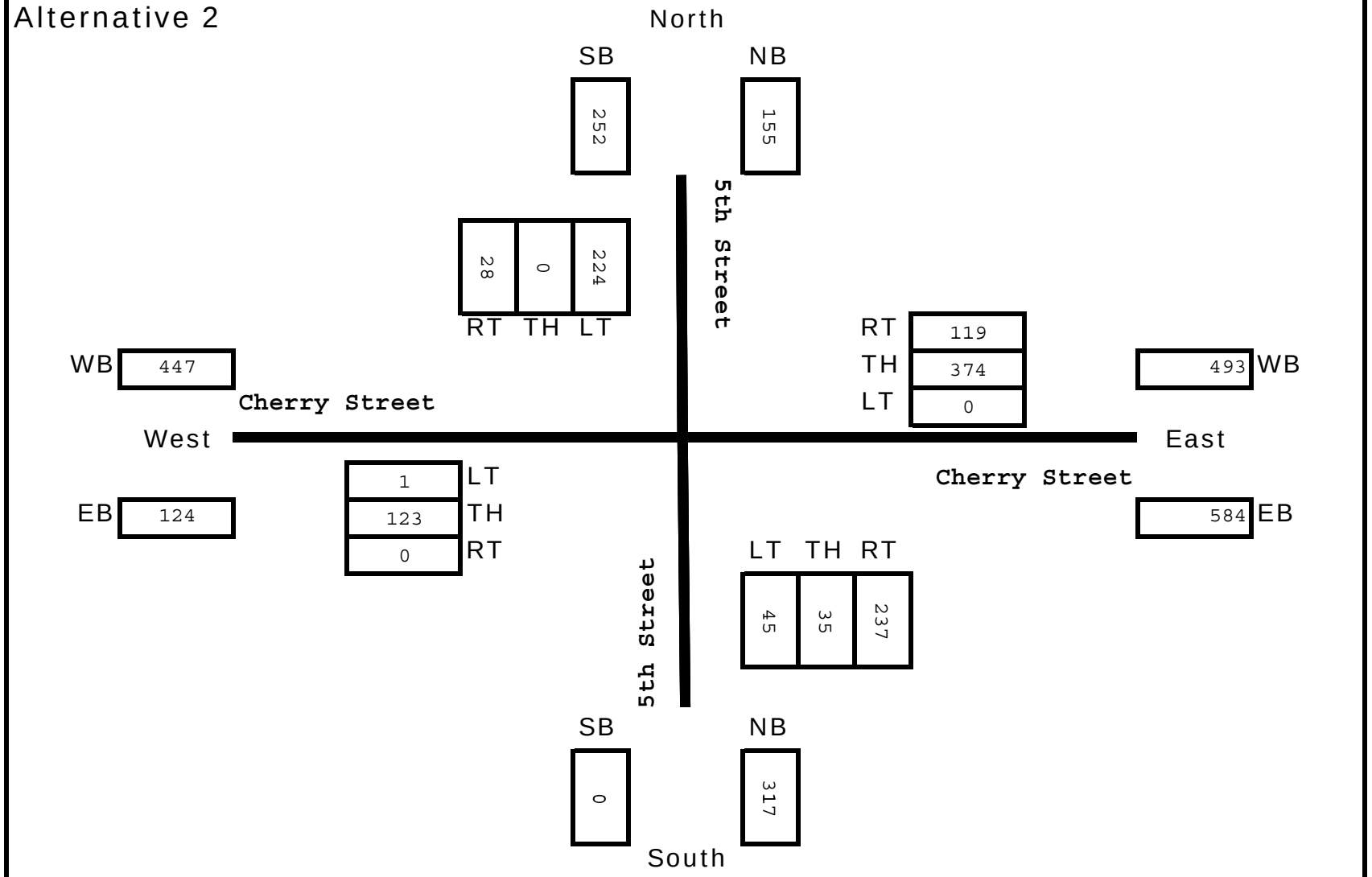
Cherry Street at US 41
PM Turning Movement Forecast
Year 2022
Alternative 2



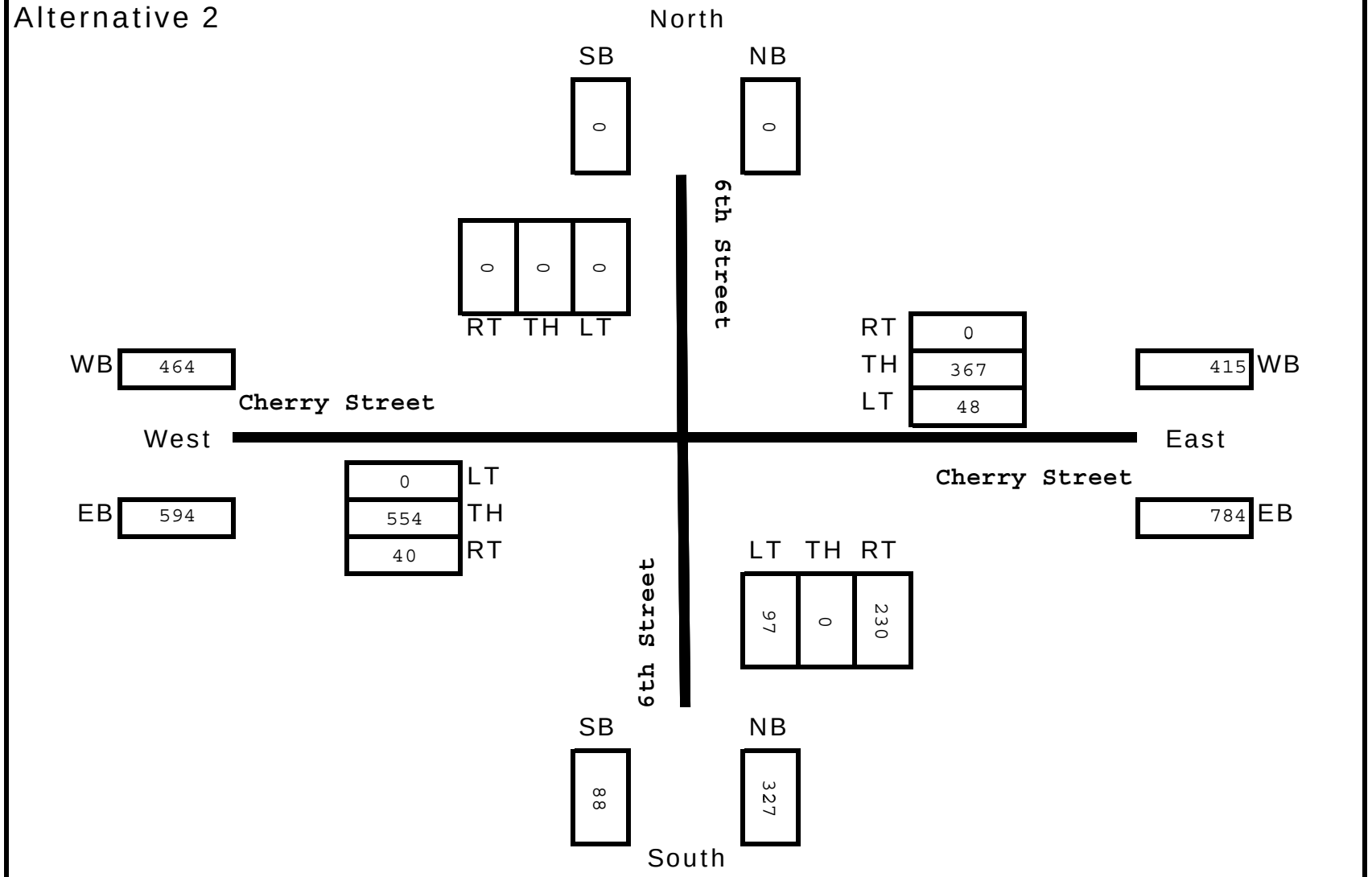
Cherry Street at 4th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



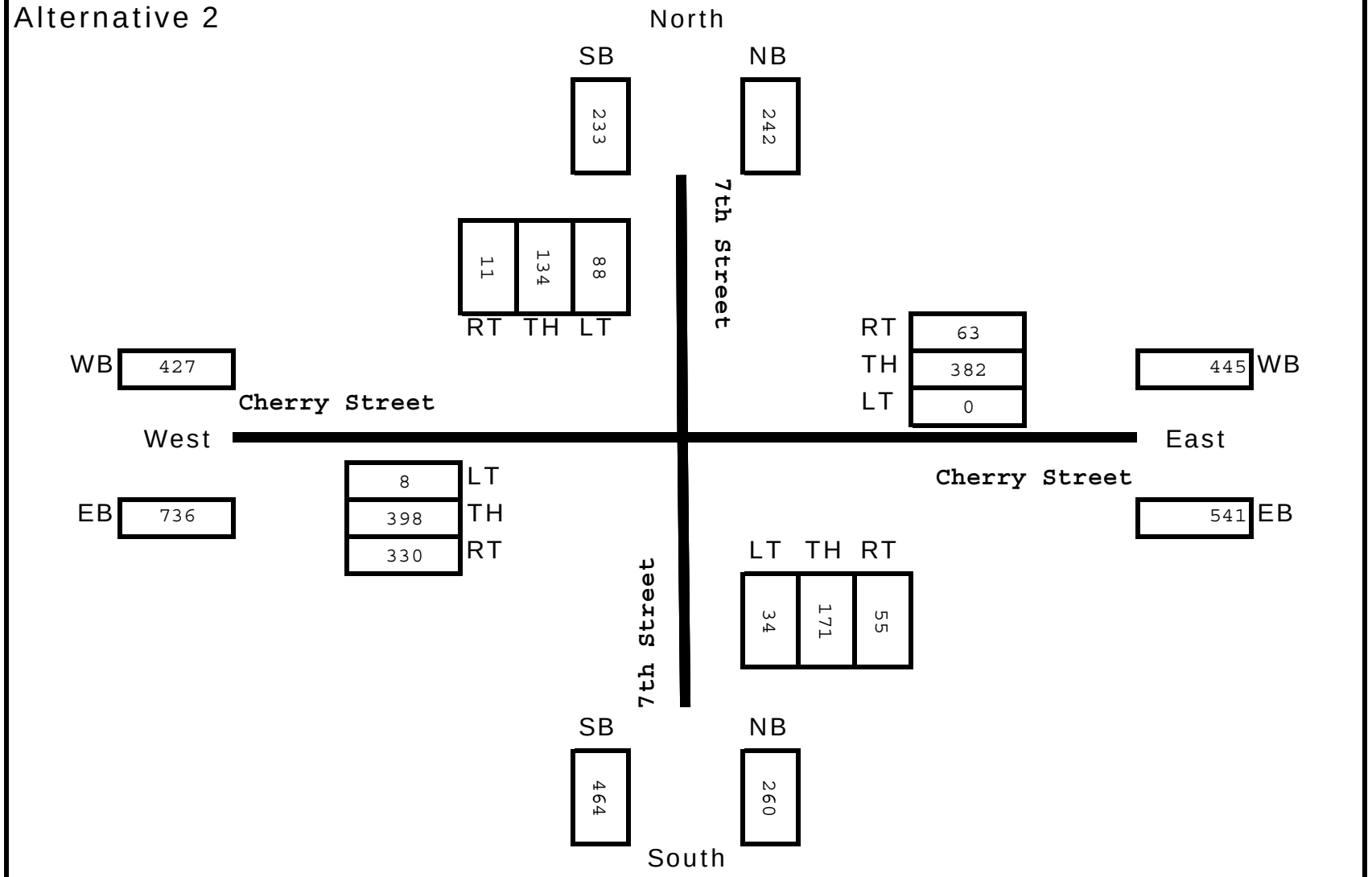
Cherry Street at 5th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



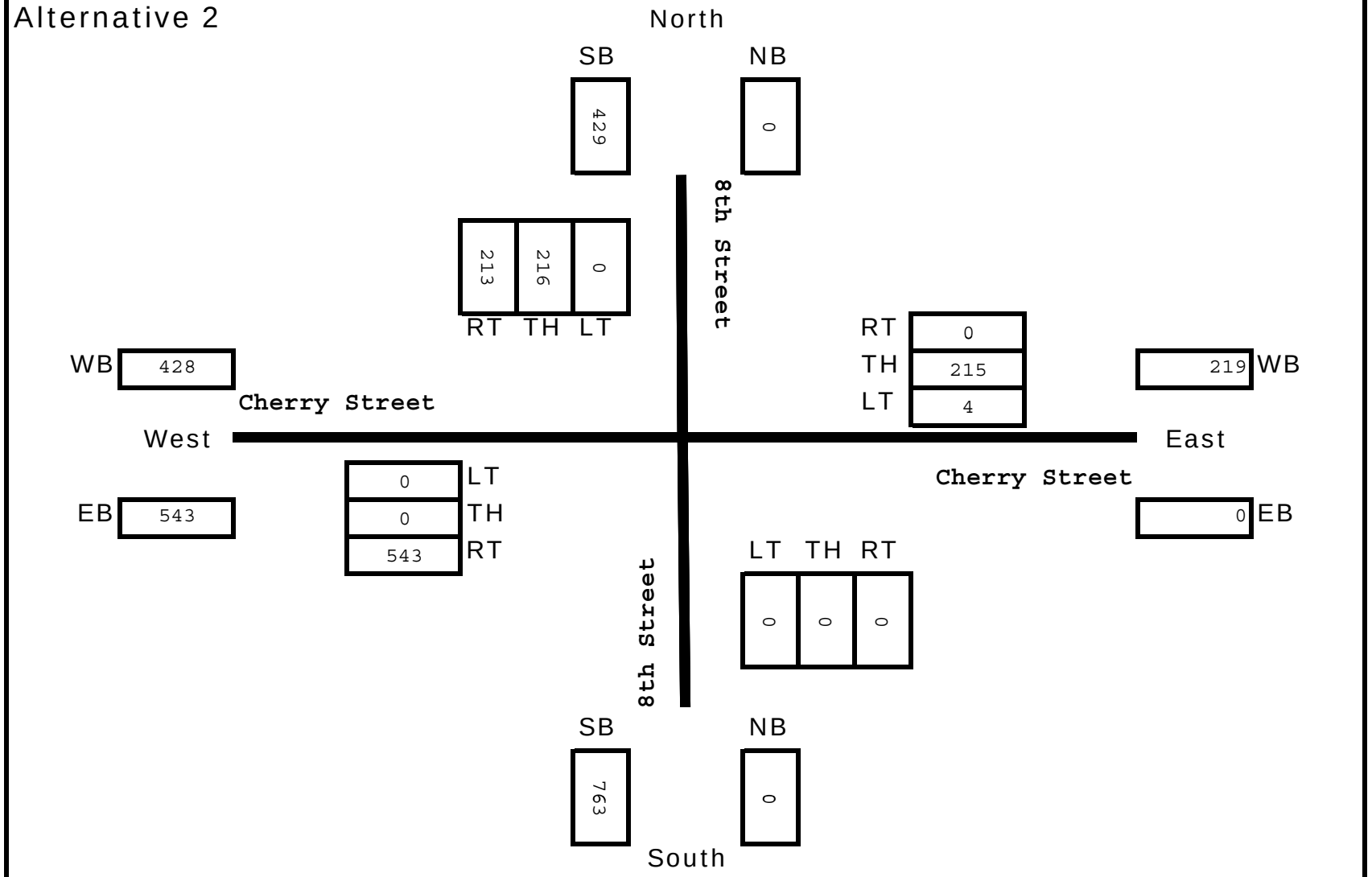
Cherry Street at 6th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



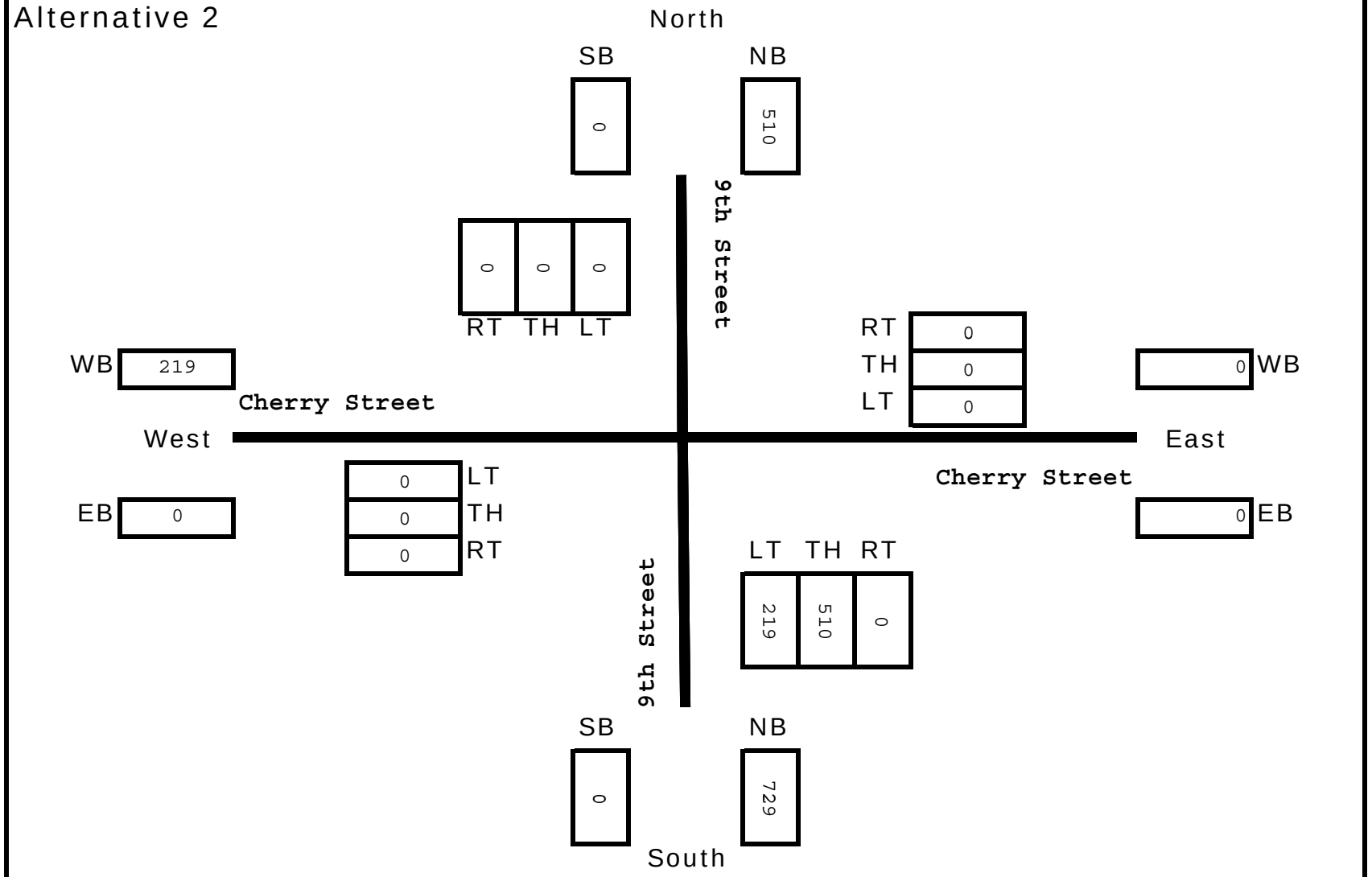
Cherry Street at 7th Street
PM Turning Movement Forecast
Year 2022
Alternative 2

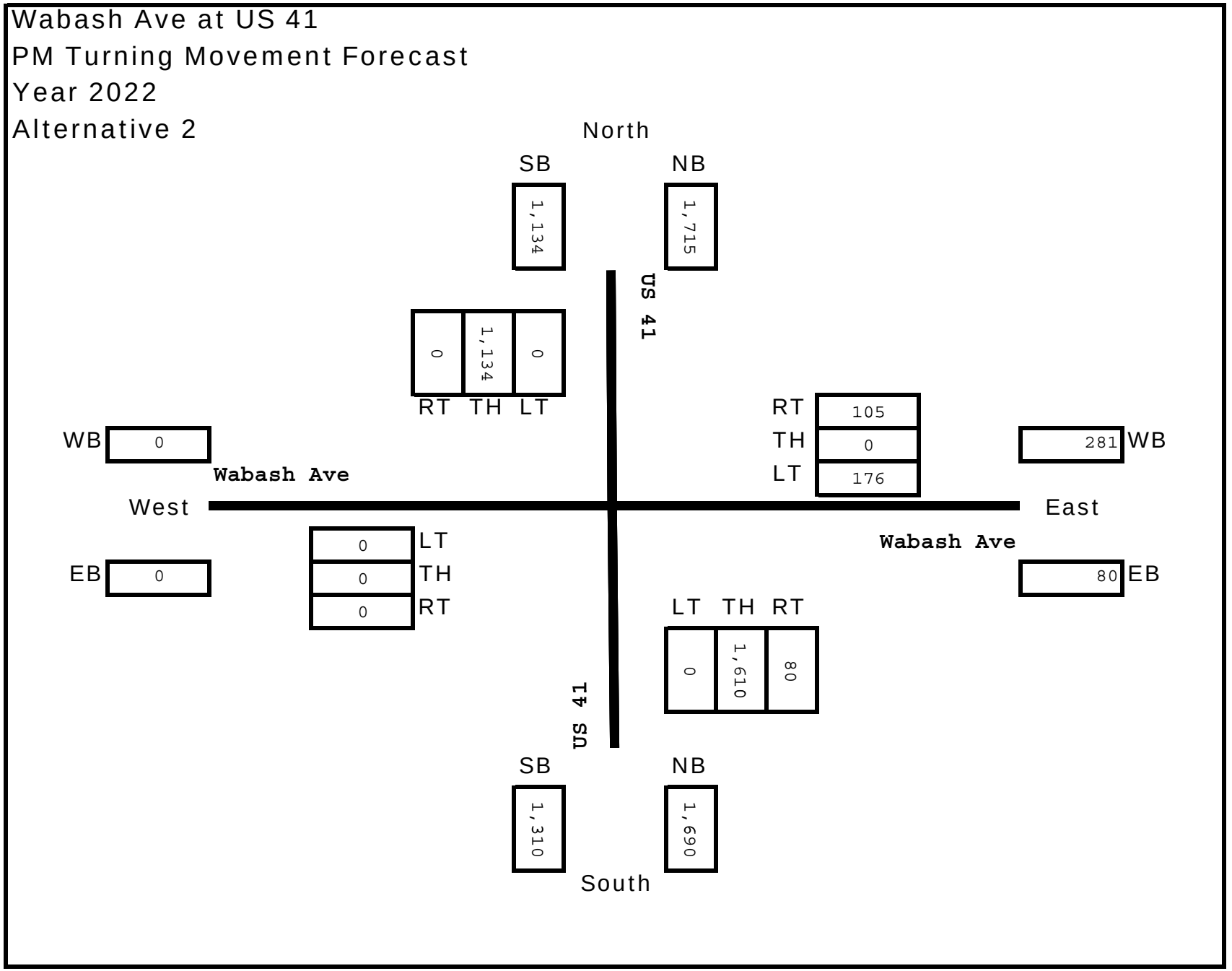


Cherry Street at 8th Street
PM Turning Movement Forecast
Year 2022
Alternative 2

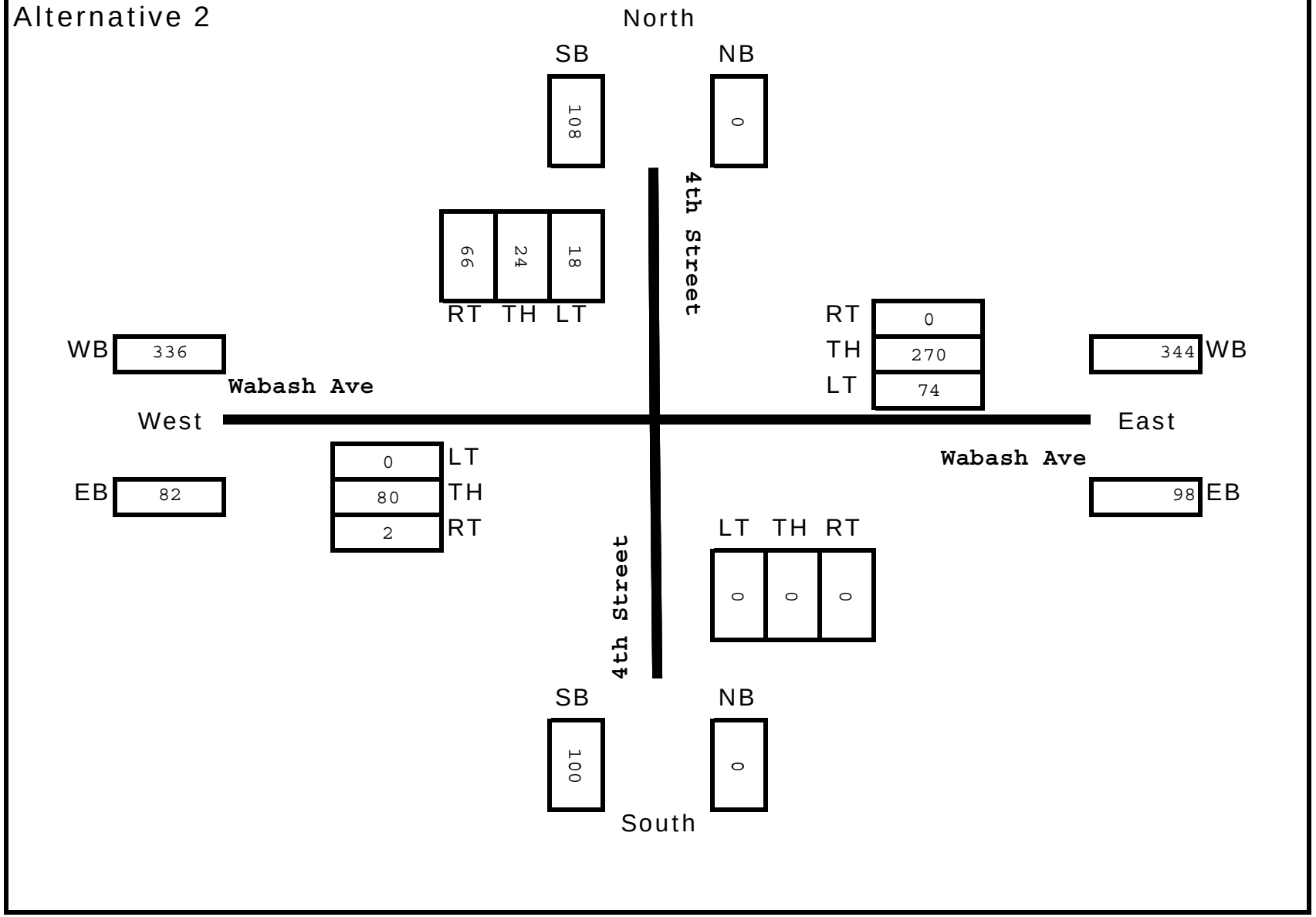


Cherry Street at 9th Street
PM Turning Movement Forecast
Year 2022
Alternative 2

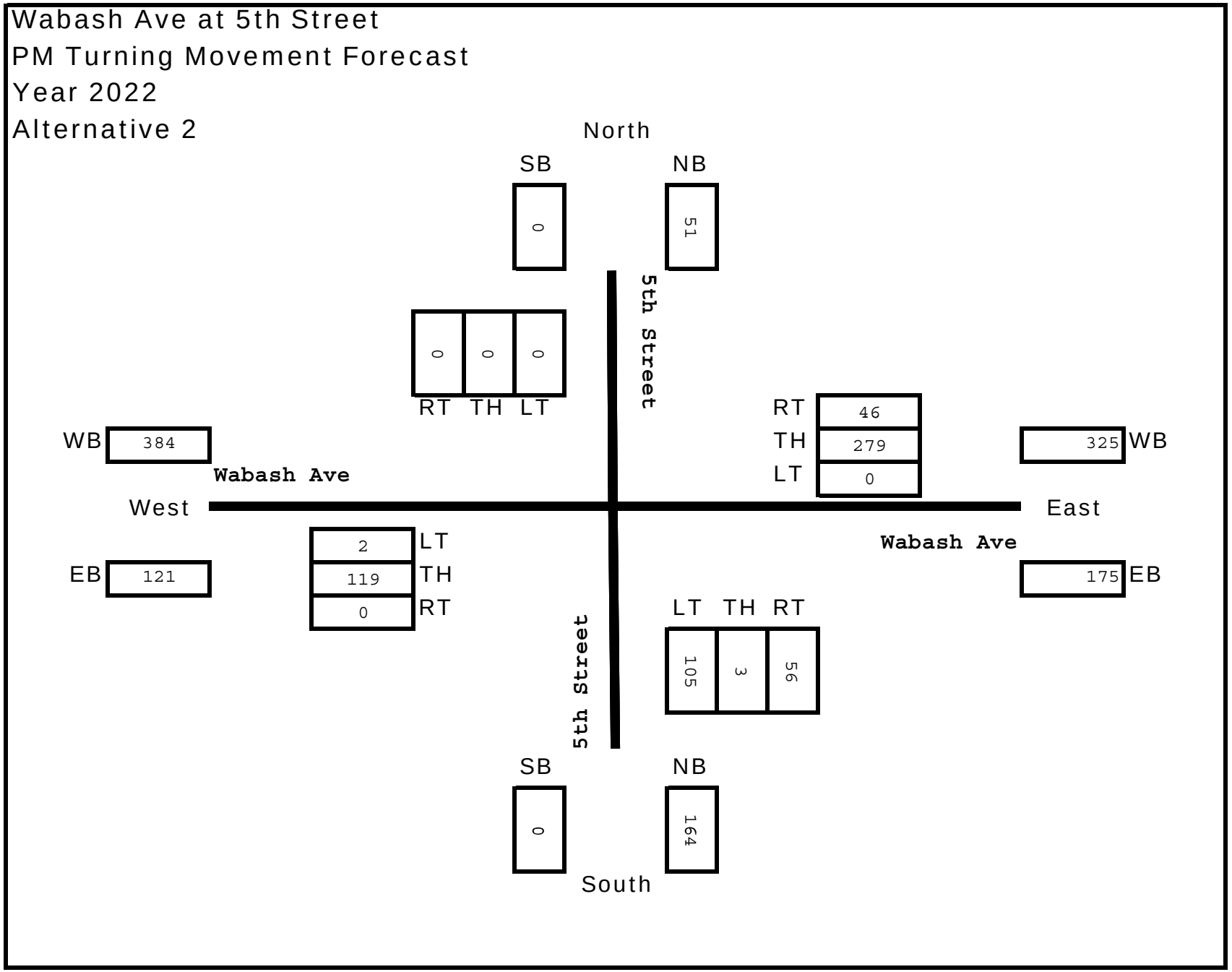



Wabash Ave at US 41
PM Turning Movement Forecast
Year 2022
Alternative 2
North
SB
NB
1,134
1,715
US 41
0
1,134
0
RT TH LT
RT
105
TH
0
LT
176
WB
0
281
WB
Wabash Ave
West
East
Wabash Ave
0
LT
0
TH
0
RT
EB
0
80
EB
LT TH RT
0
1,610
80
US 41
SB
NB
1,310
1,690
South

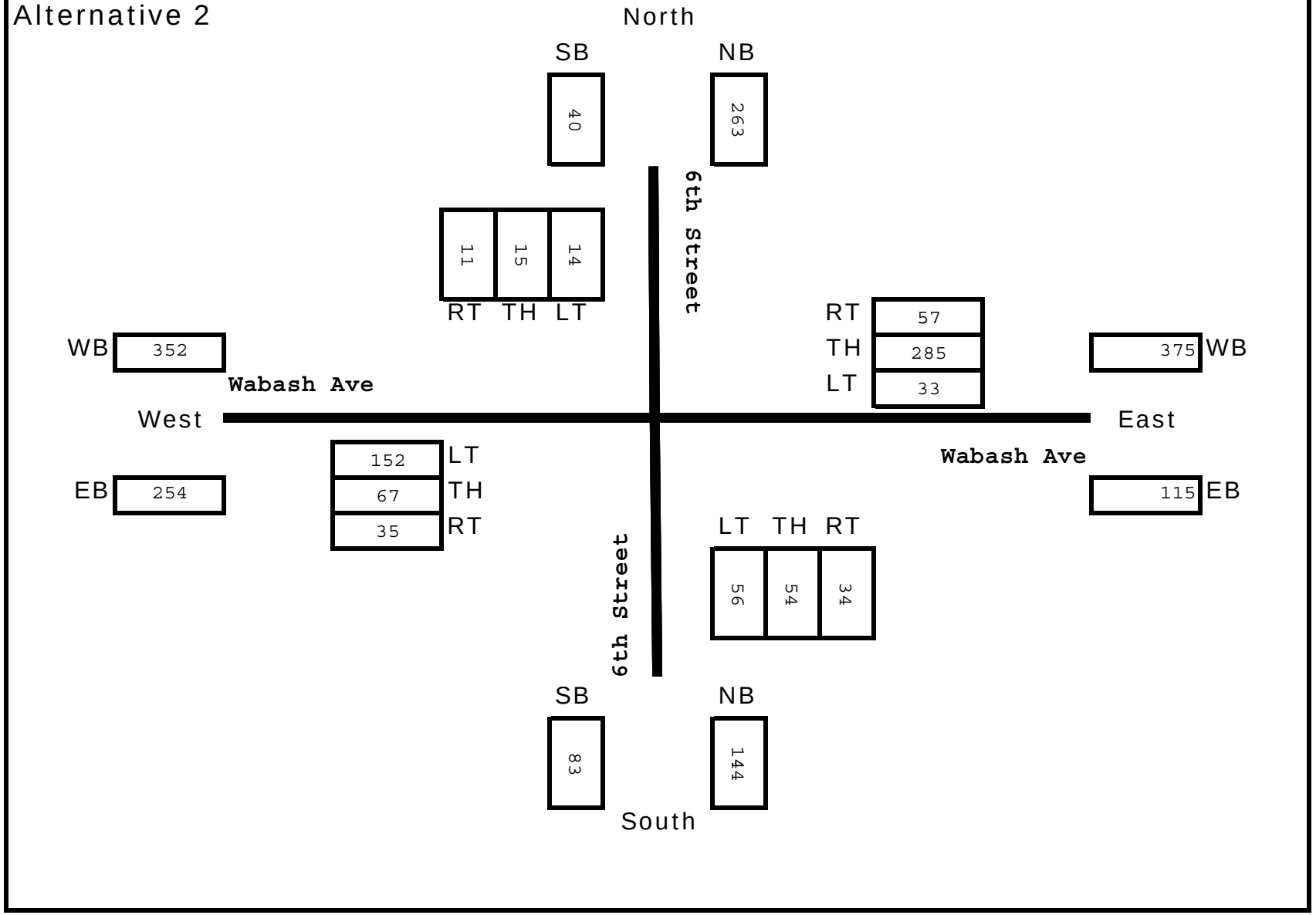
Wabash Ave at 4th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



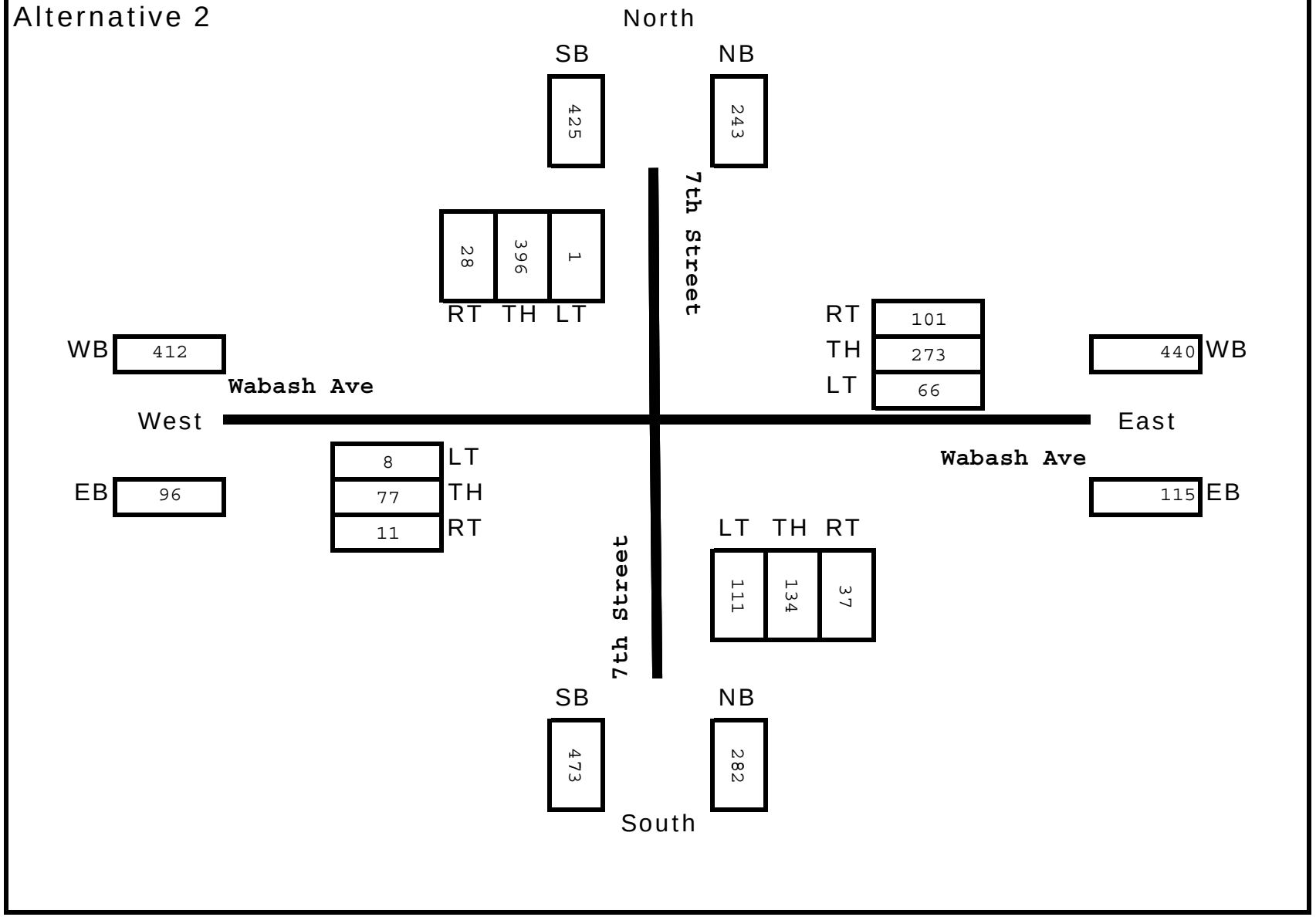
Wabash Ave at 5th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



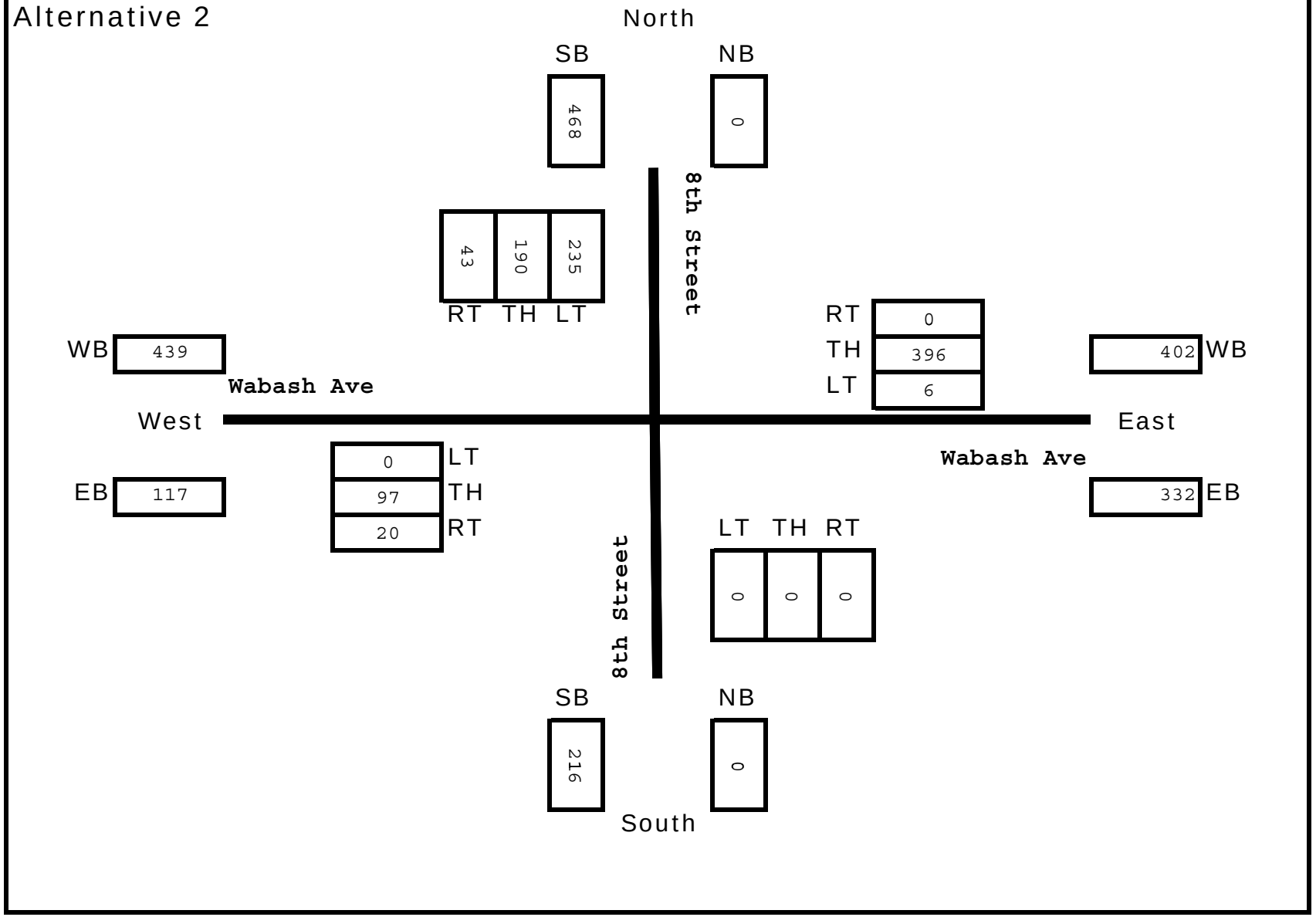
Wabash Ave at 6th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



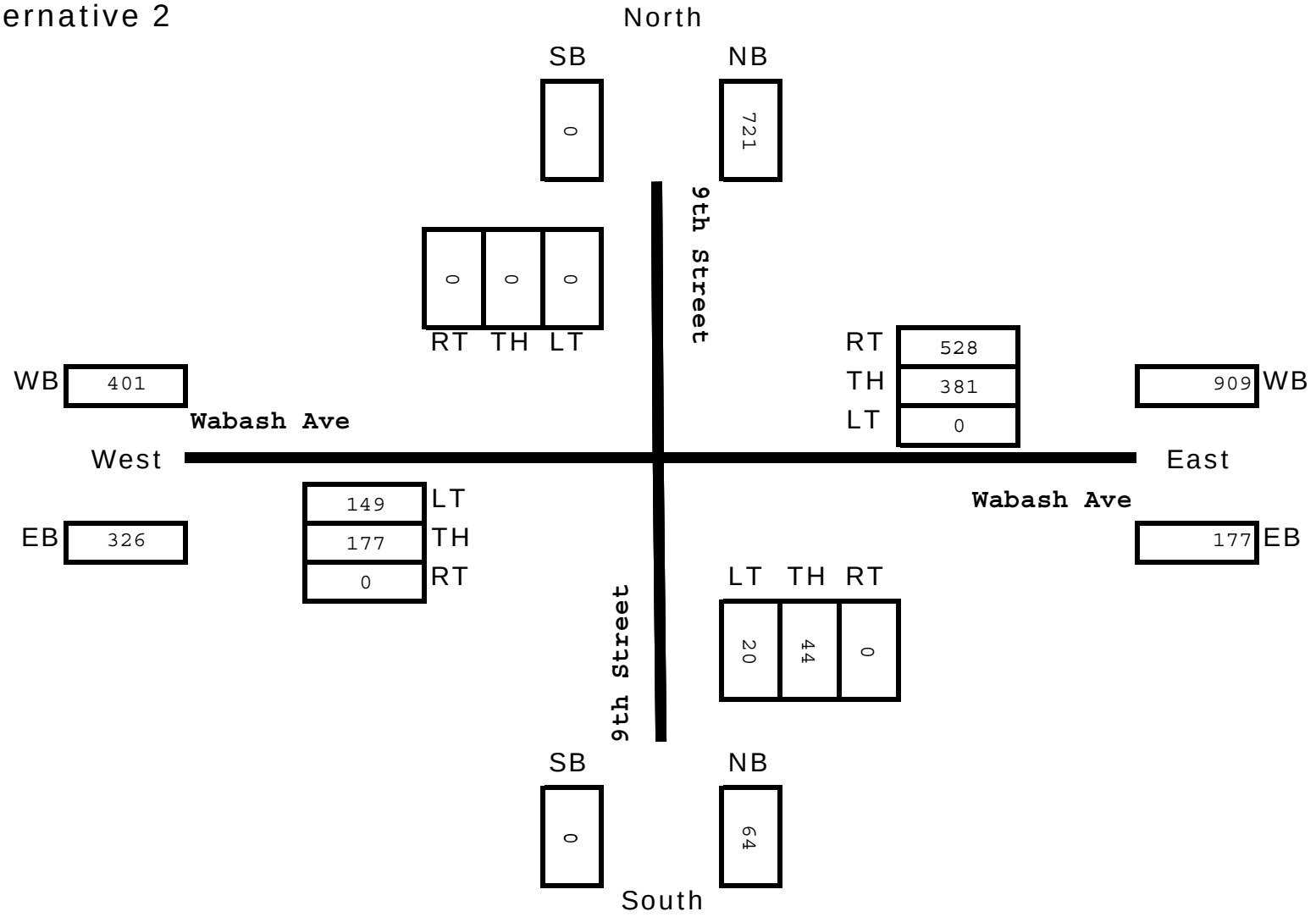
Wabash Ave at 7th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



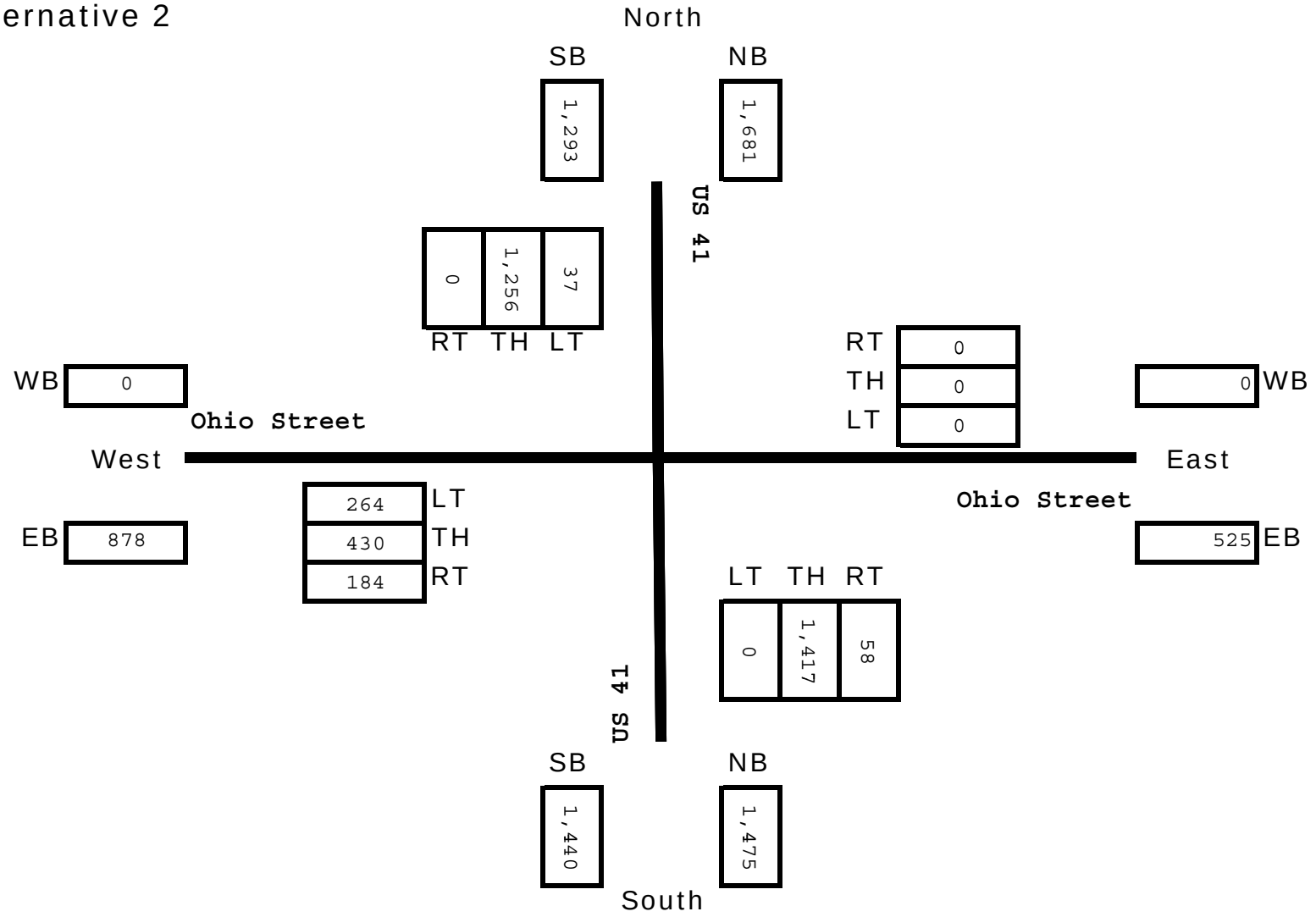
Wabash Ave at 8th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



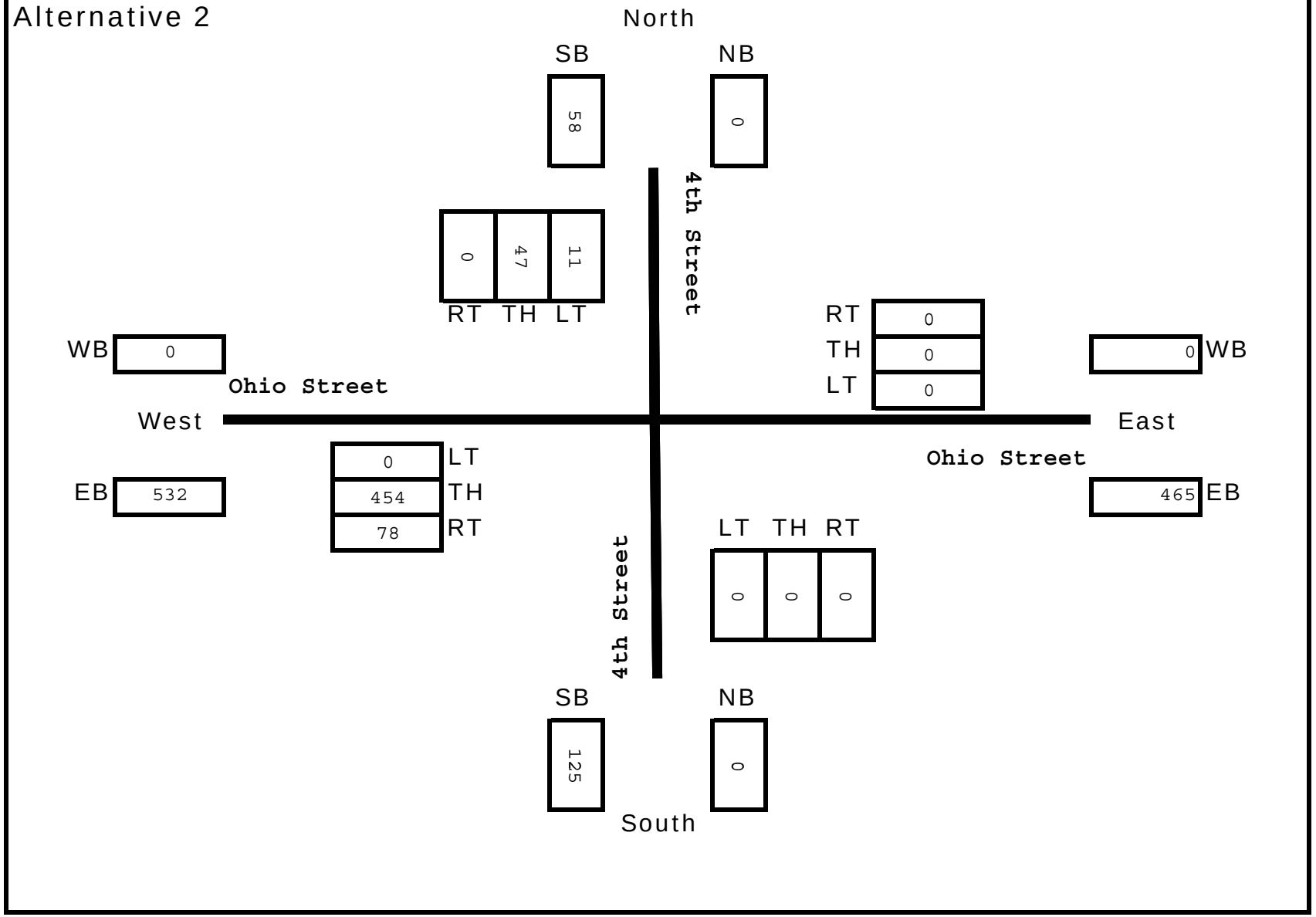
Wabash Ave at 9th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



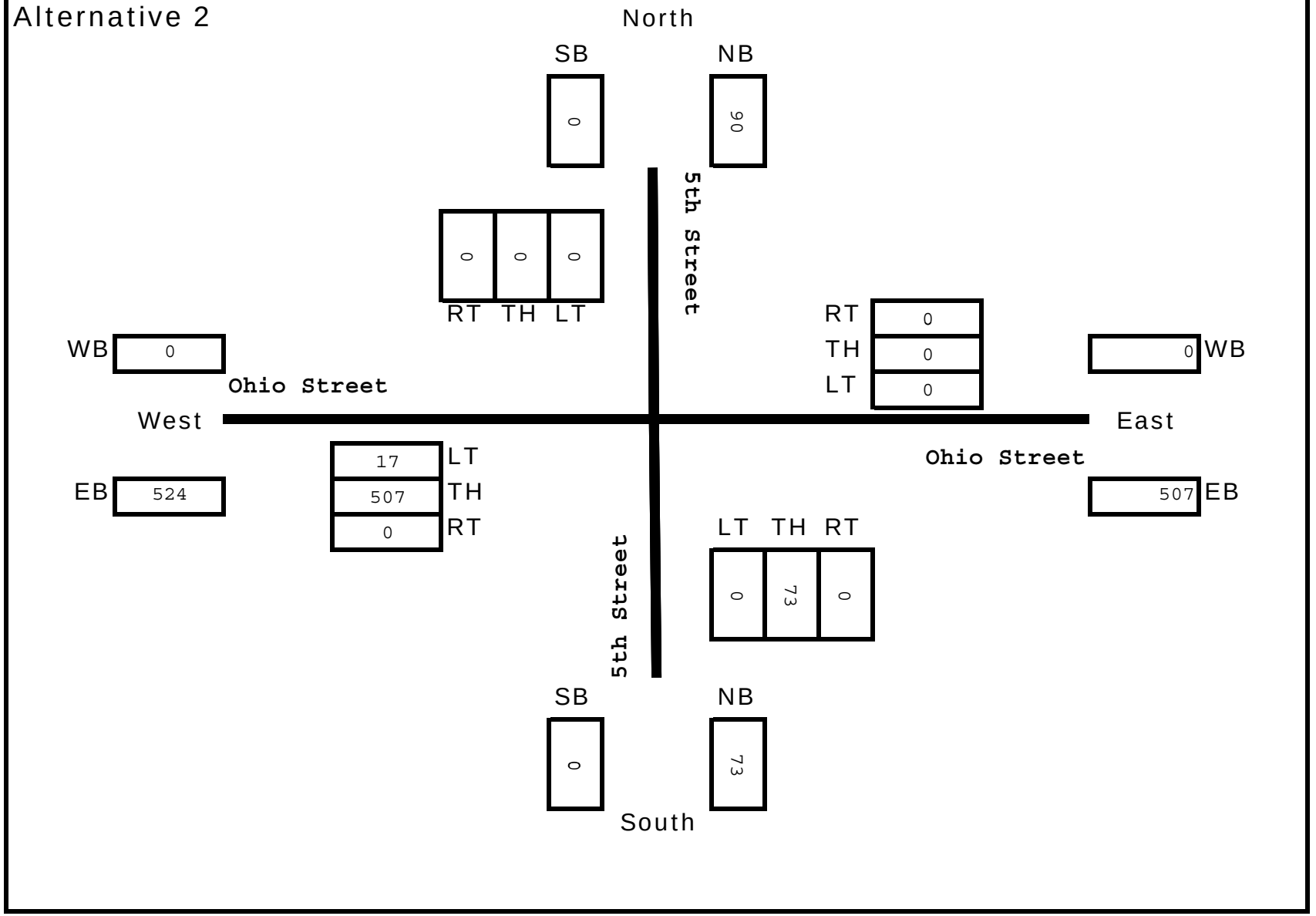
Ohio Street at US 41
PM Turning Movement Forecast
Year 2022
Alternative 2

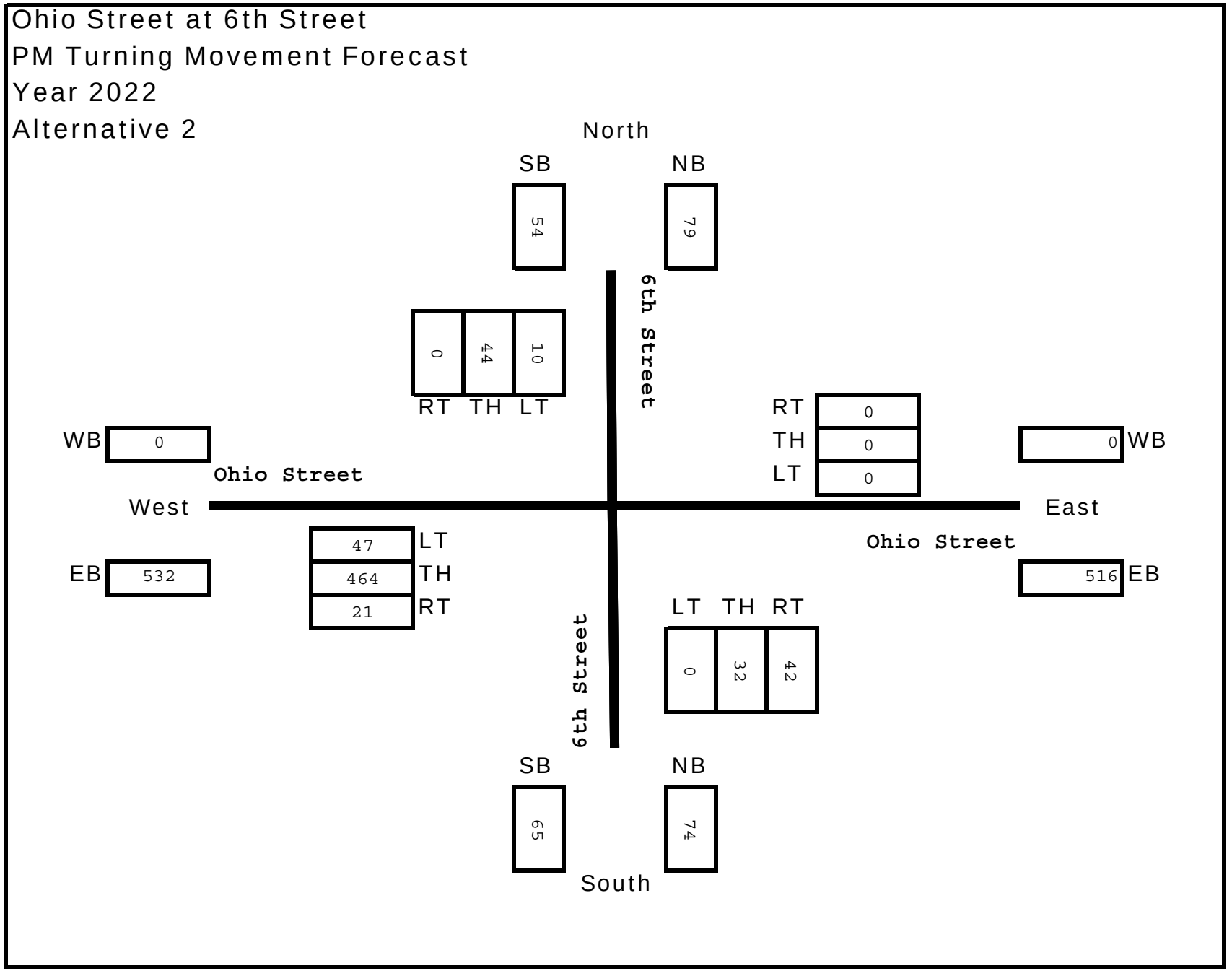


Ohio Street at 4th Street
PM Turning Movement Forecast
Year 2022
Alternative 2

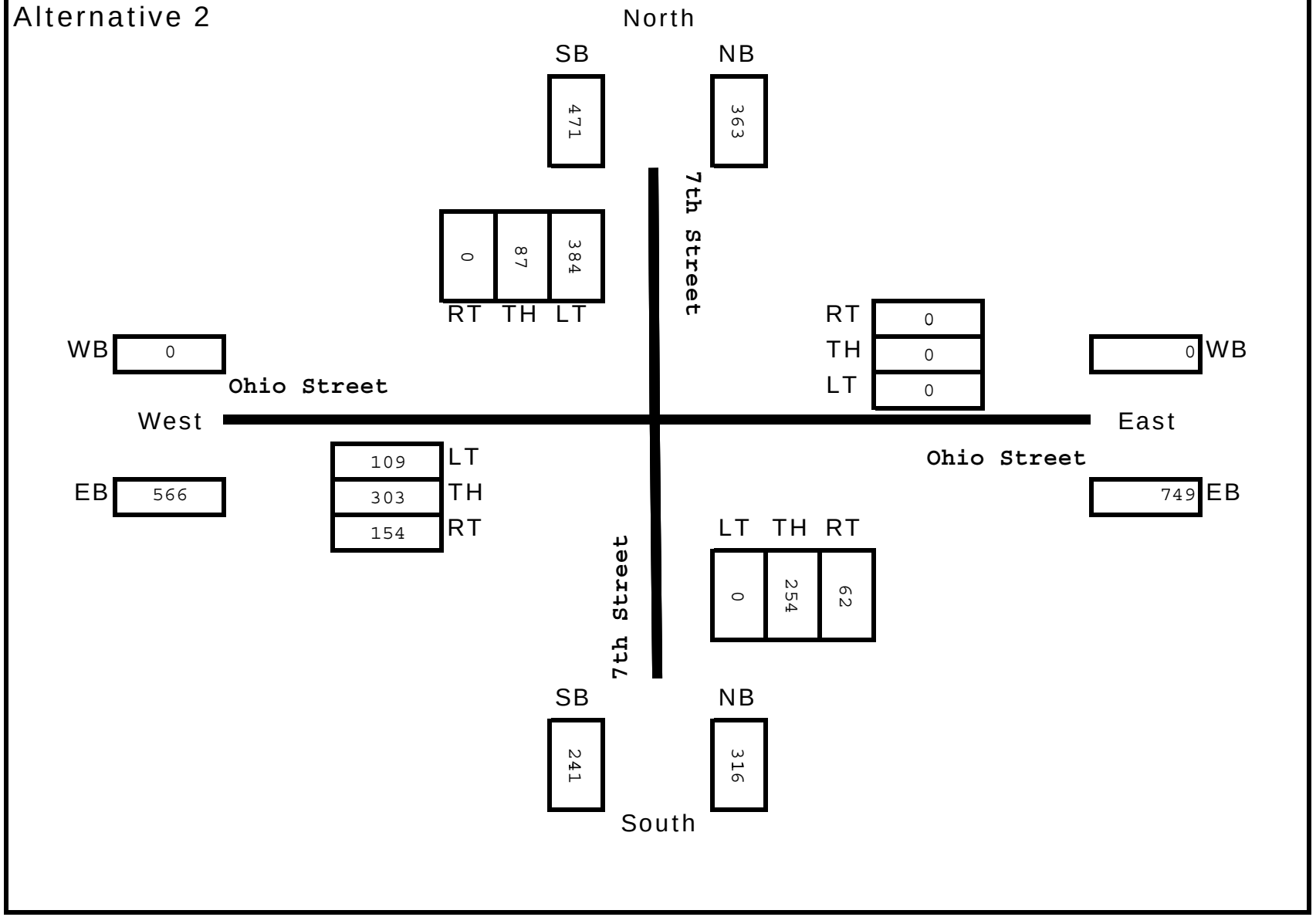


Ohio Street at 5th Street
PM Turning Movement Forecast
Year 2022
Alternative 2

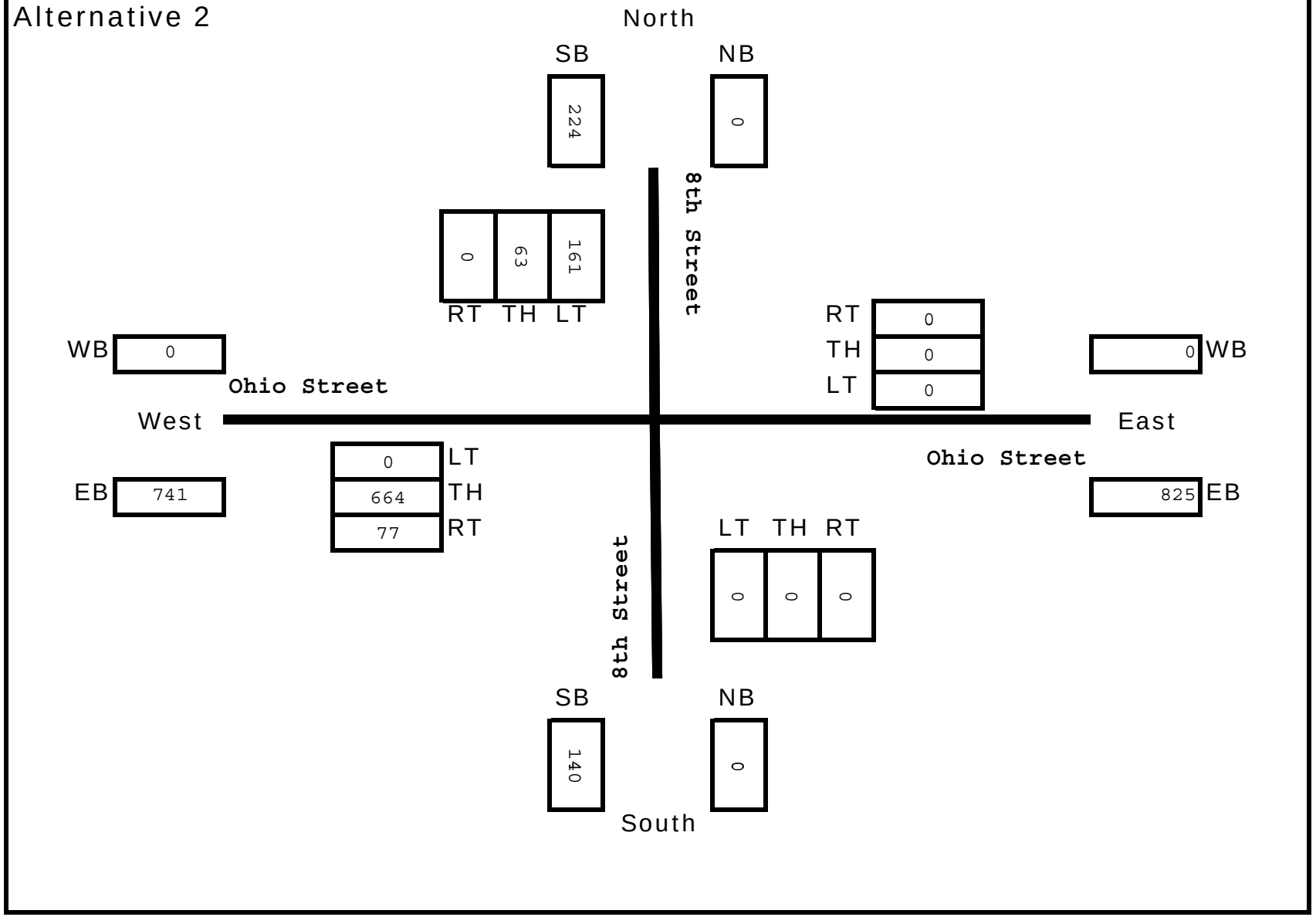



Ohio Street at 6th Street
PM Turning Movement Forecast
Year 2022
Alternative 2
North
SB
NB
54
79
6th Street
0
44
10
RT TH LT
RT
TH
LT
0
0
0
WB
0
0
WB
Ohio Street
West
East
Ohio Street
47
464
21
LT
TH
RT
EB
532
516
EB
LT TH RT
0
32
42
6th Street
SB
NB
65
74
South

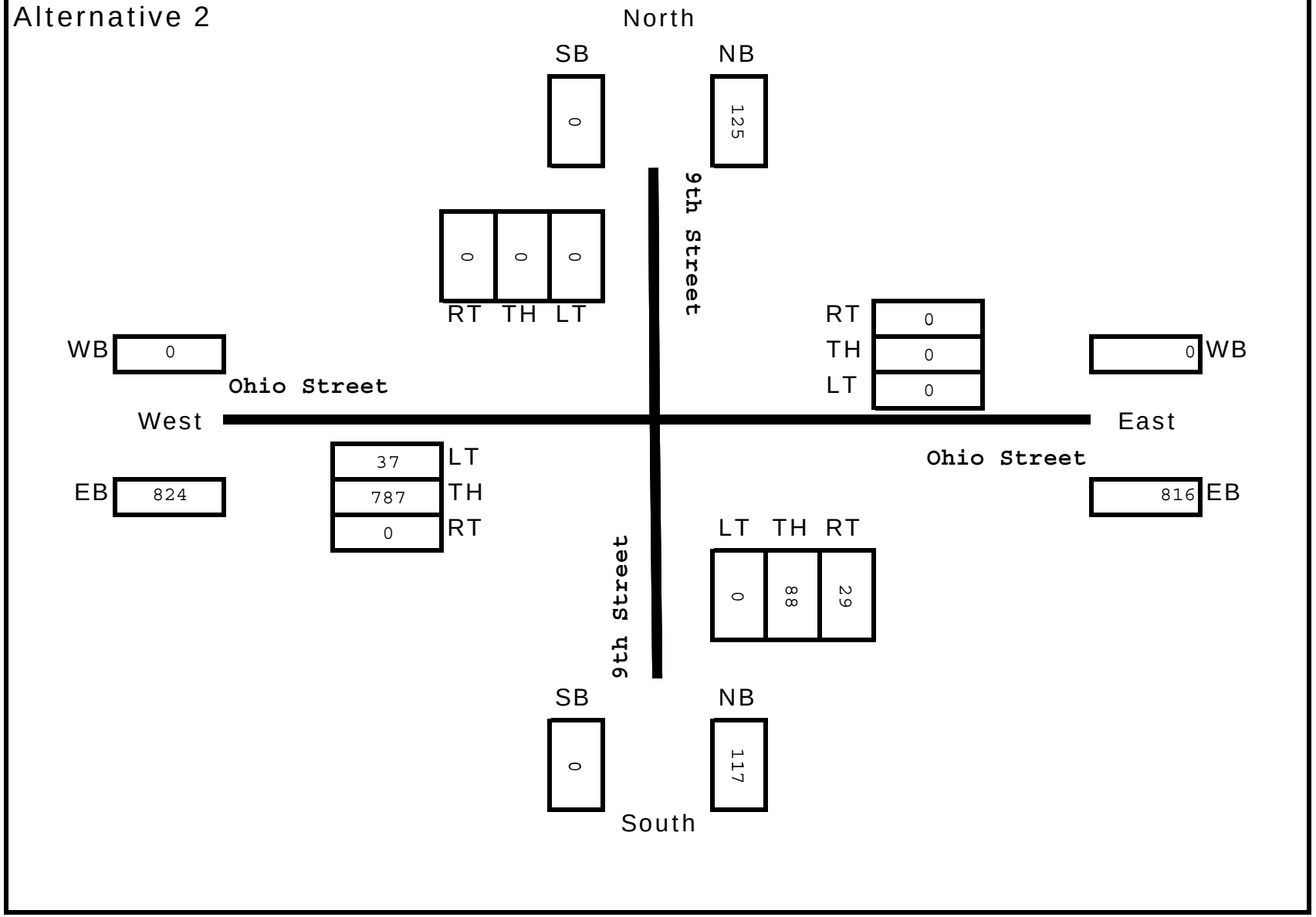
Ohio Street at 7th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



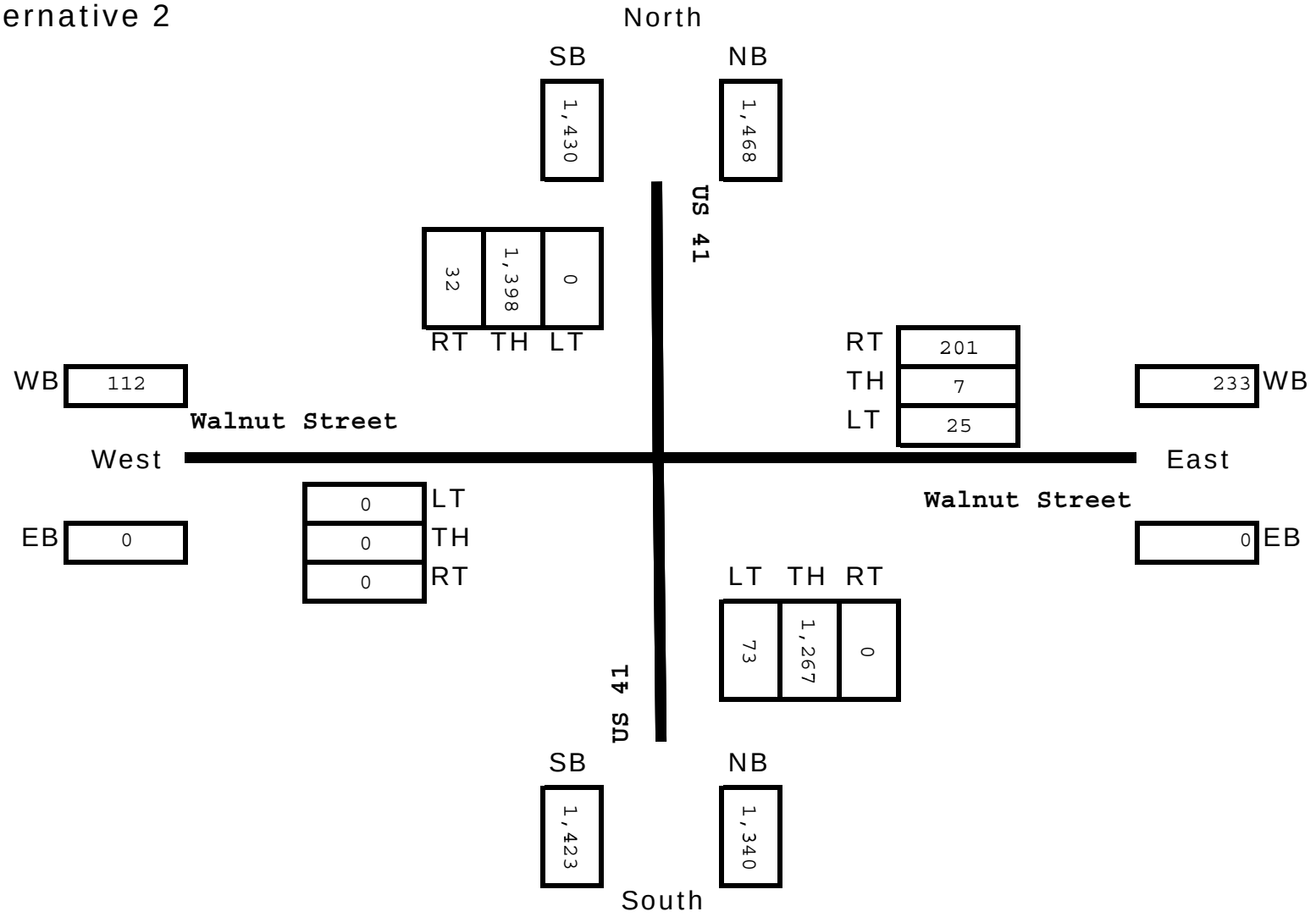
Ohio Street at 8th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



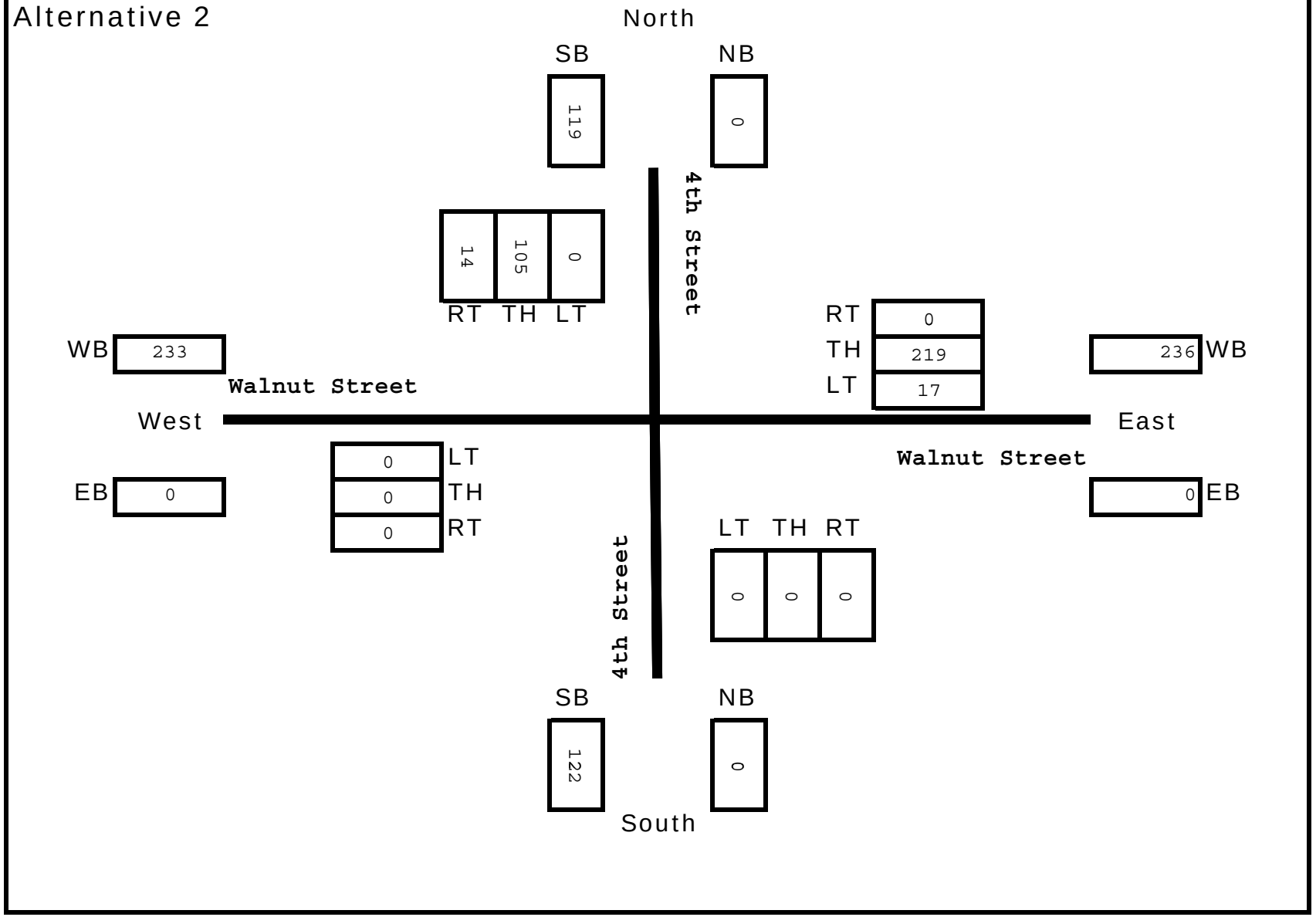
Ohio Street at 9th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



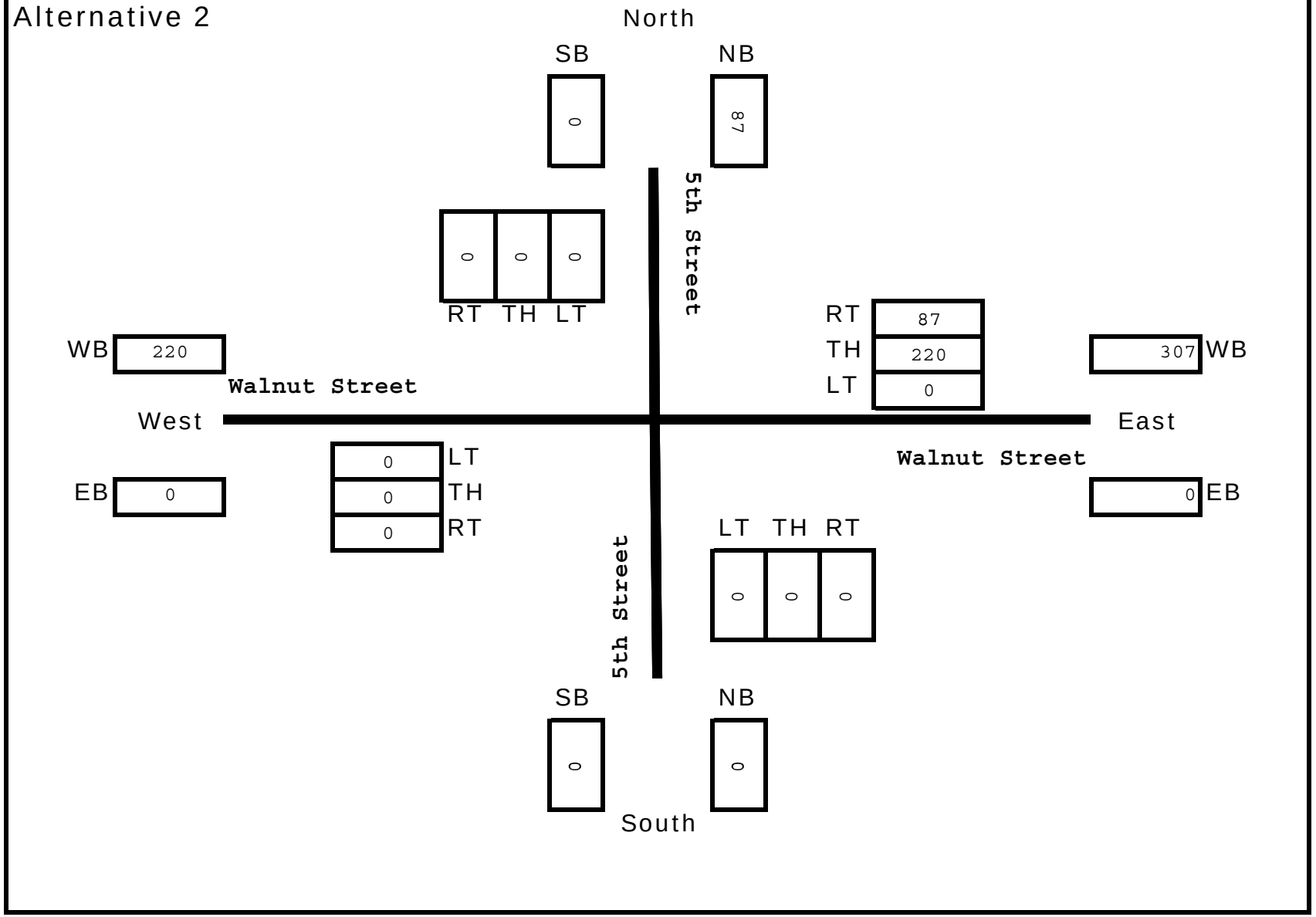
Walnut Street at US 41
PM Turning Movement Forecast
Year 2022
Alternative 2



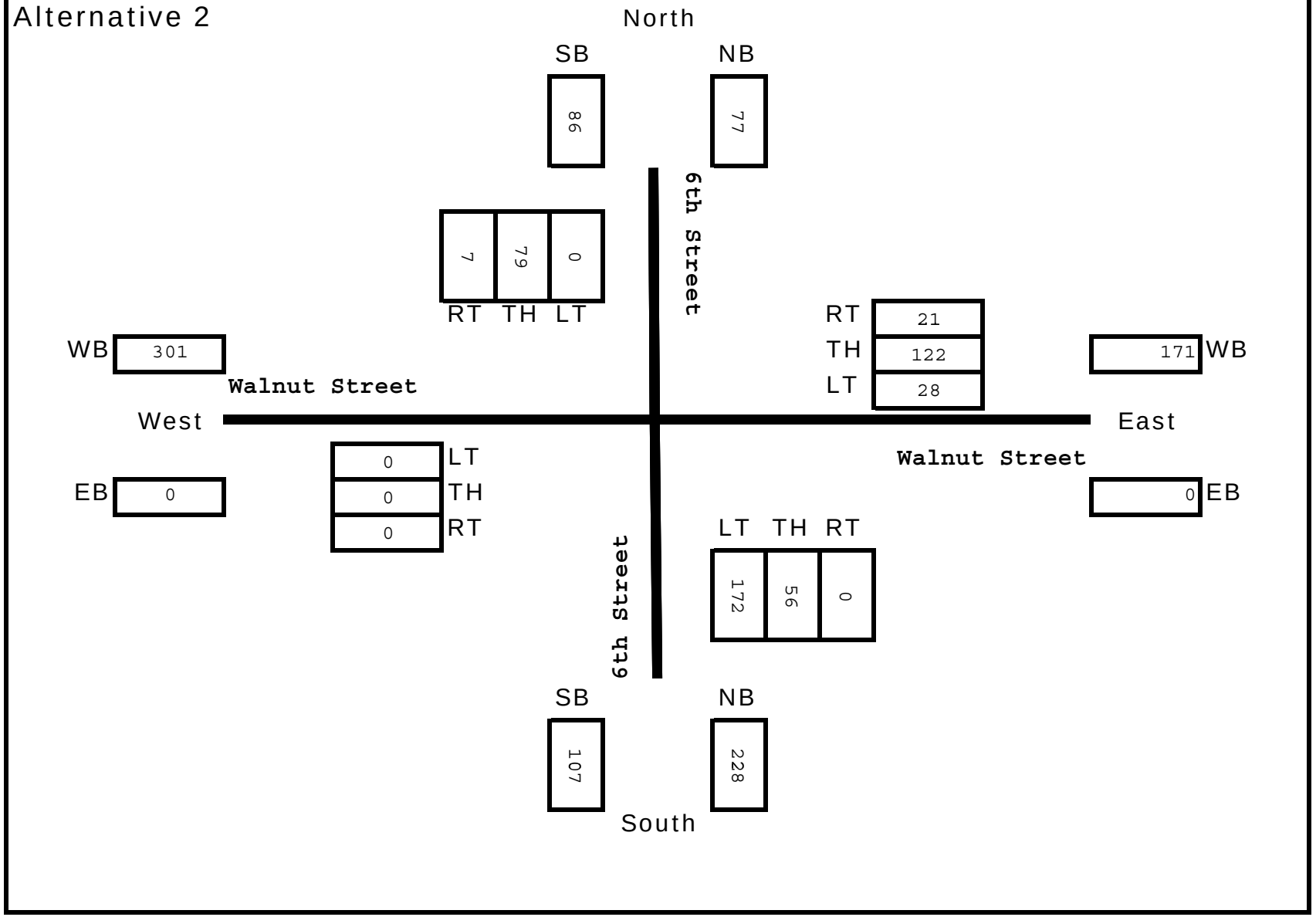
Walnut Street at 4th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



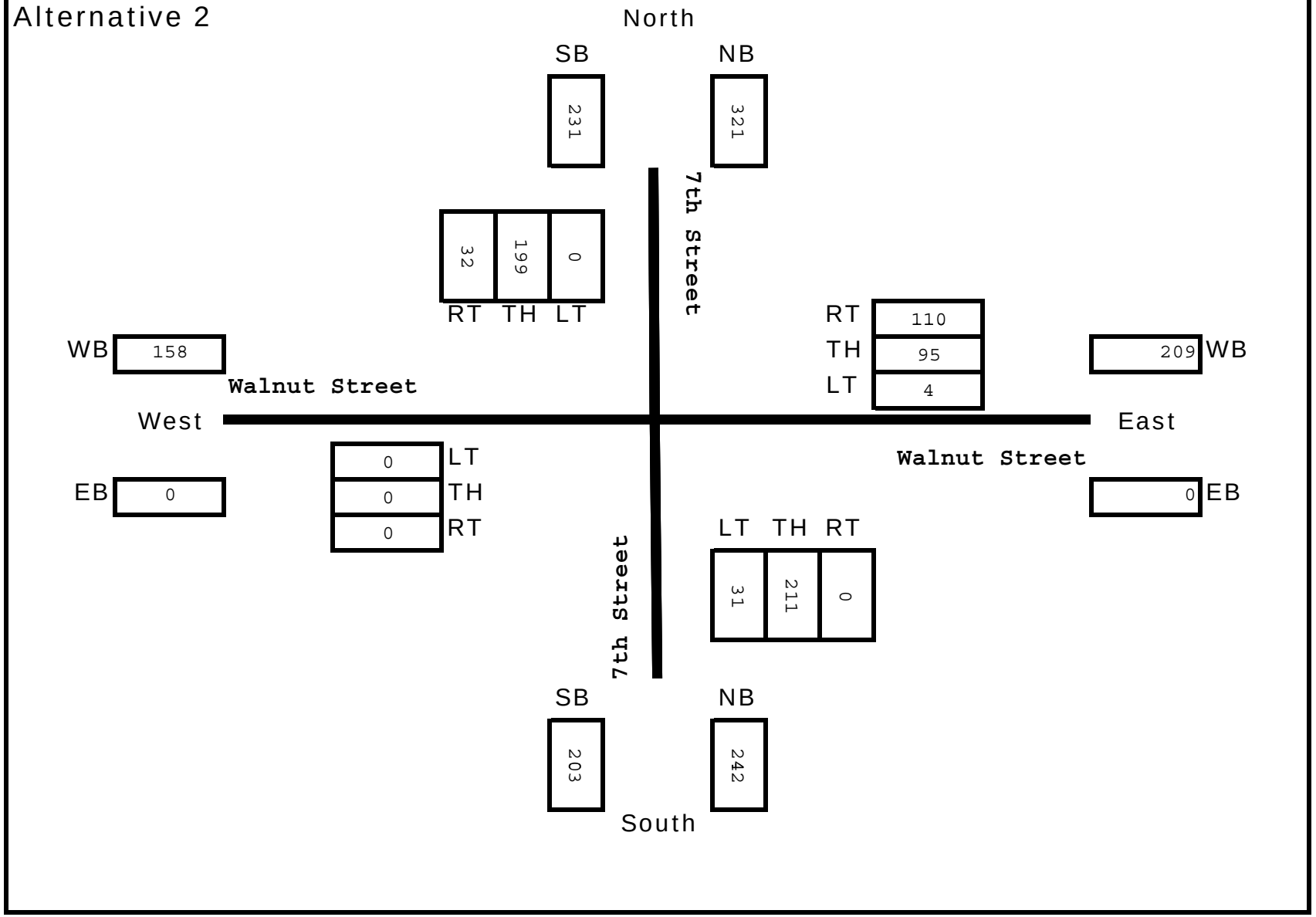
Walnut Street at 5th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



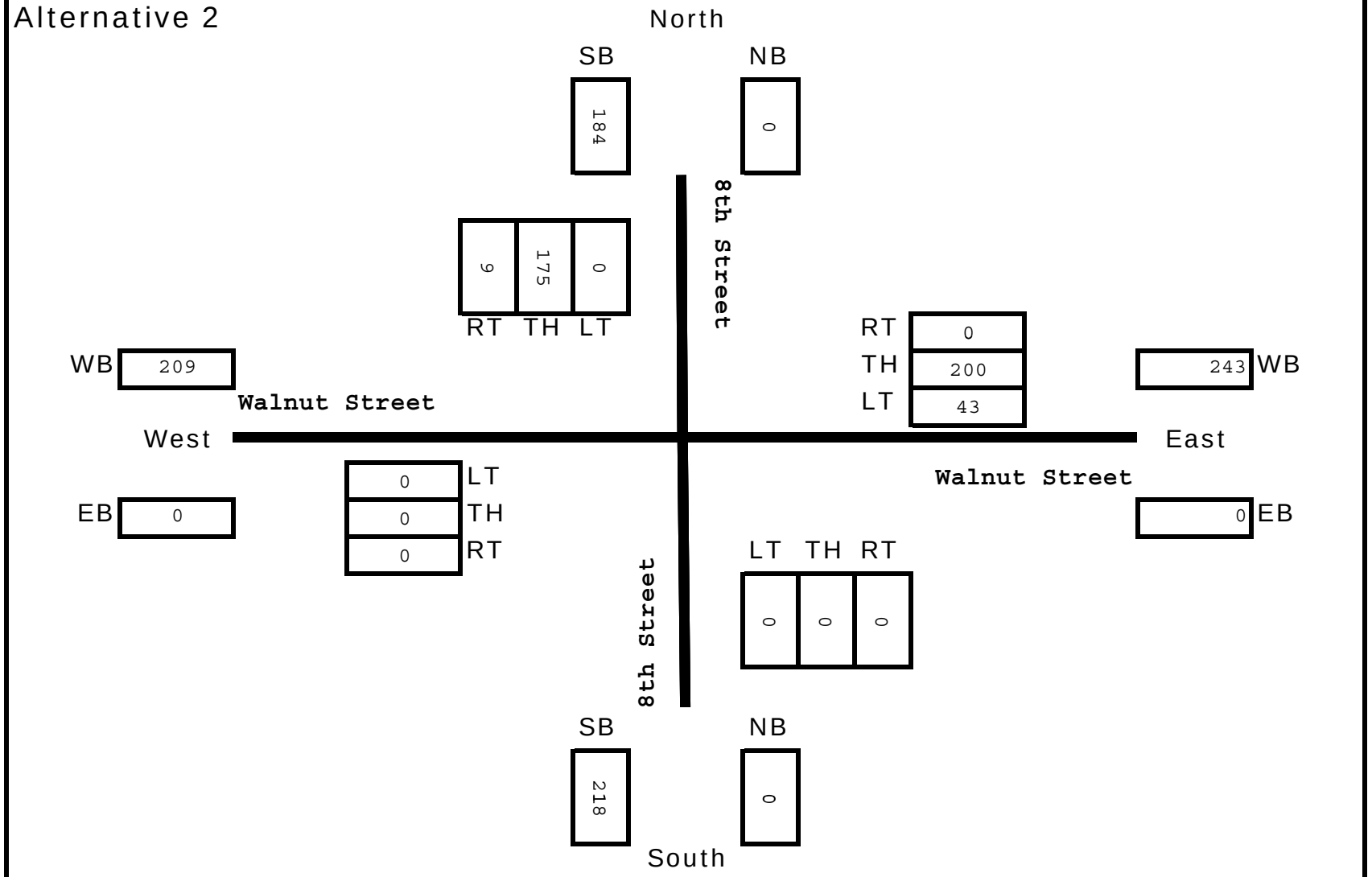
Walnut Street at 6th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



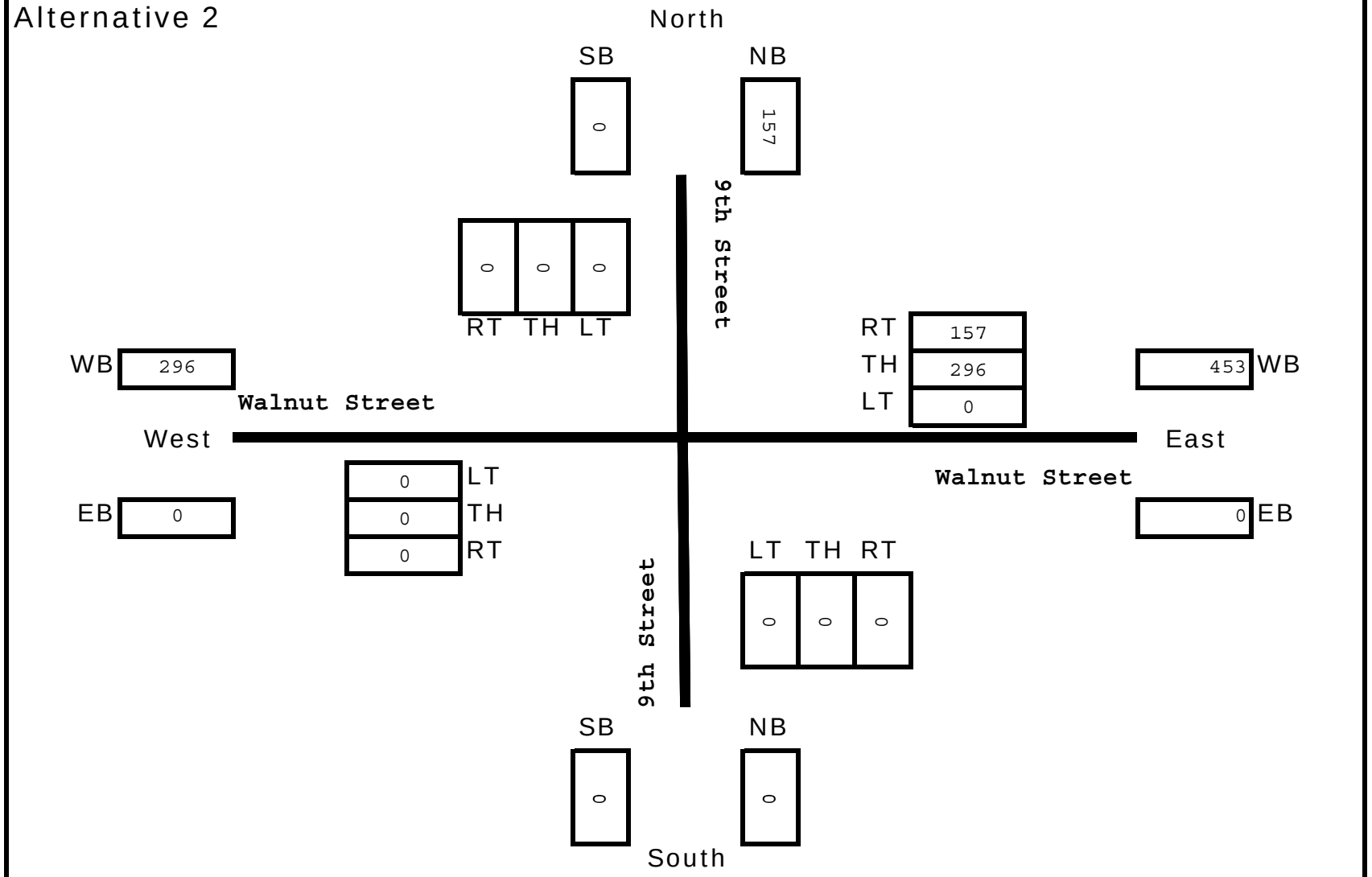
Walnut Street at 7th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



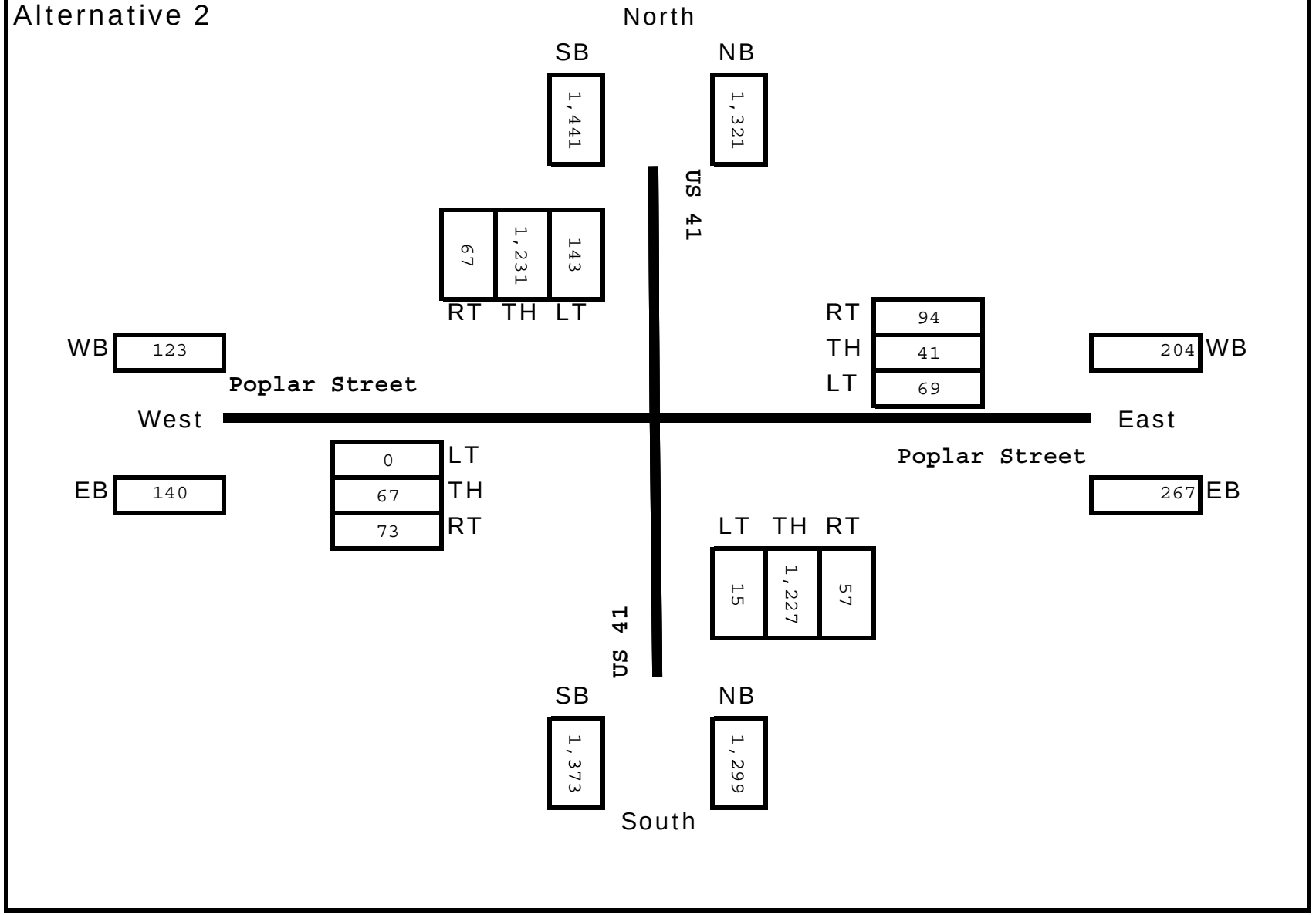
Walnut Street at 8th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



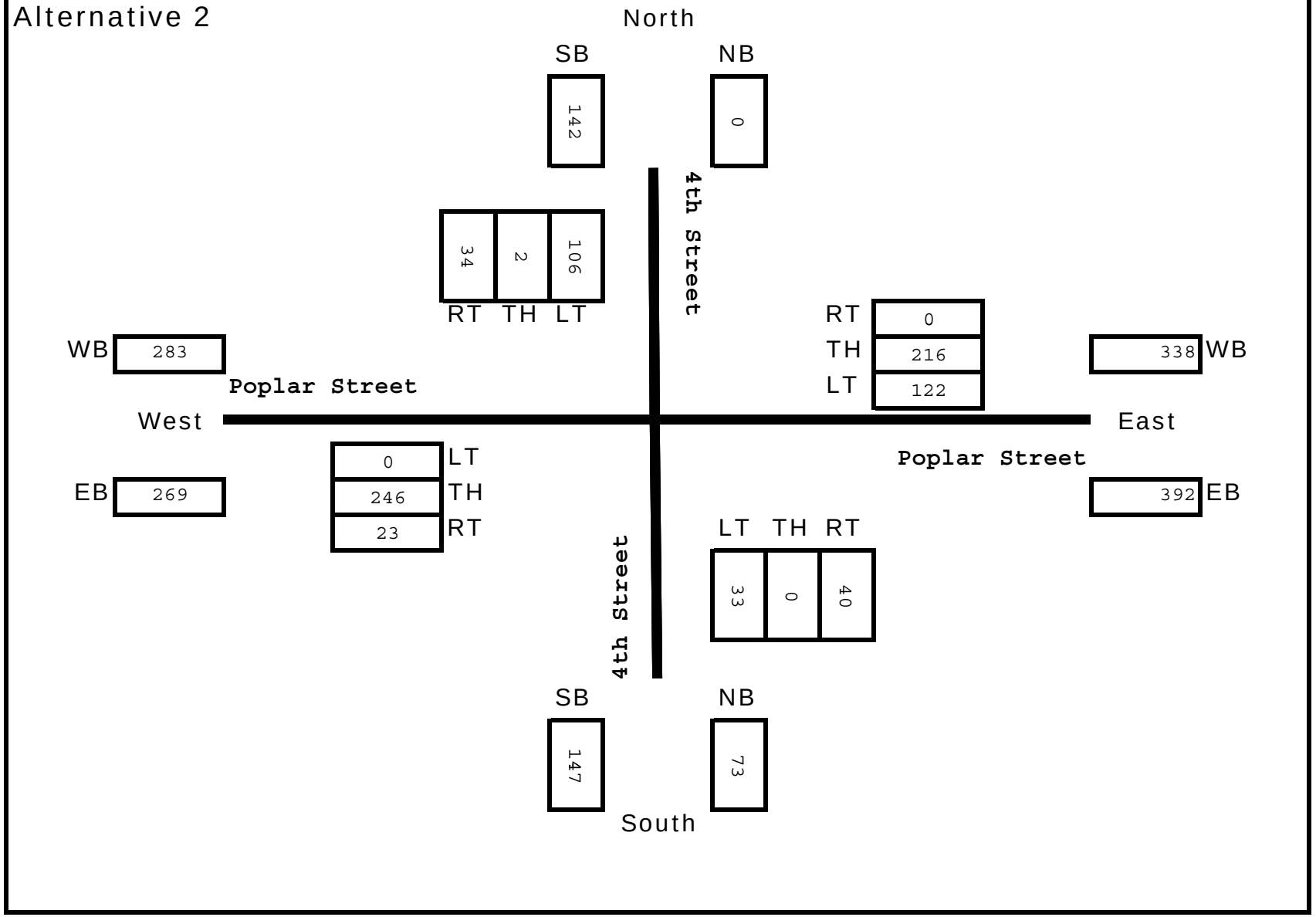
Walnut Street at 9th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



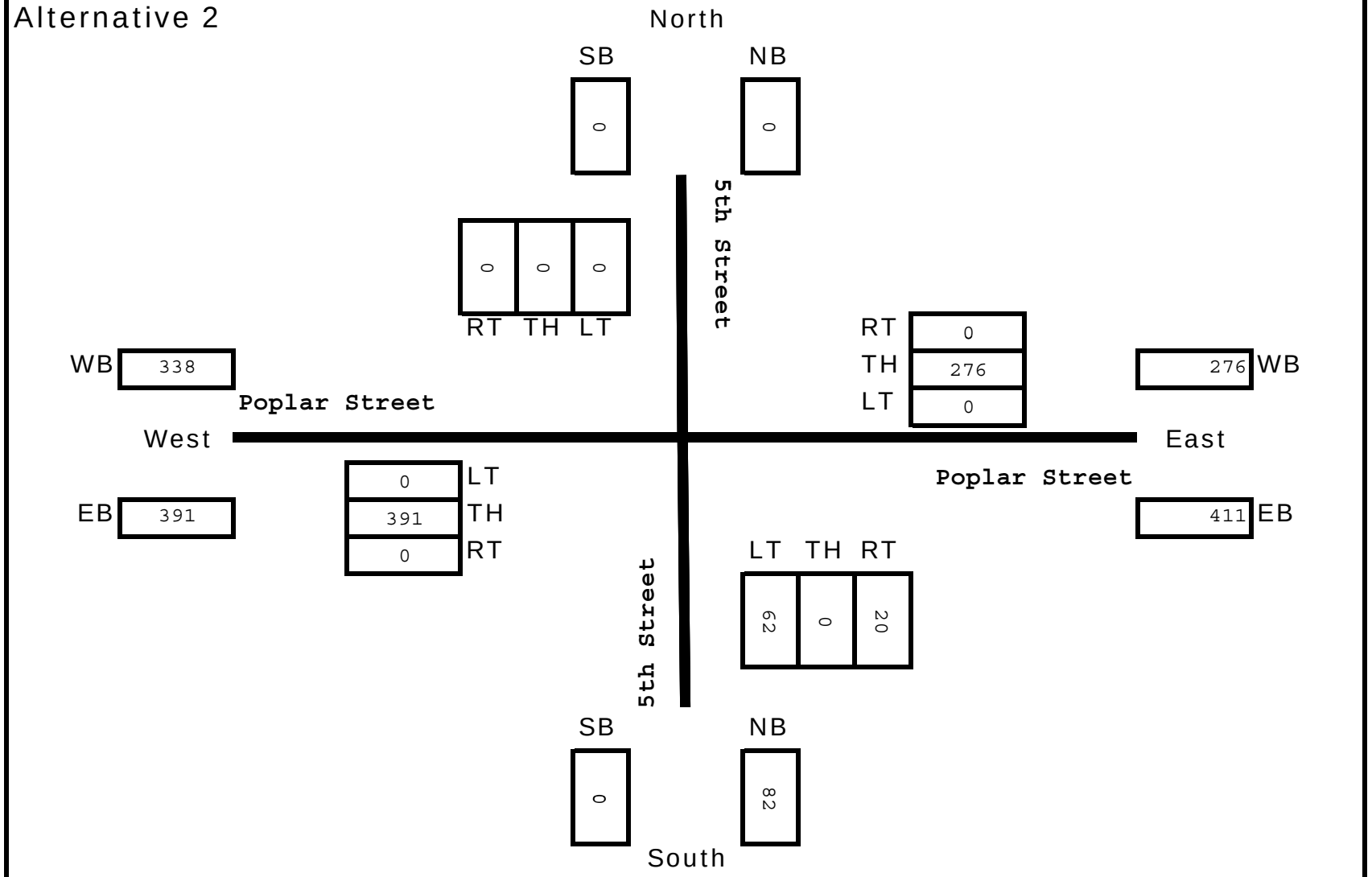
Poplar Street at US 41
PM Turning Movement Forecast
Year 2022
Alternative 2



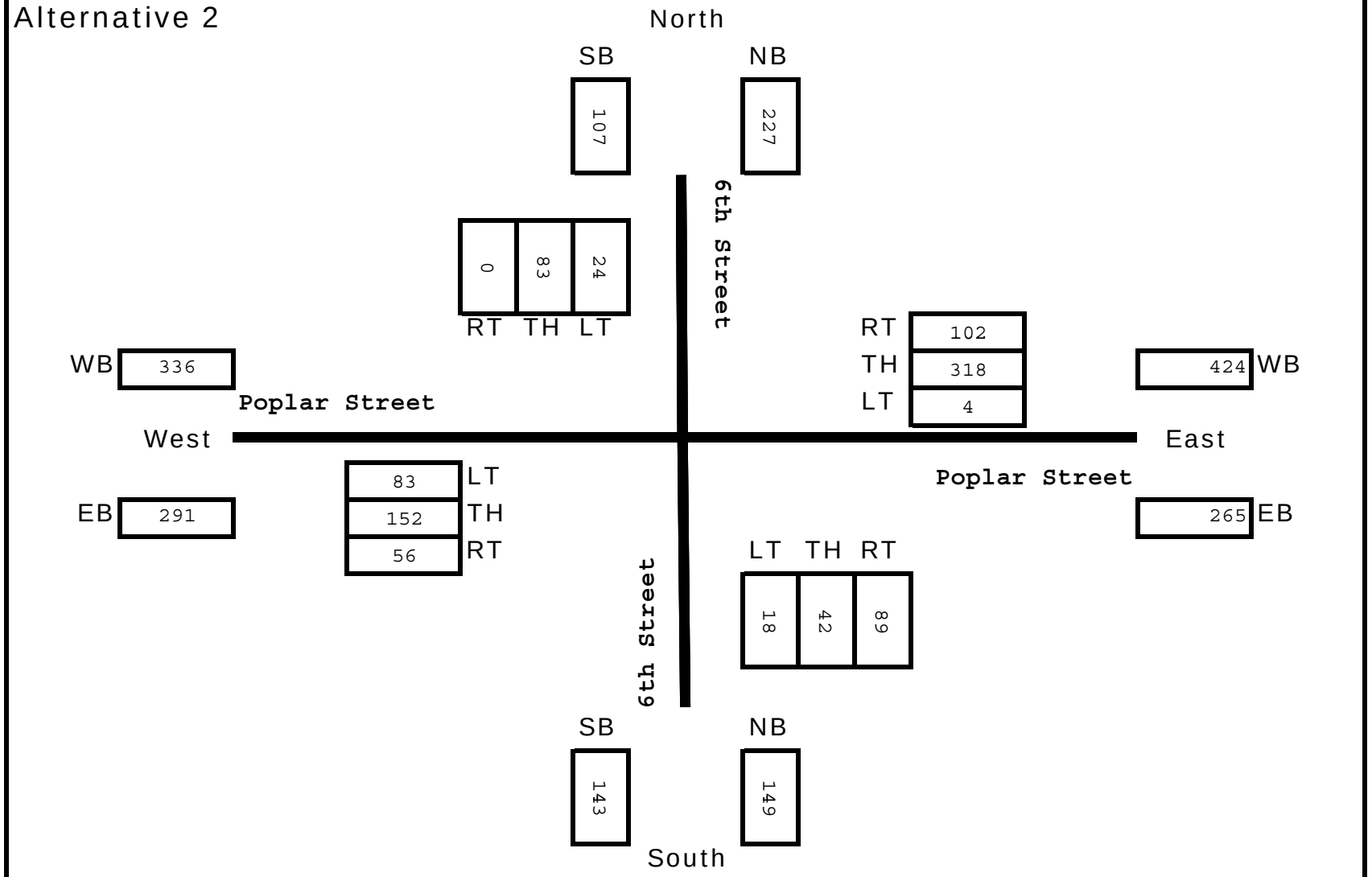
Poplar Street at 4th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



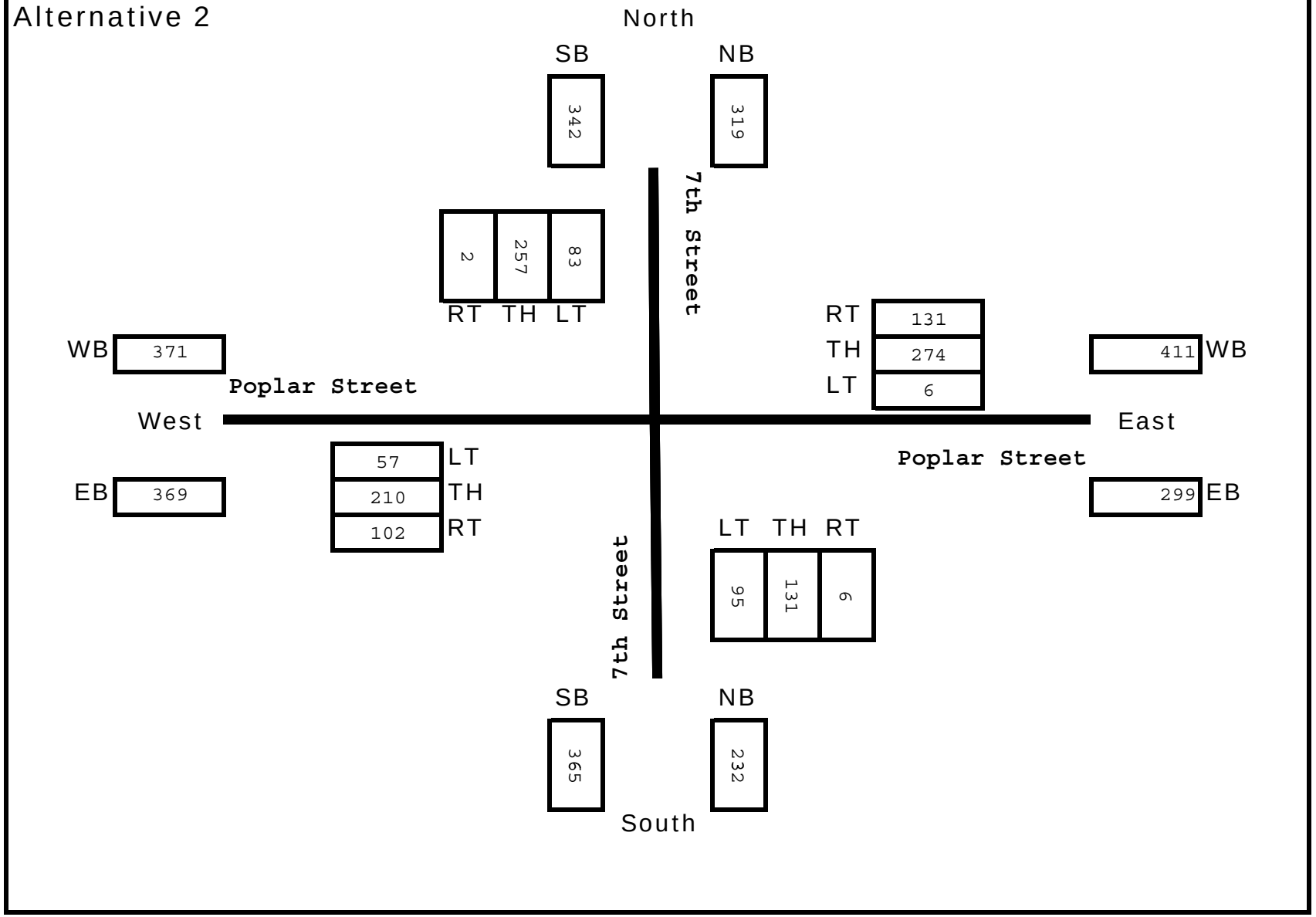
Poplar Street at 5th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



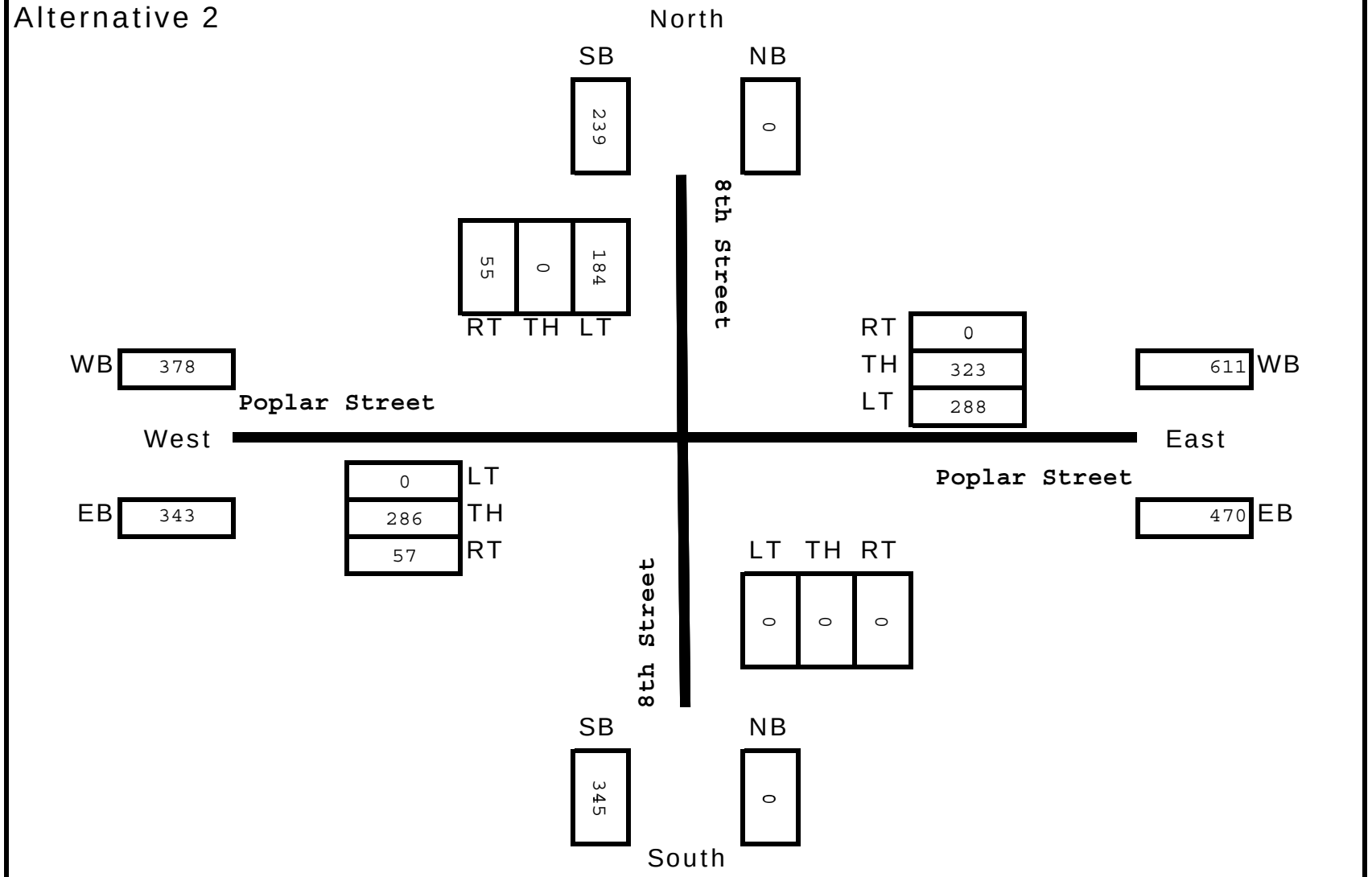
Poplar Street at 6th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



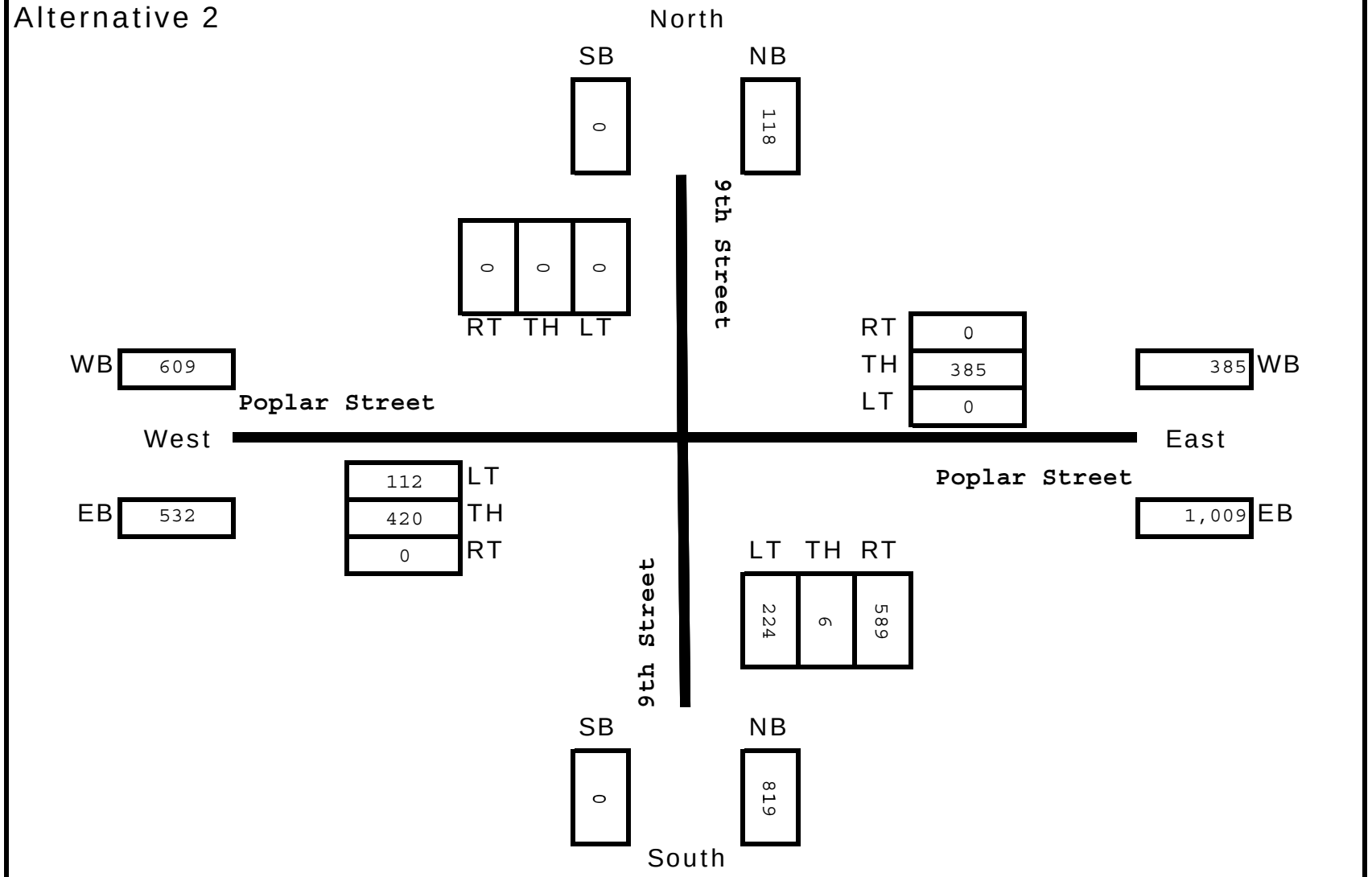
Poplar Street at 7th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



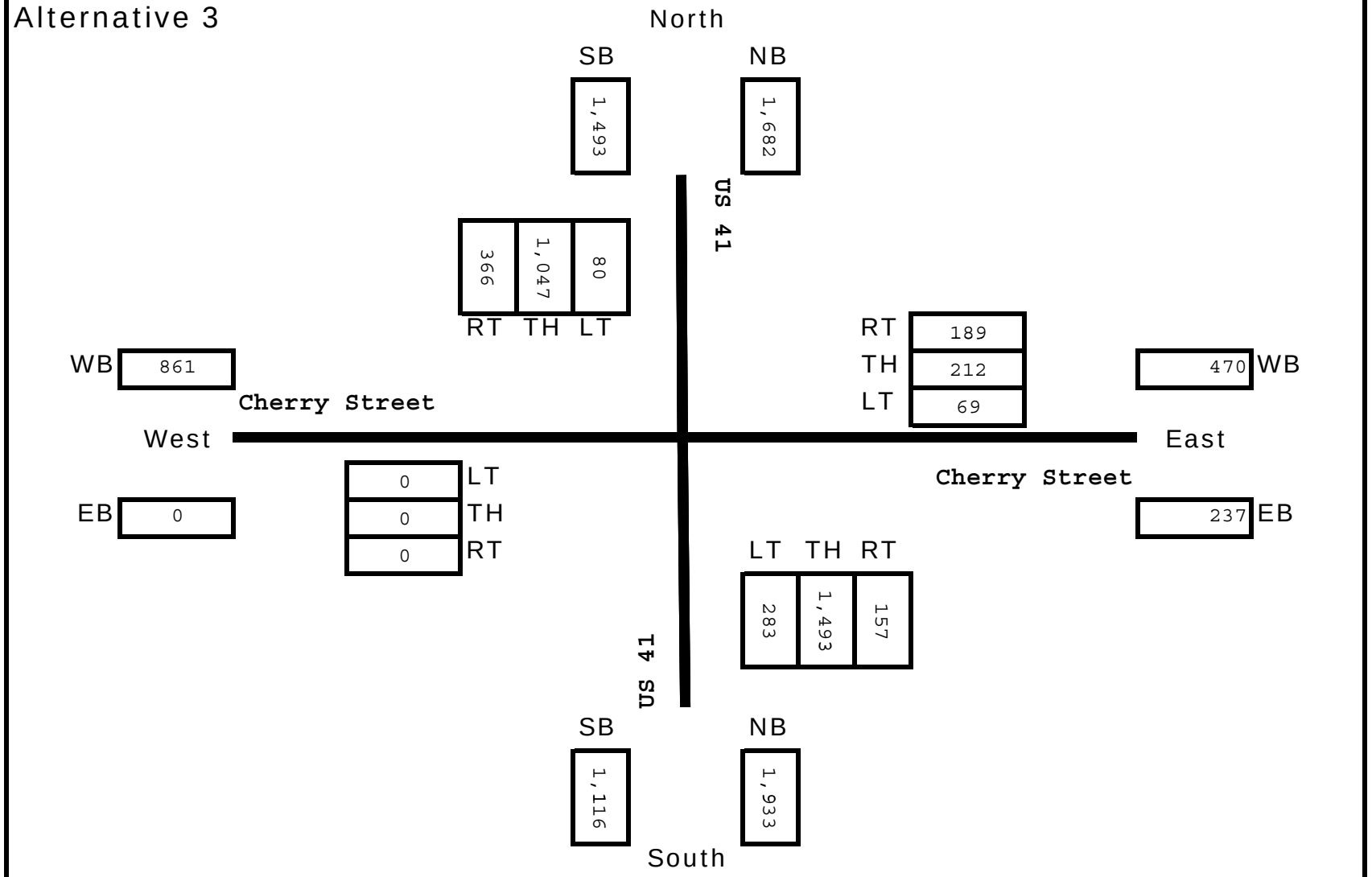
Poplar Street at 8th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



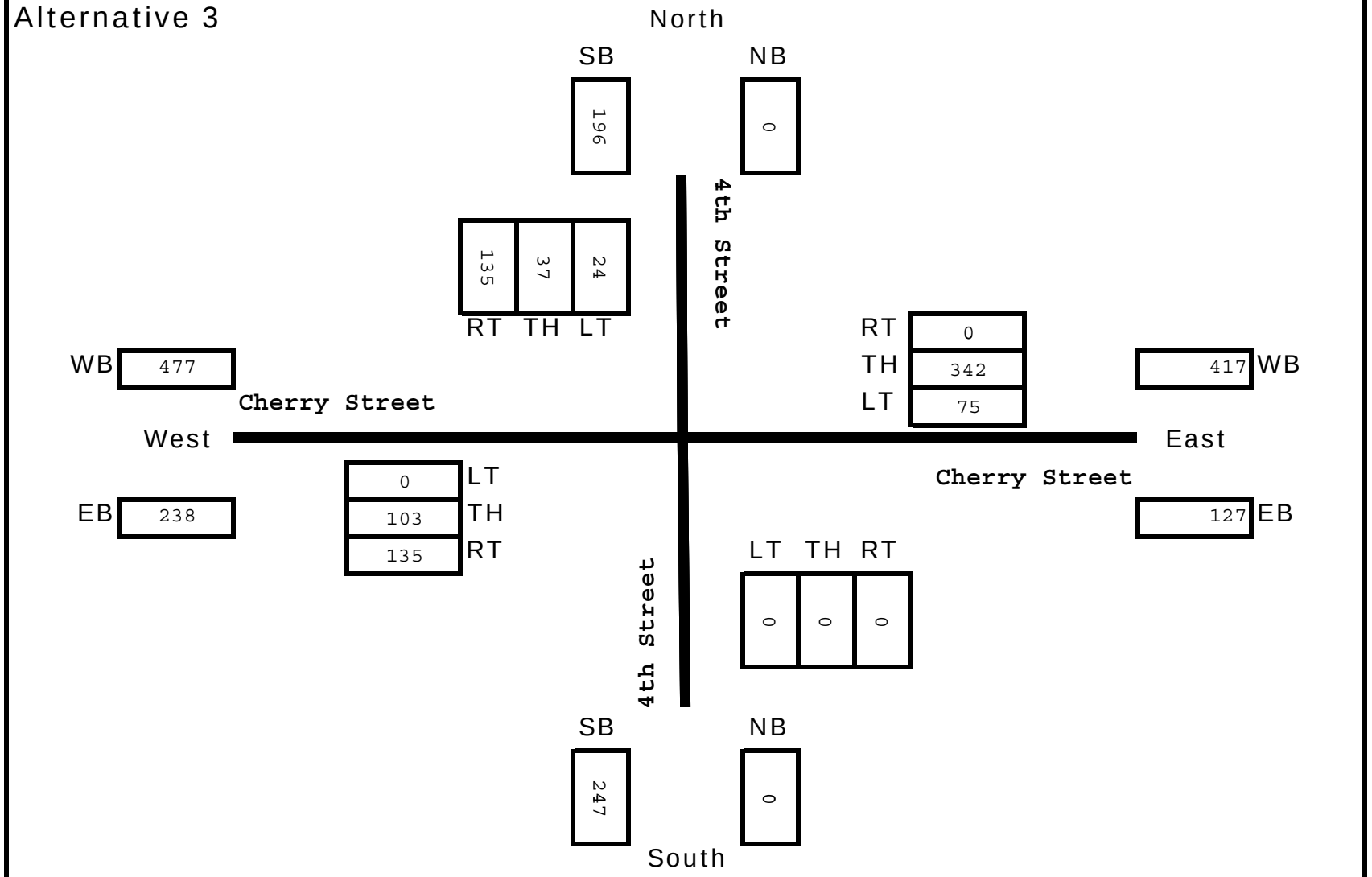
Poplar Street at 9th Street
PM Turning Movement Forecast
Year 2022
Alternative 2



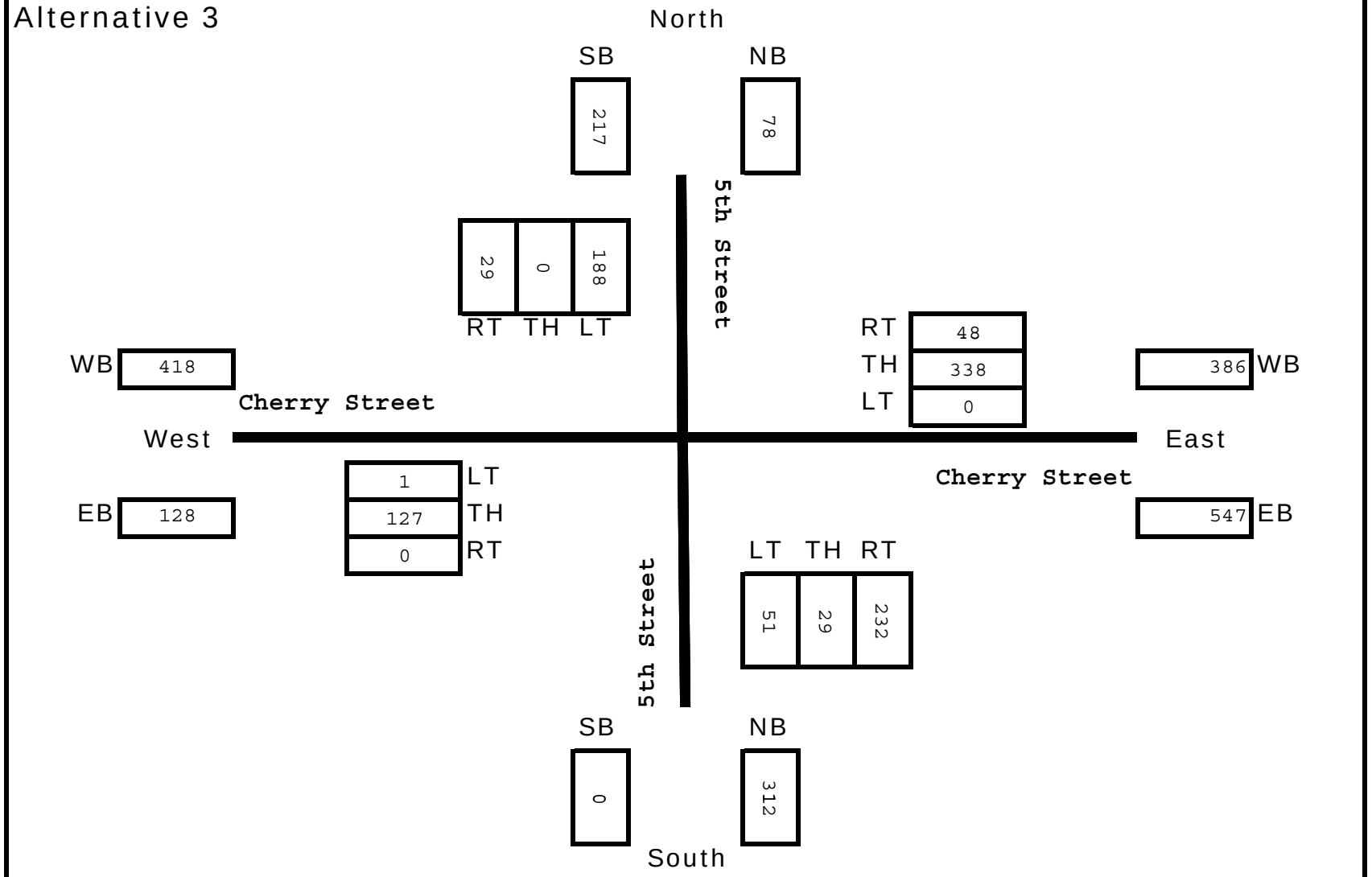
Cherry Street at US 41
PM Turning Movement Forecast
Year 2022
Alternative 3



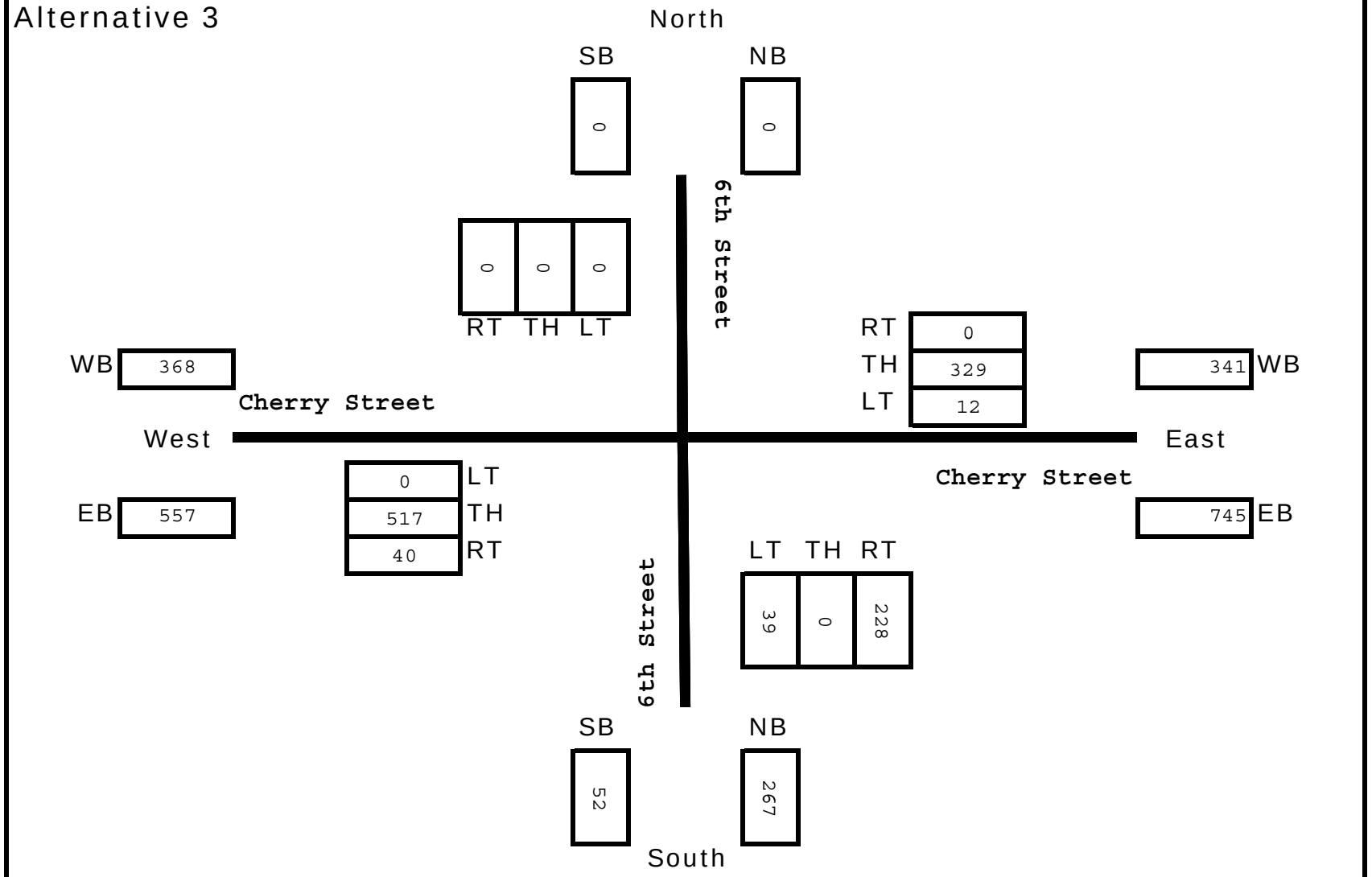
Cherry Street at 4th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



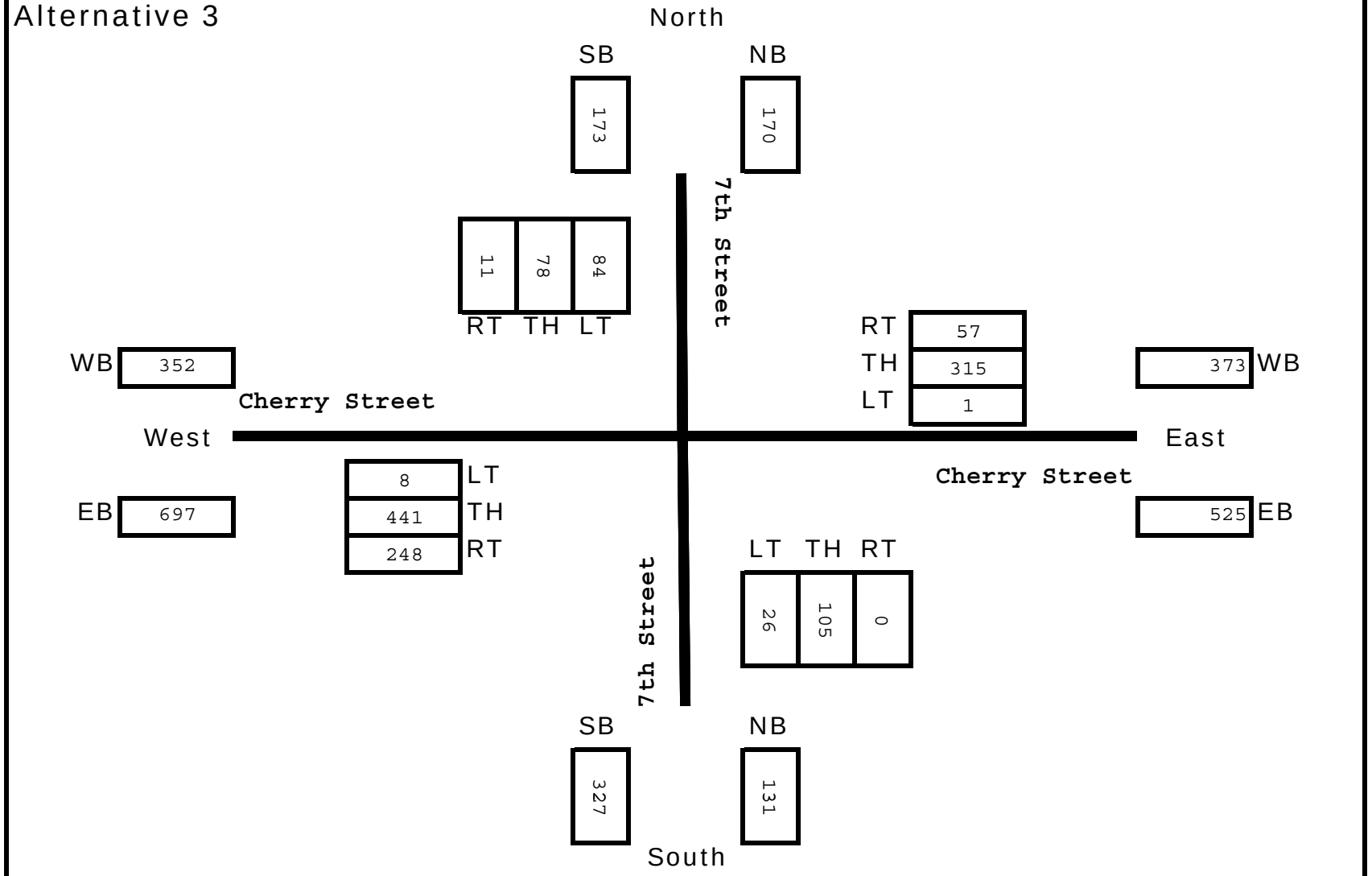
Cherry Street at 5th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



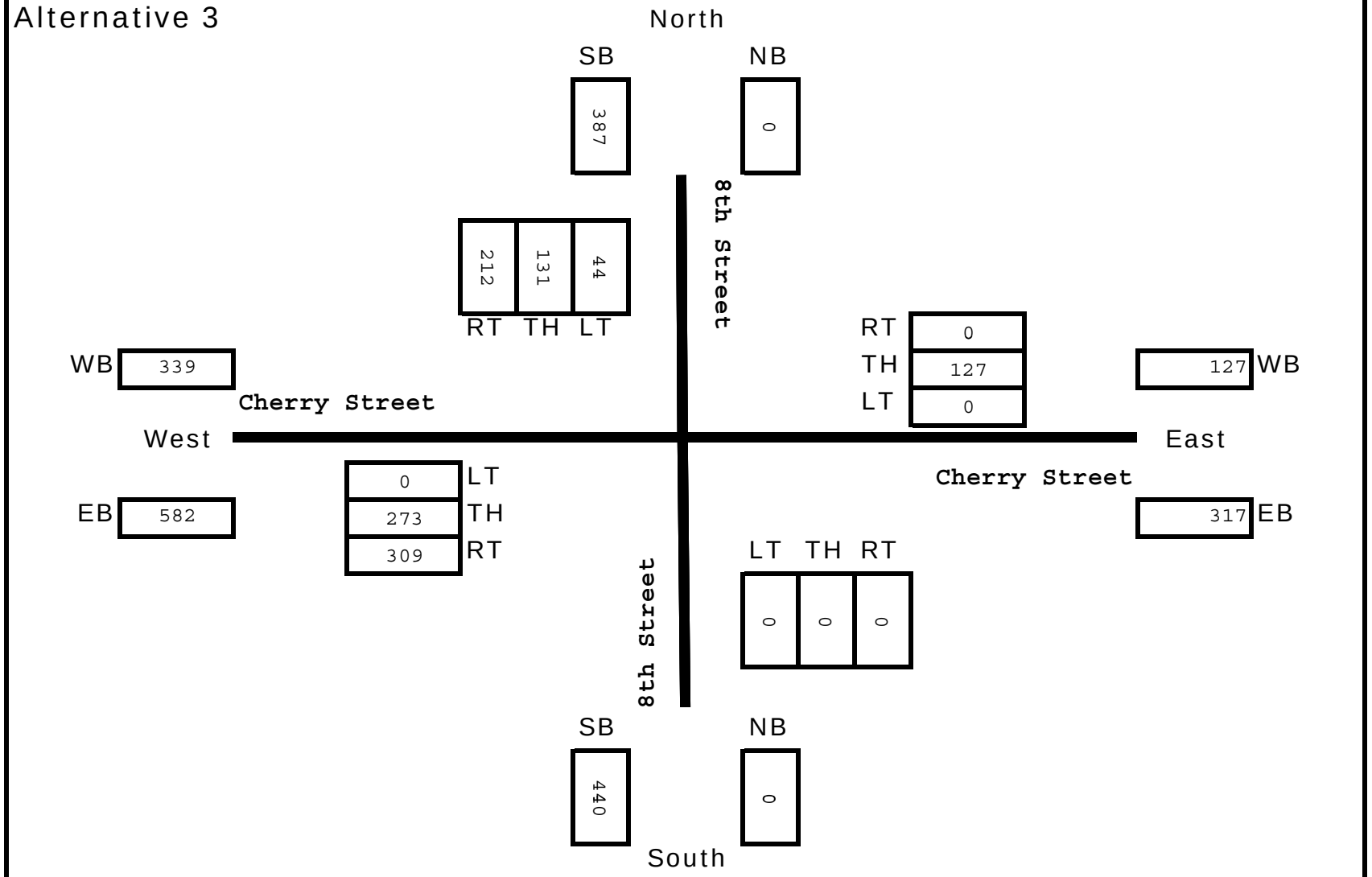
Cherry Street at 6th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



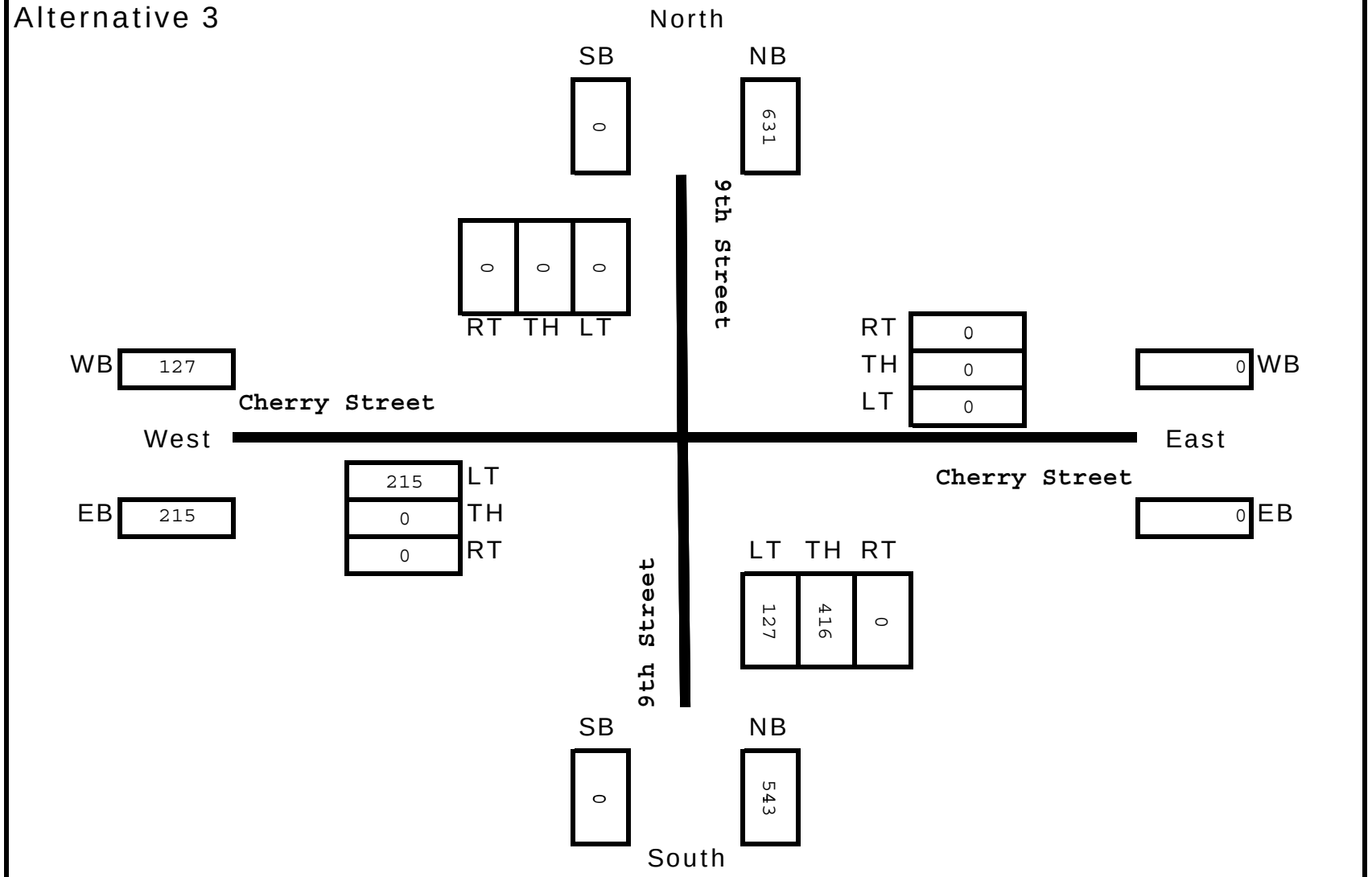
Cherry Street at 7th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



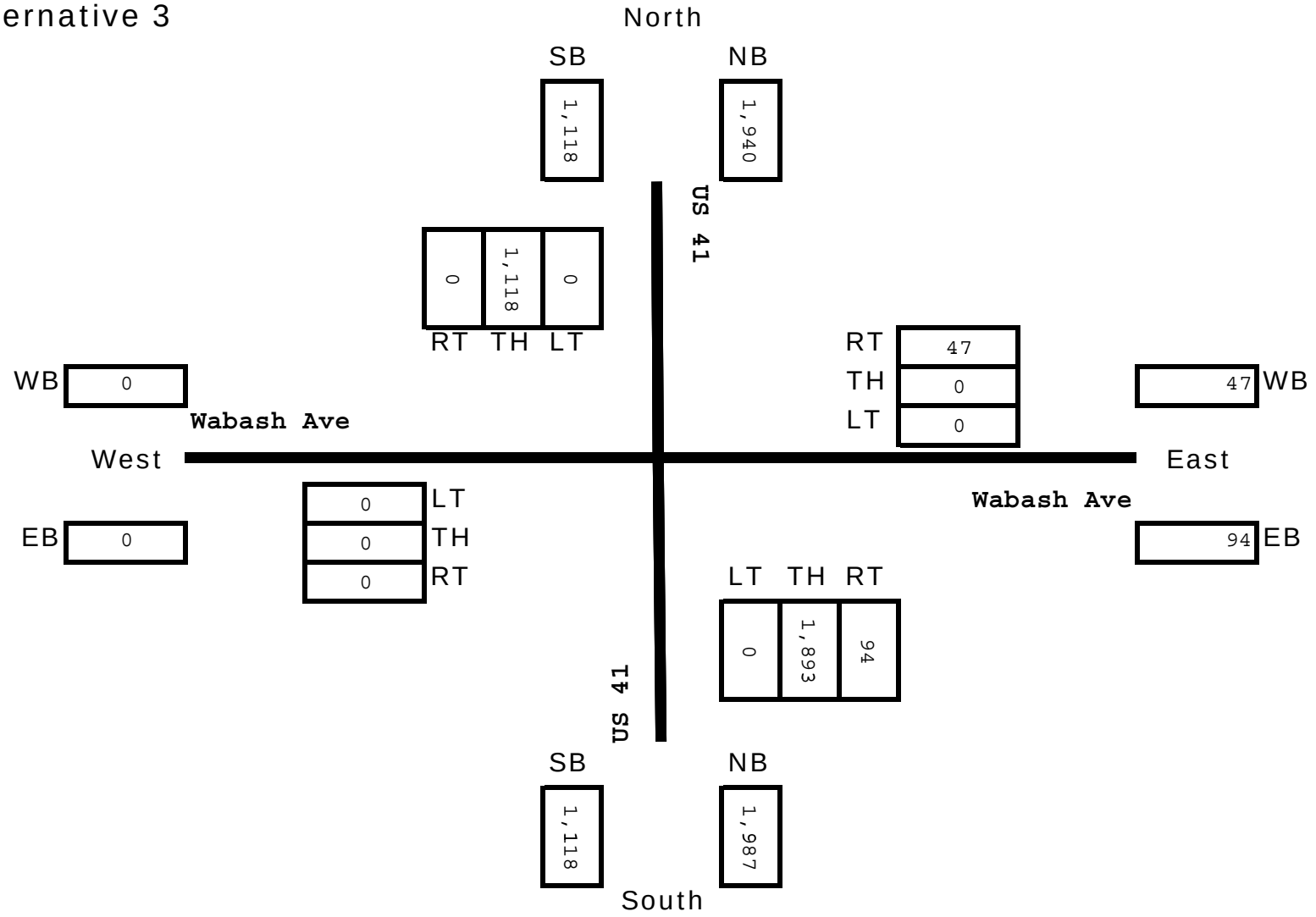
Cherry Street at 8th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



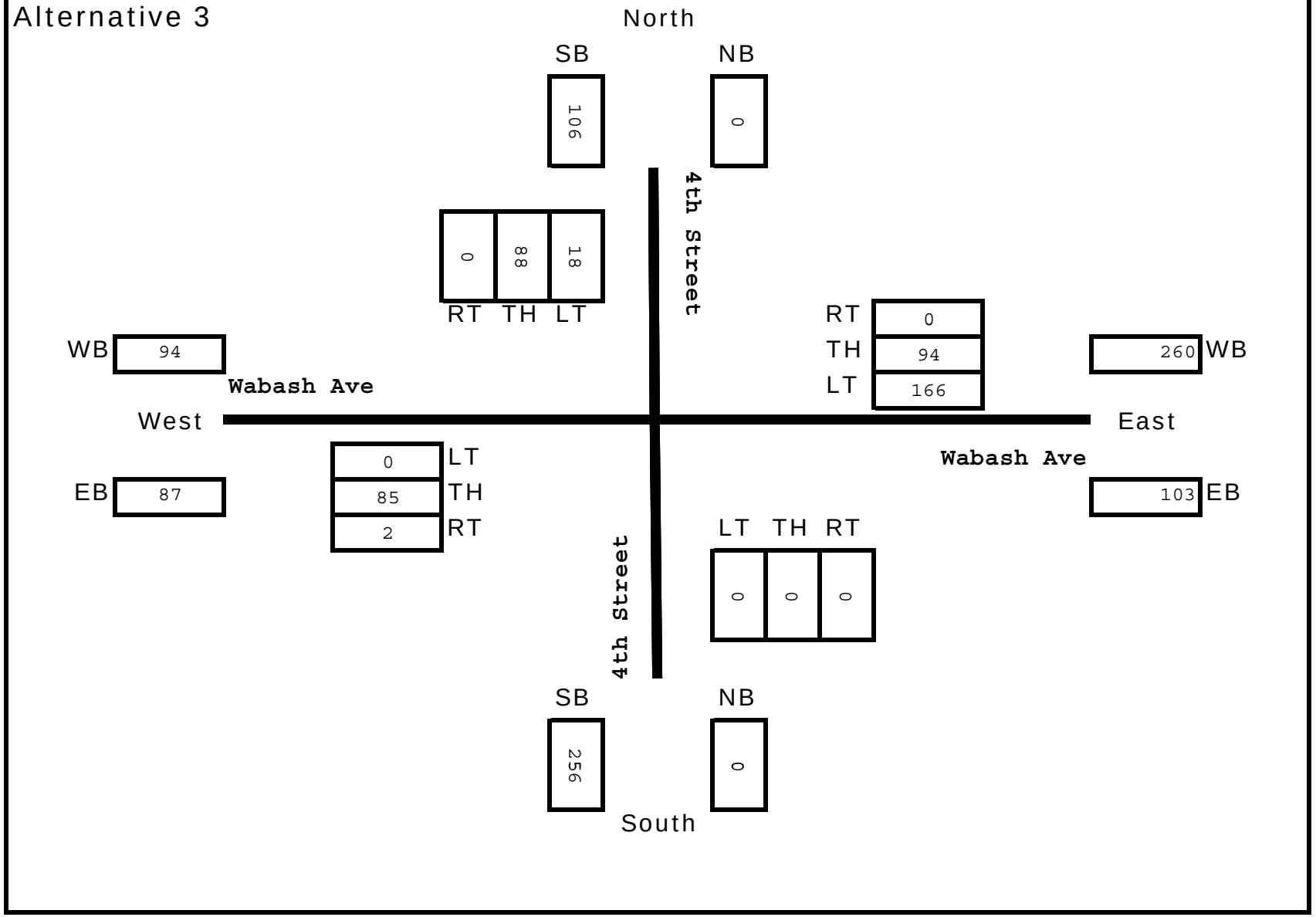
Cherry Street at 9th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



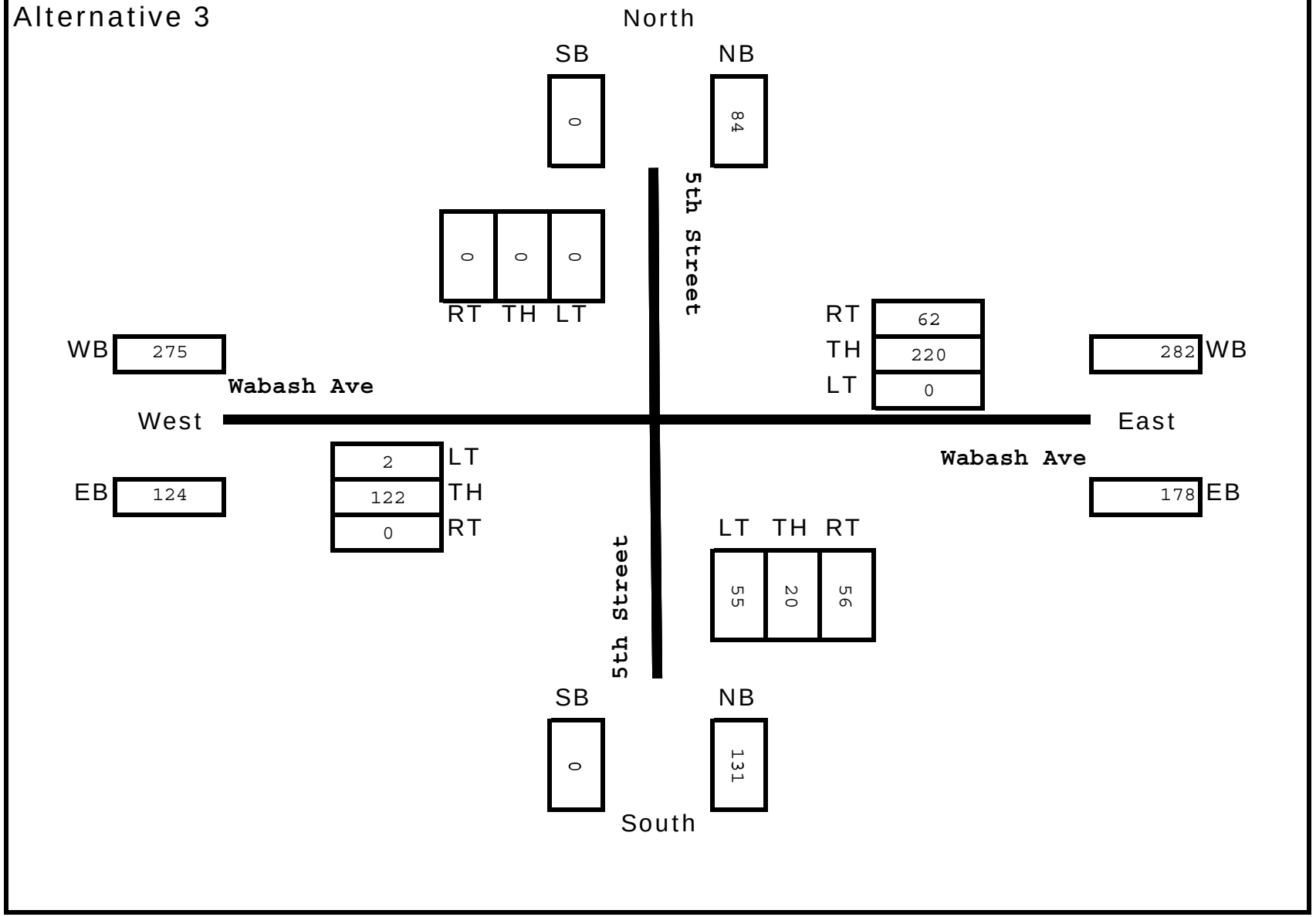
Wabash Ave at US 41
PM Turning Movement Forecast
Year 2022
Alternative 3



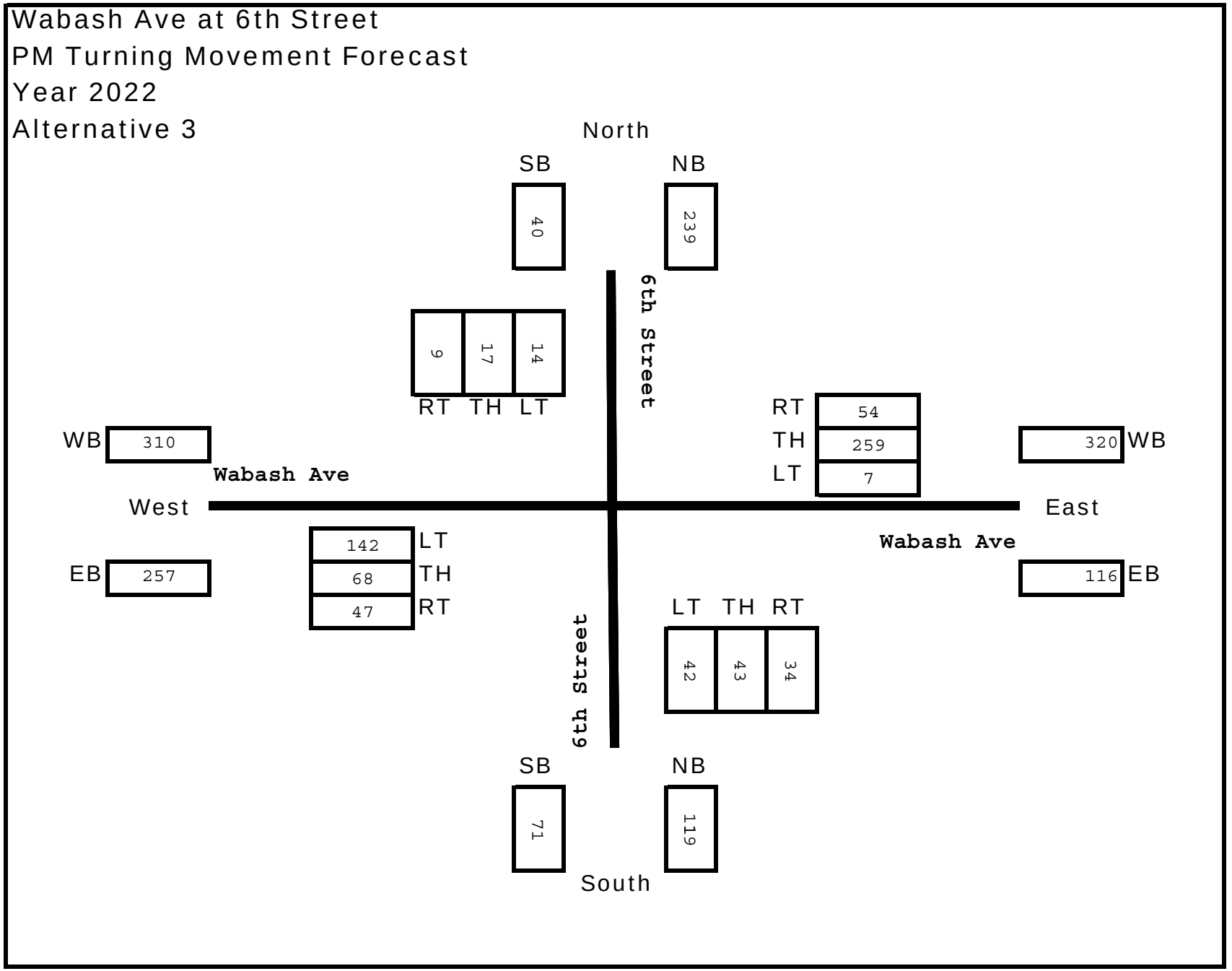
Wabash Ave at 4th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



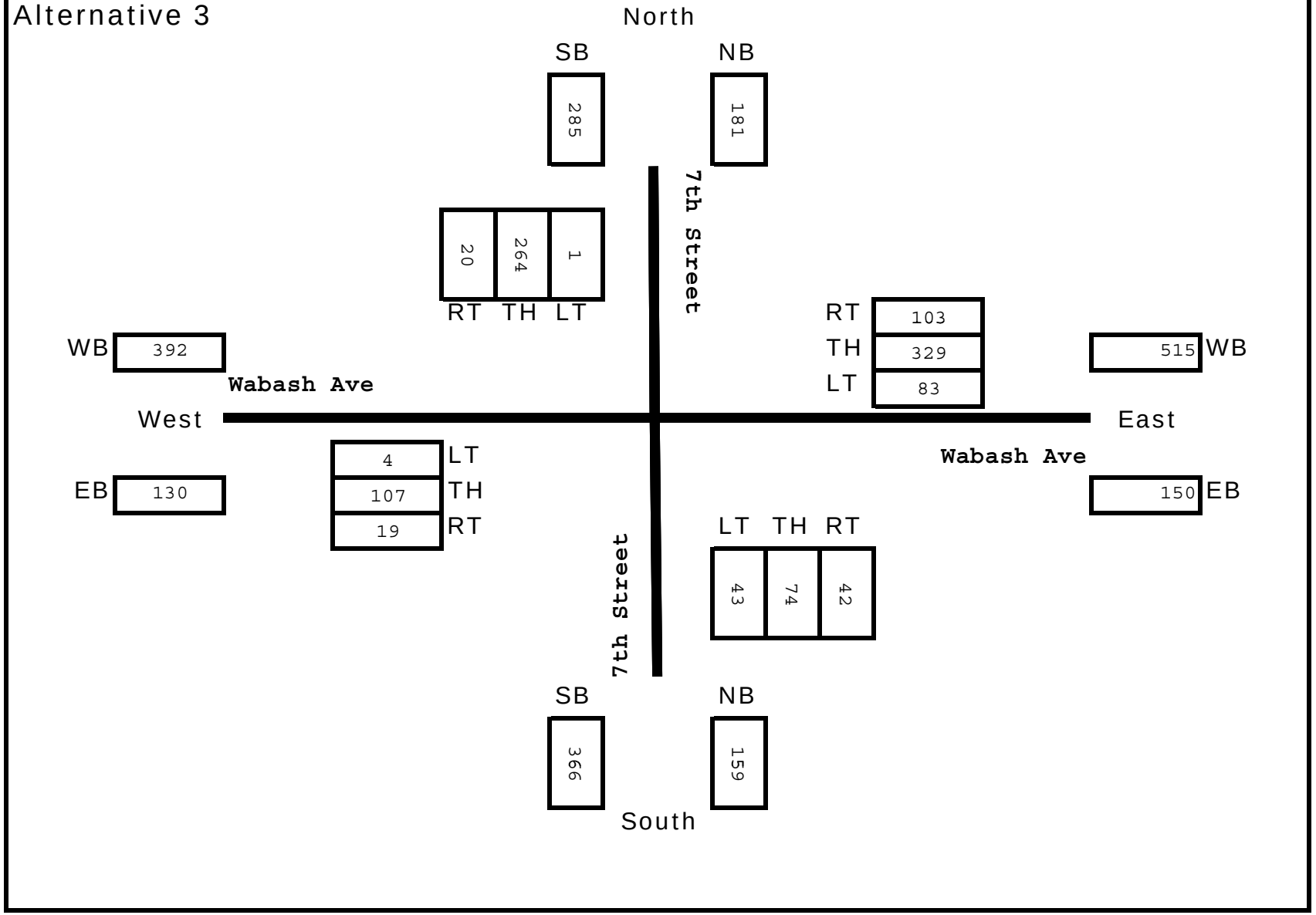
Wabash Ave at 5th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



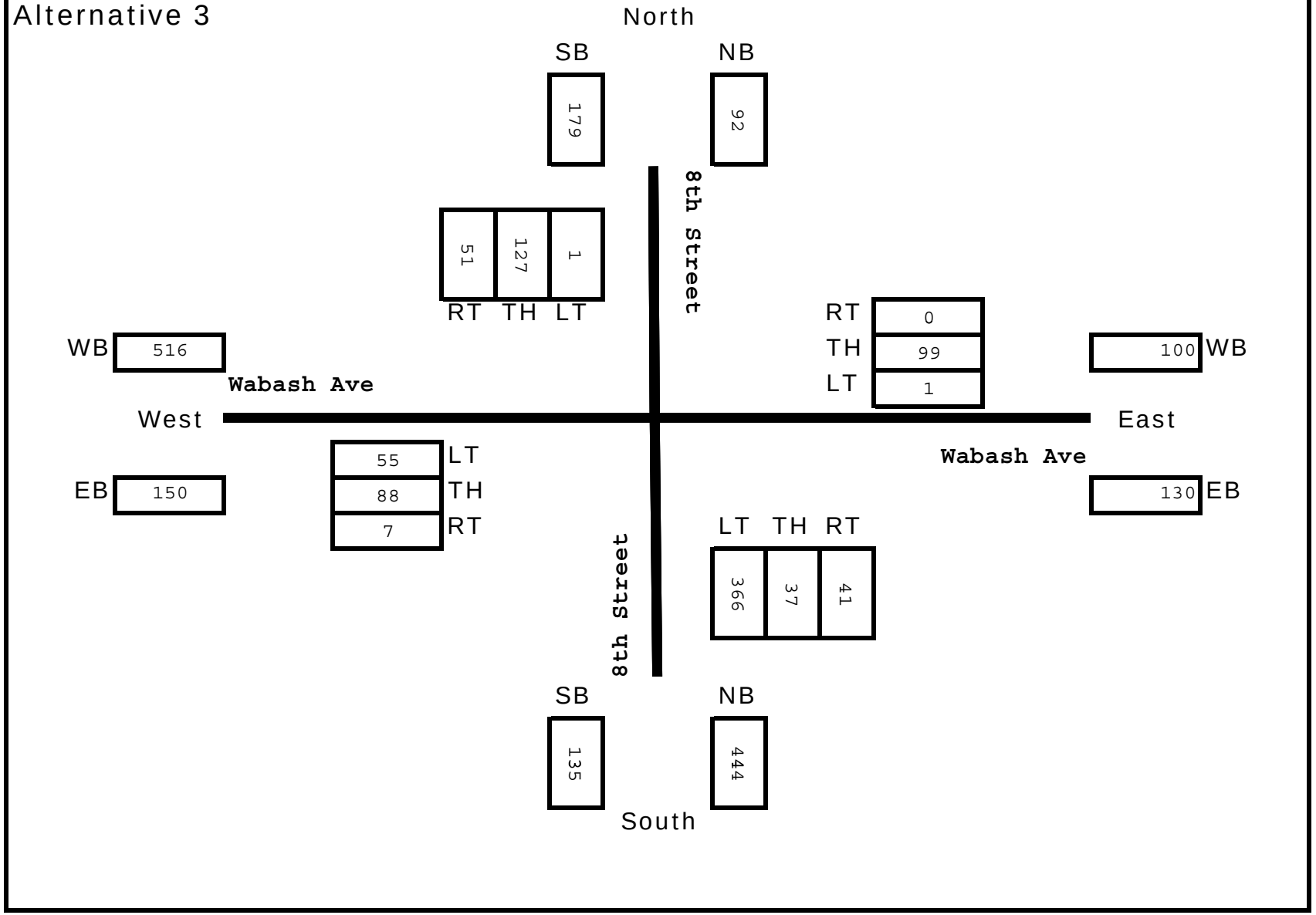
Wabash Ave at 6th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



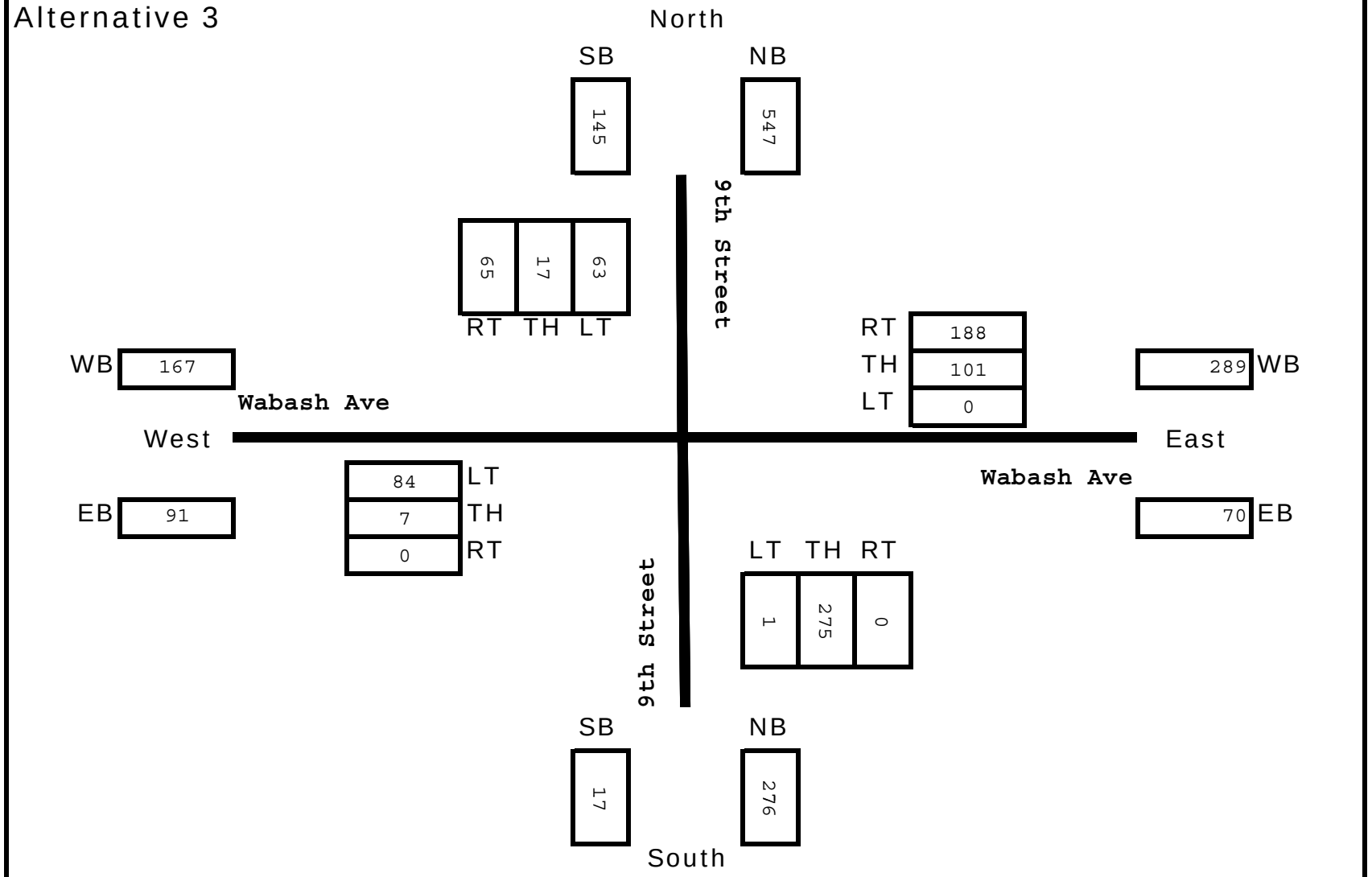
Wabash Ave at 7th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



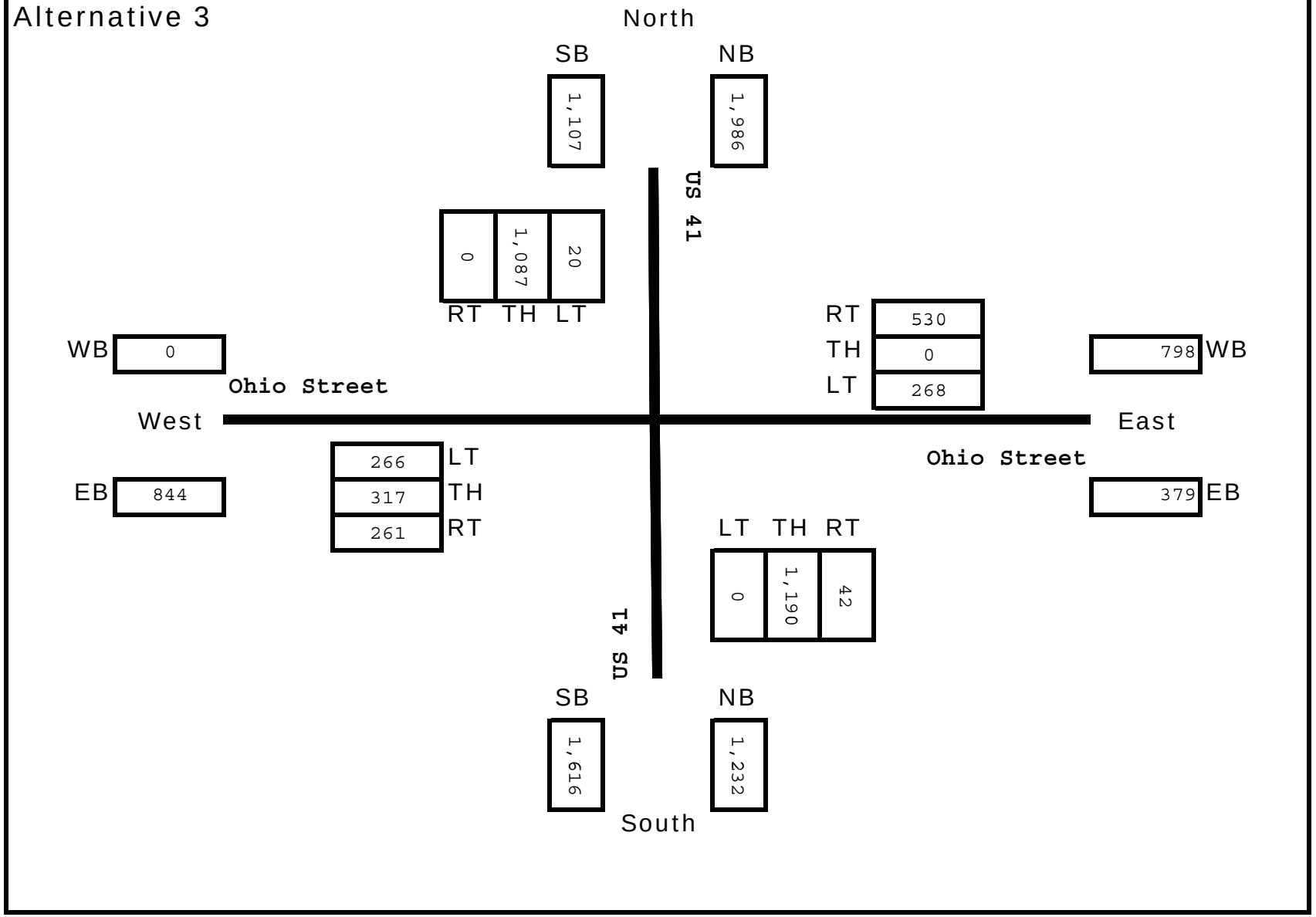
Wabash Ave at 8th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



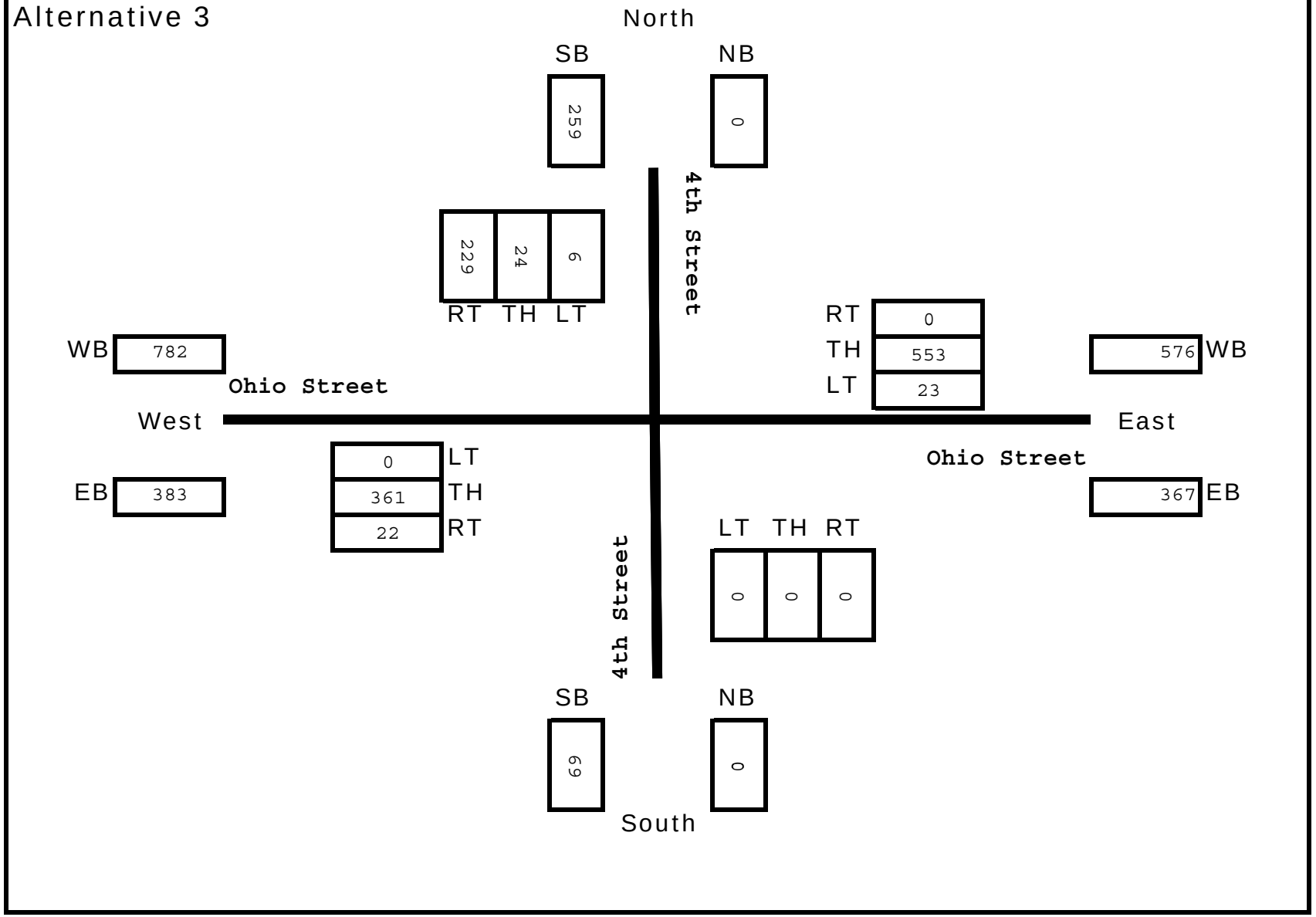
Wabash Ave at 9th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



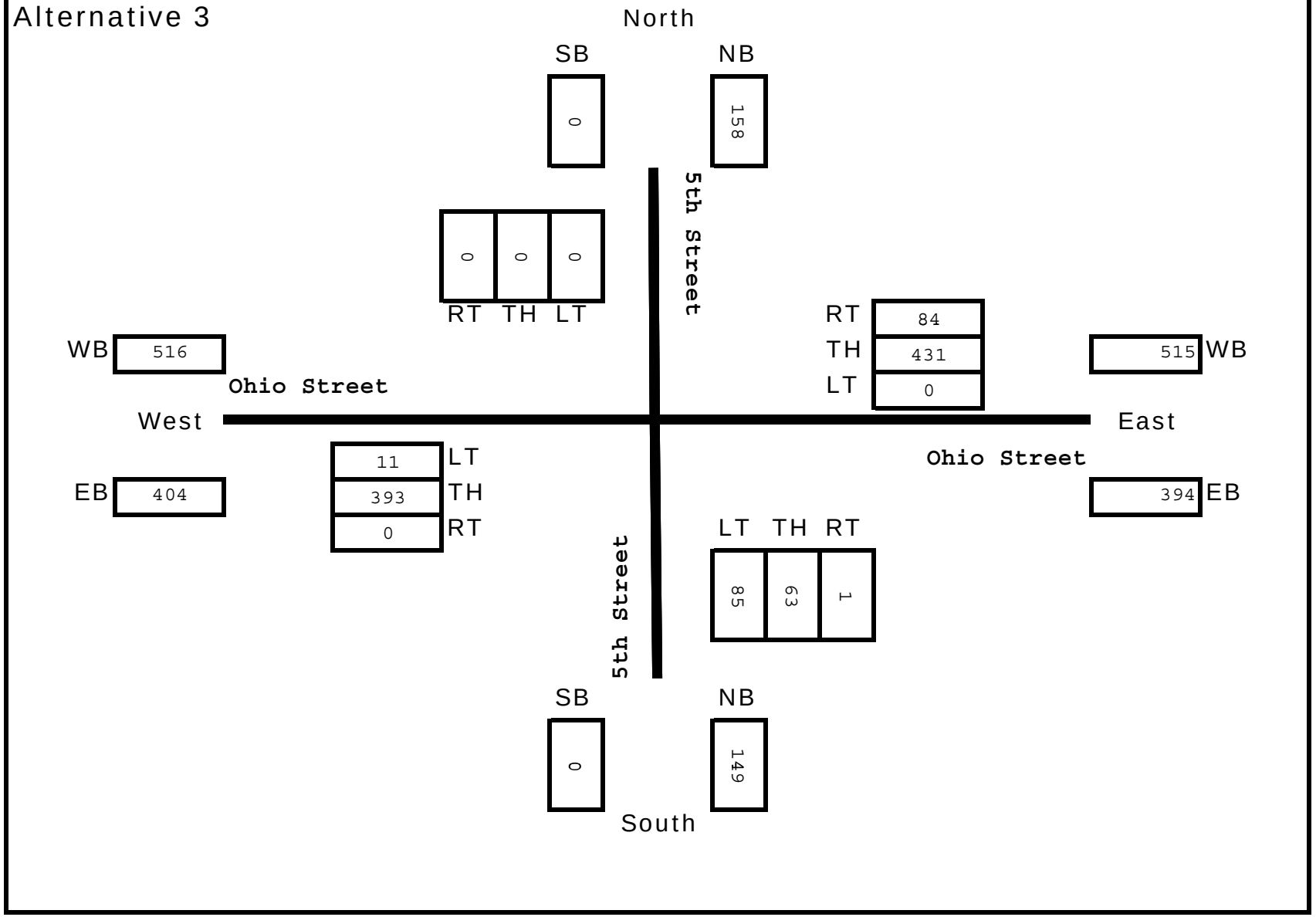
Ohio Street at US 41
PM Turning Movement Forecast
Year 2022
Alternative 3



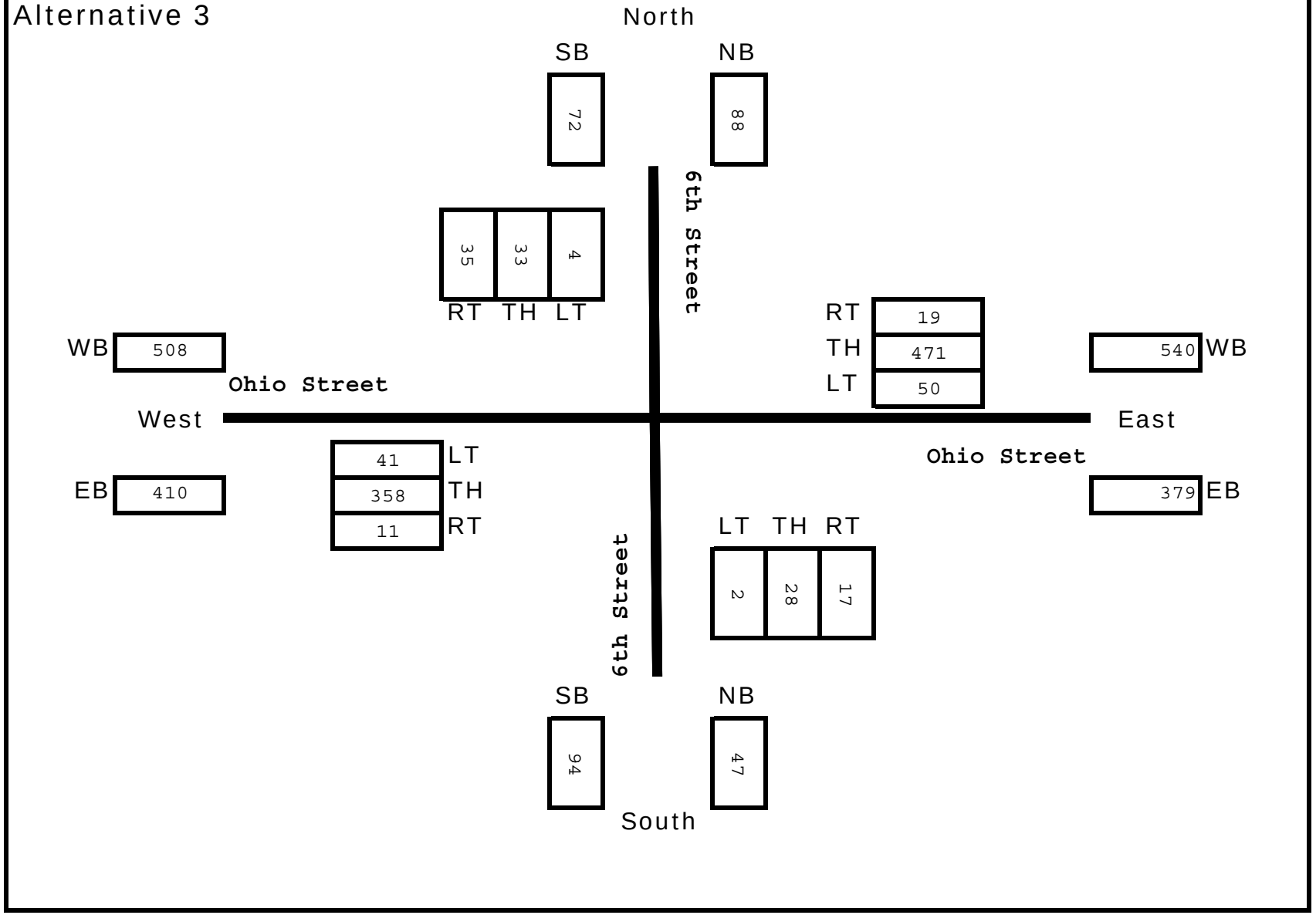
Ohio Street at 4th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



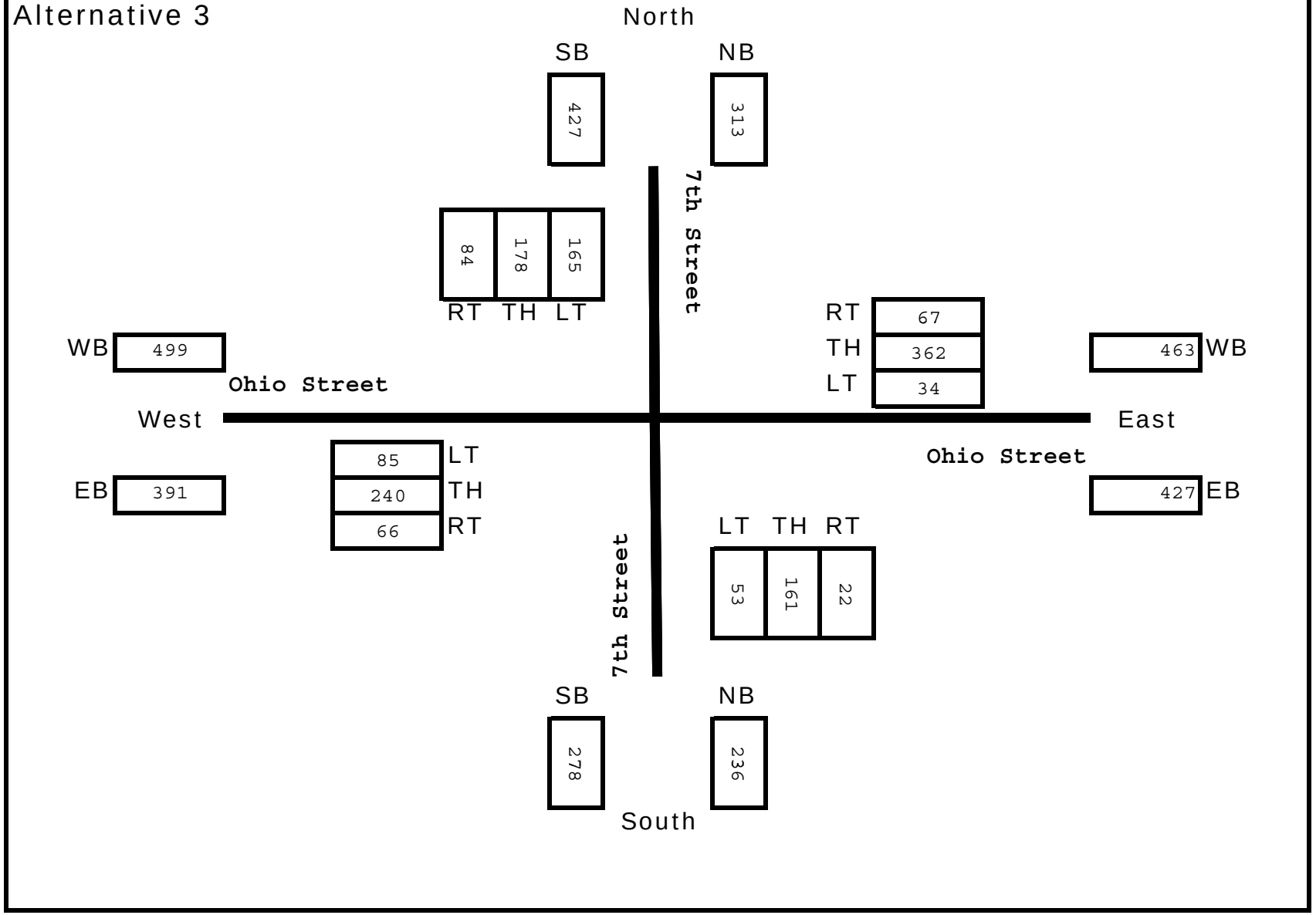
Ohio Street at 5th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



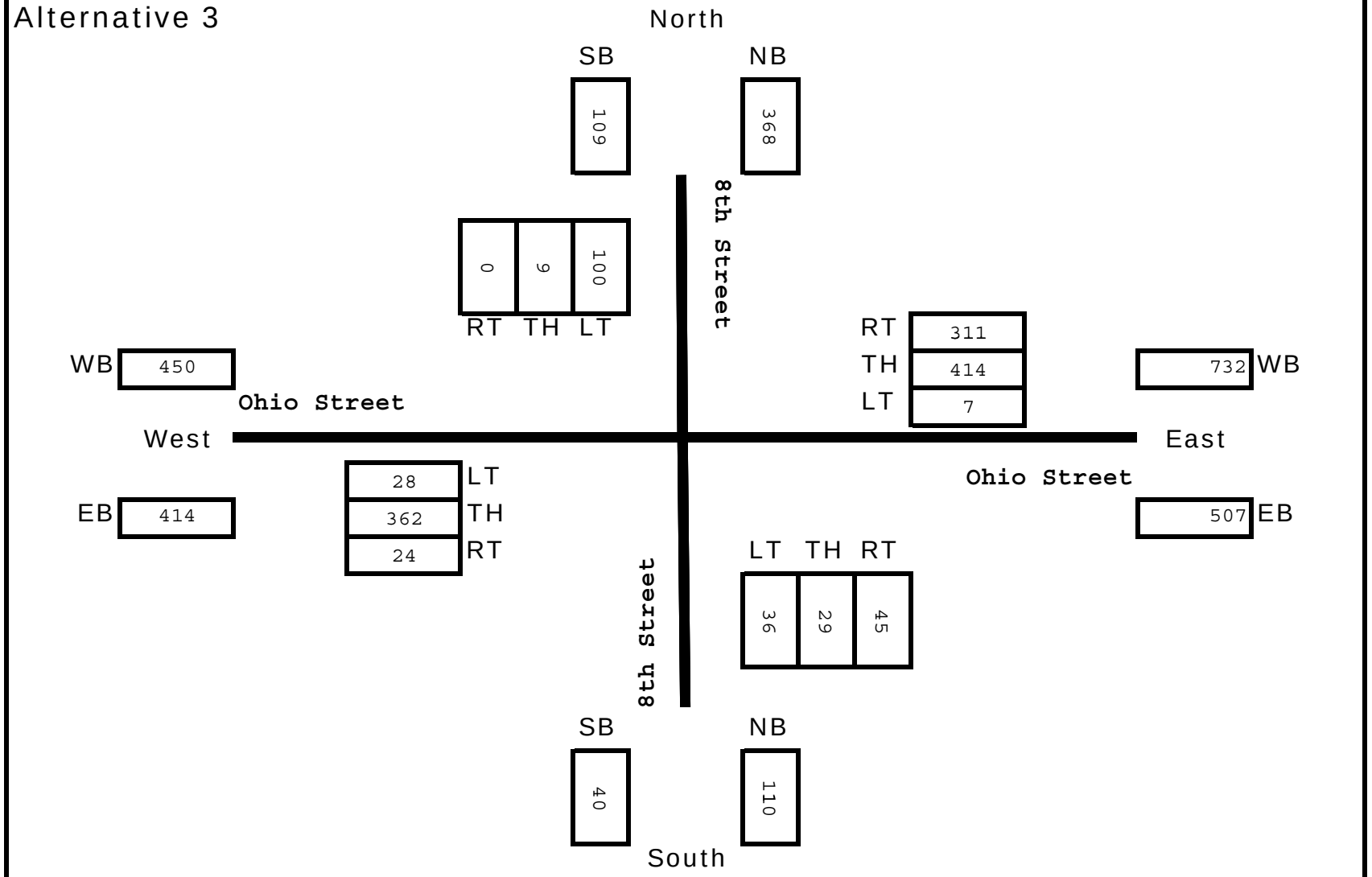
Ohio Street at 6th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



Ohio Street at 7th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



Ohio Street at 8th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



Ohio Street at 9th Street
PM Turning Movement Forecast
Year 2022
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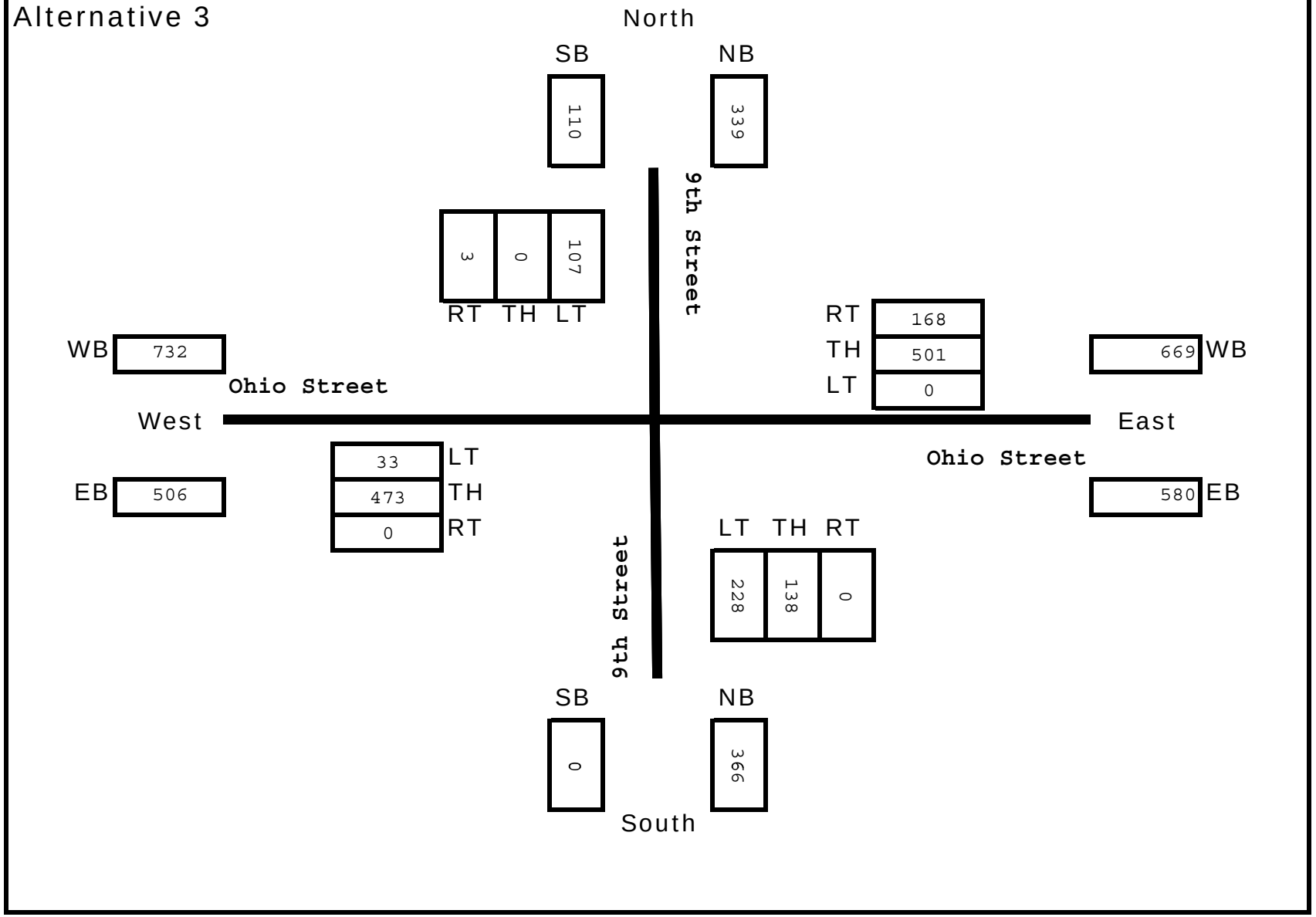
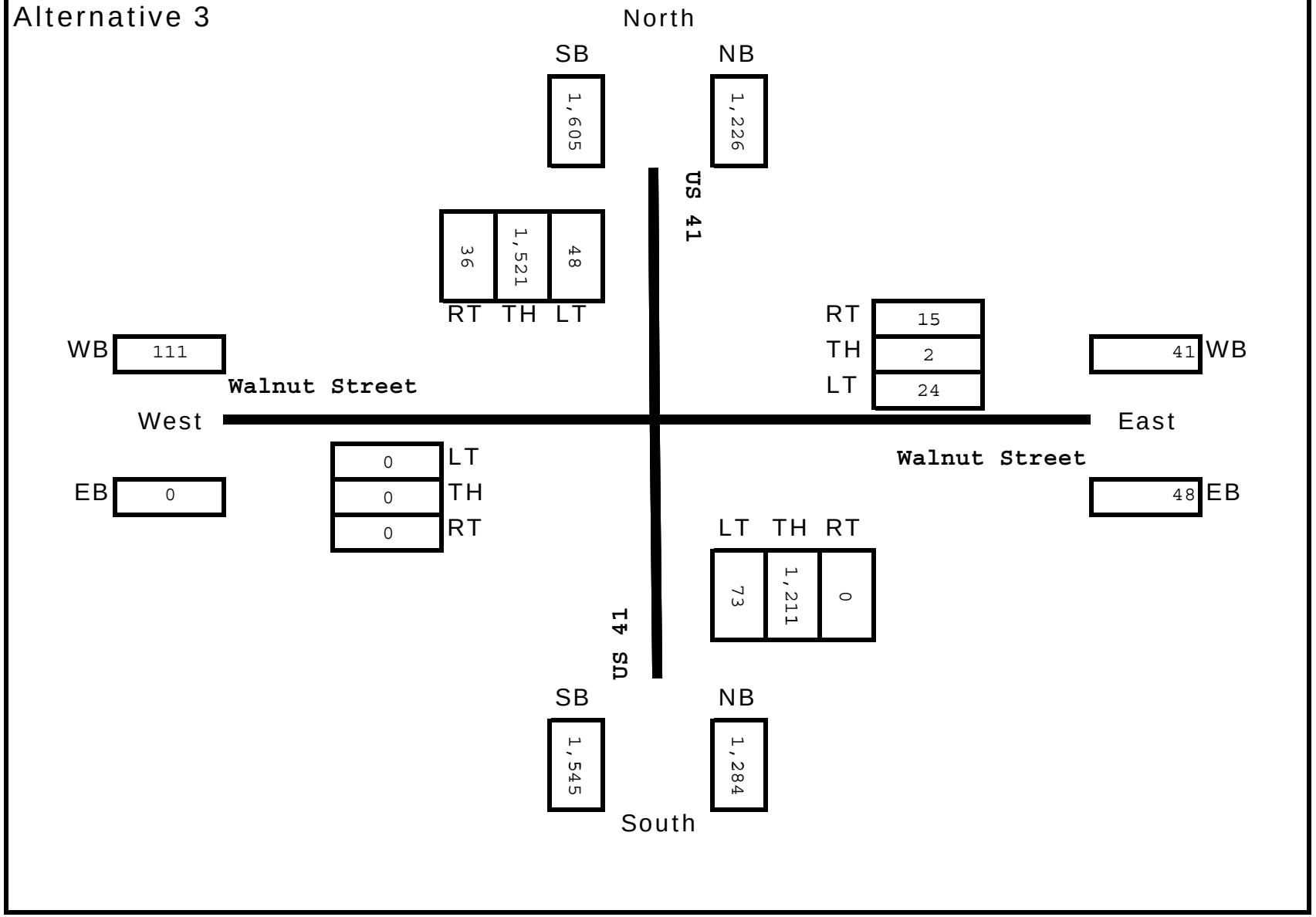
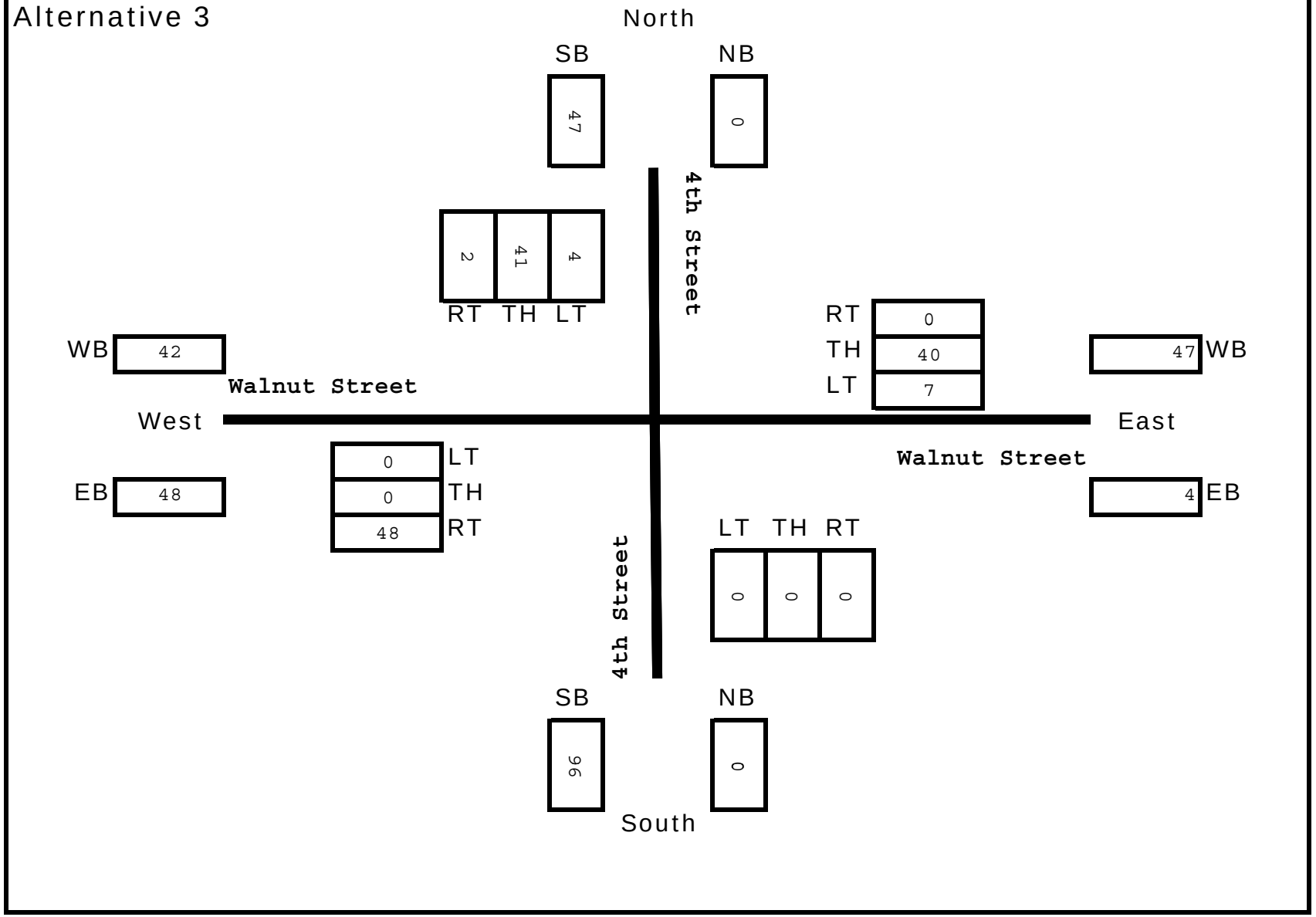


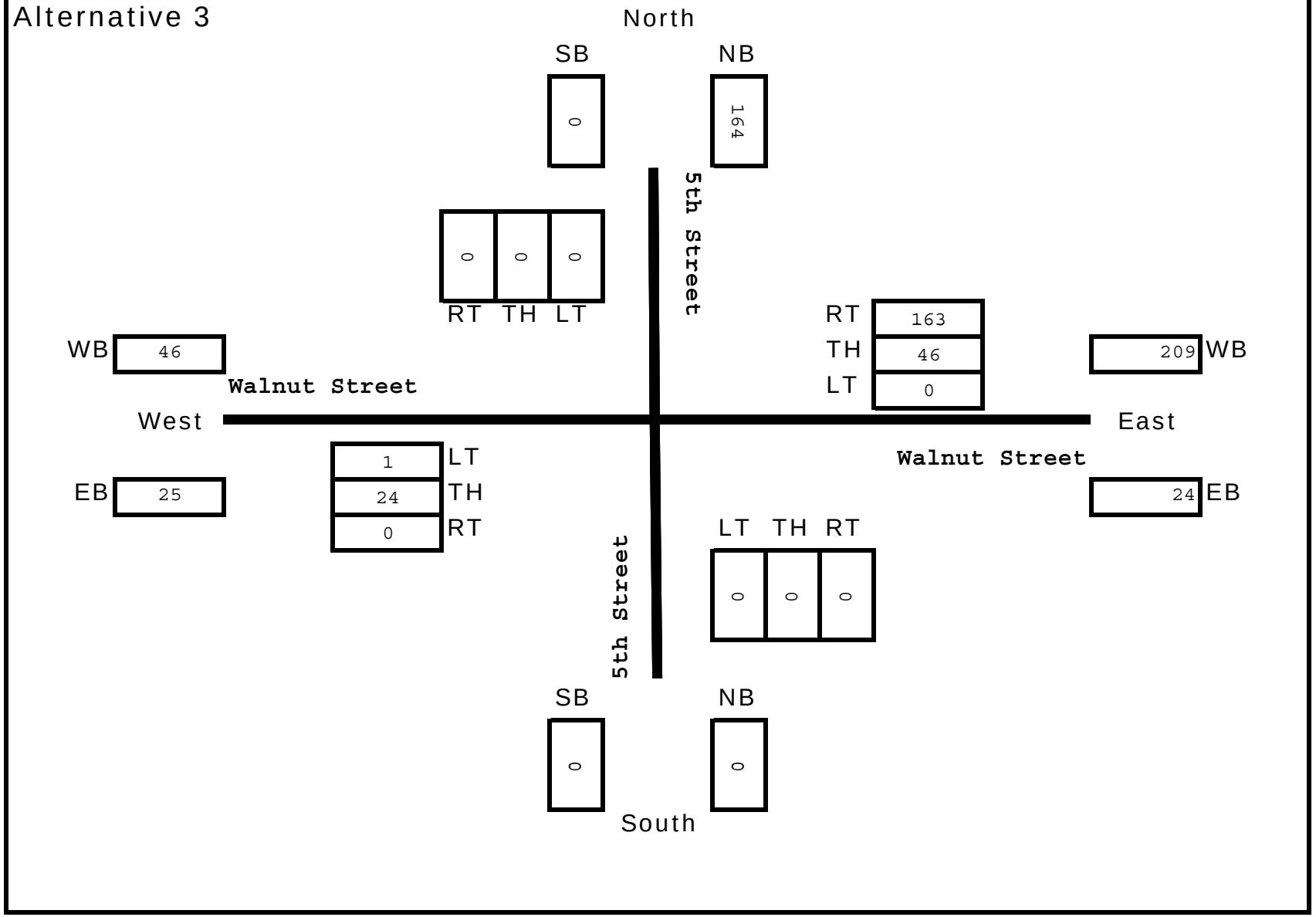
Walnut Street at US 41
PM Turning Movement Forecast
Year 2022
Alternative 3



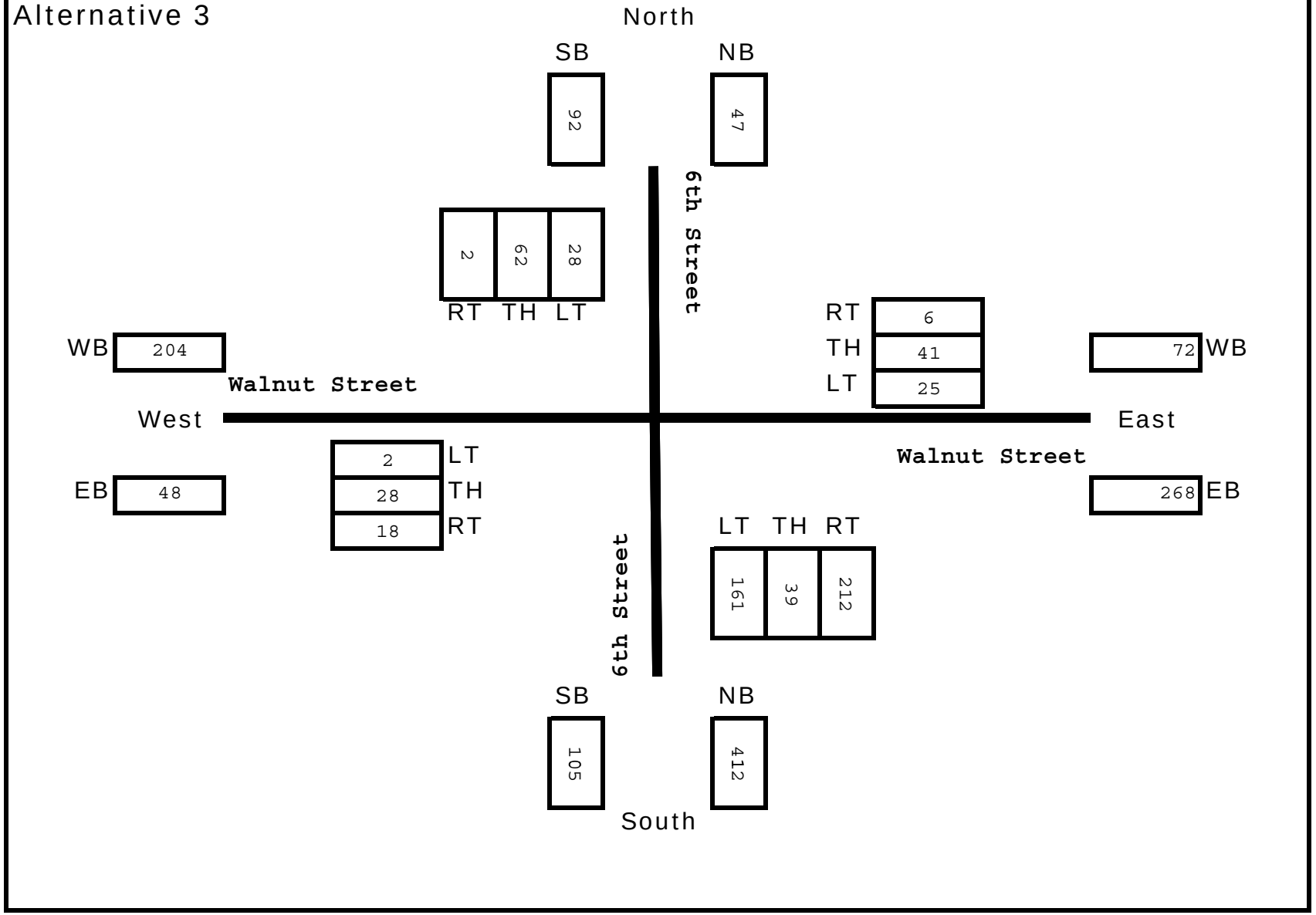
Walnut Street at 4th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



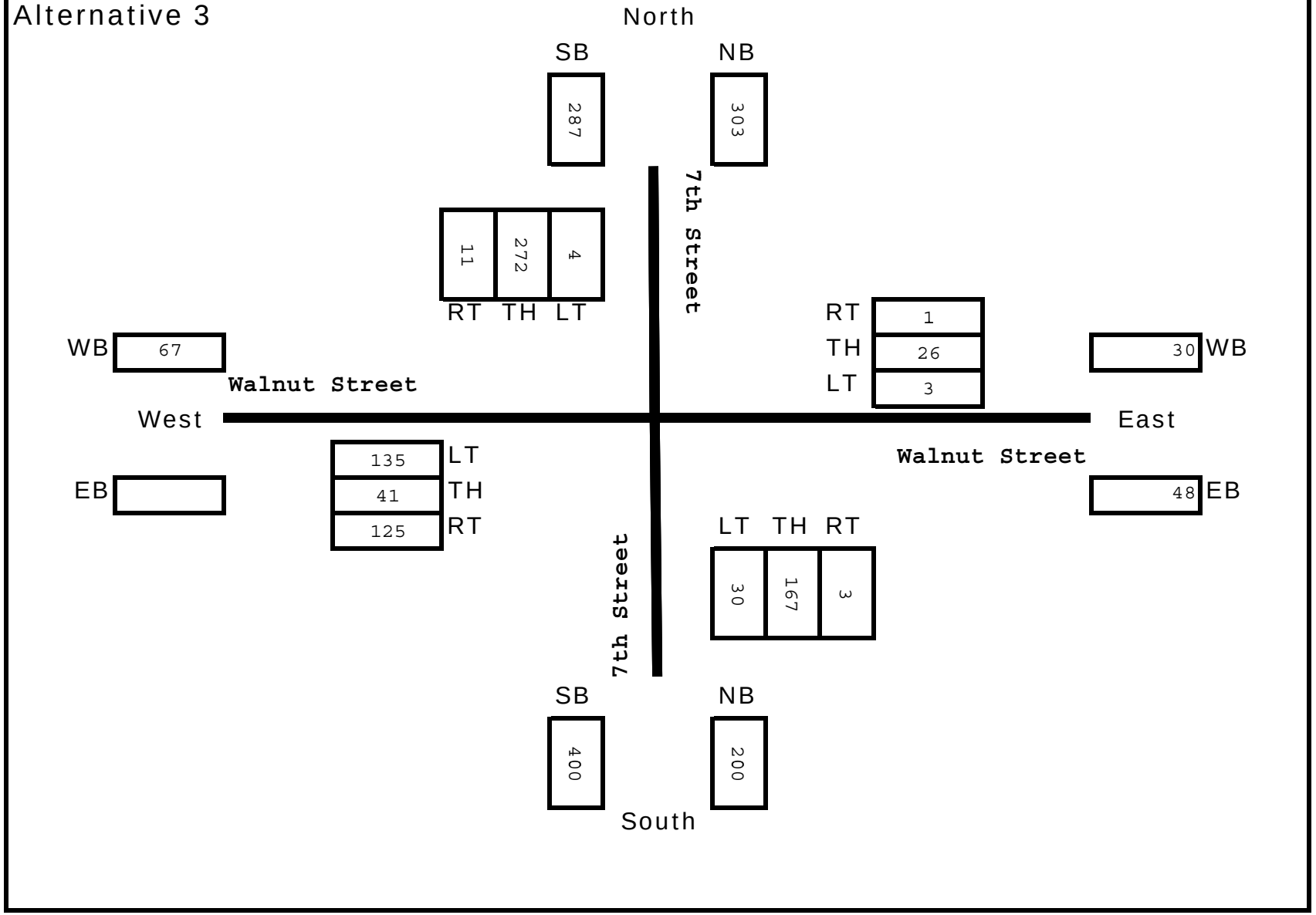
Walnut Street at 5th Street
PM Turning Movement Forecast
Year 2022
Alternative 3

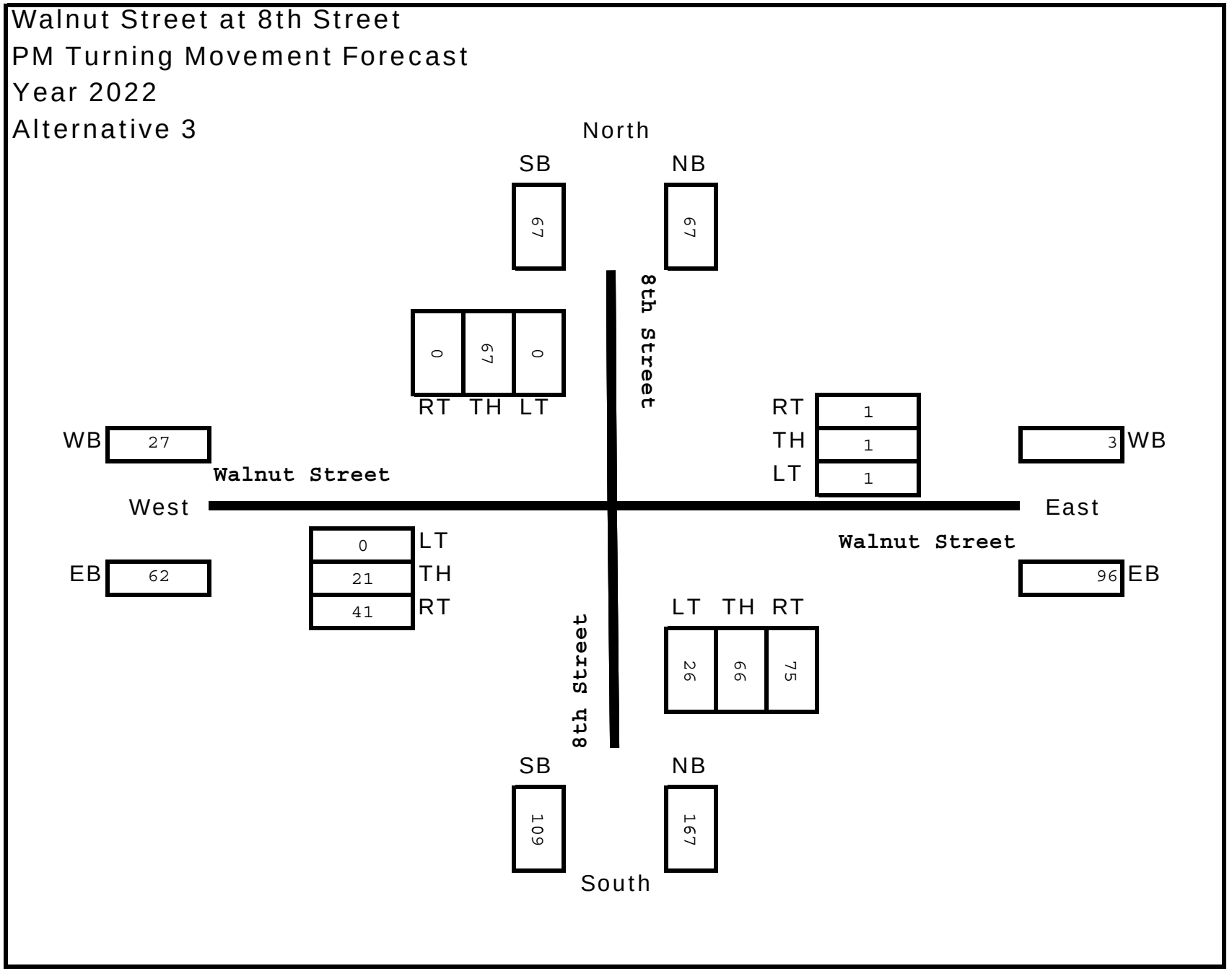


Walnut Street at 6th Street
PM Turning Movement Forecast
Year 2022
Alternative 3

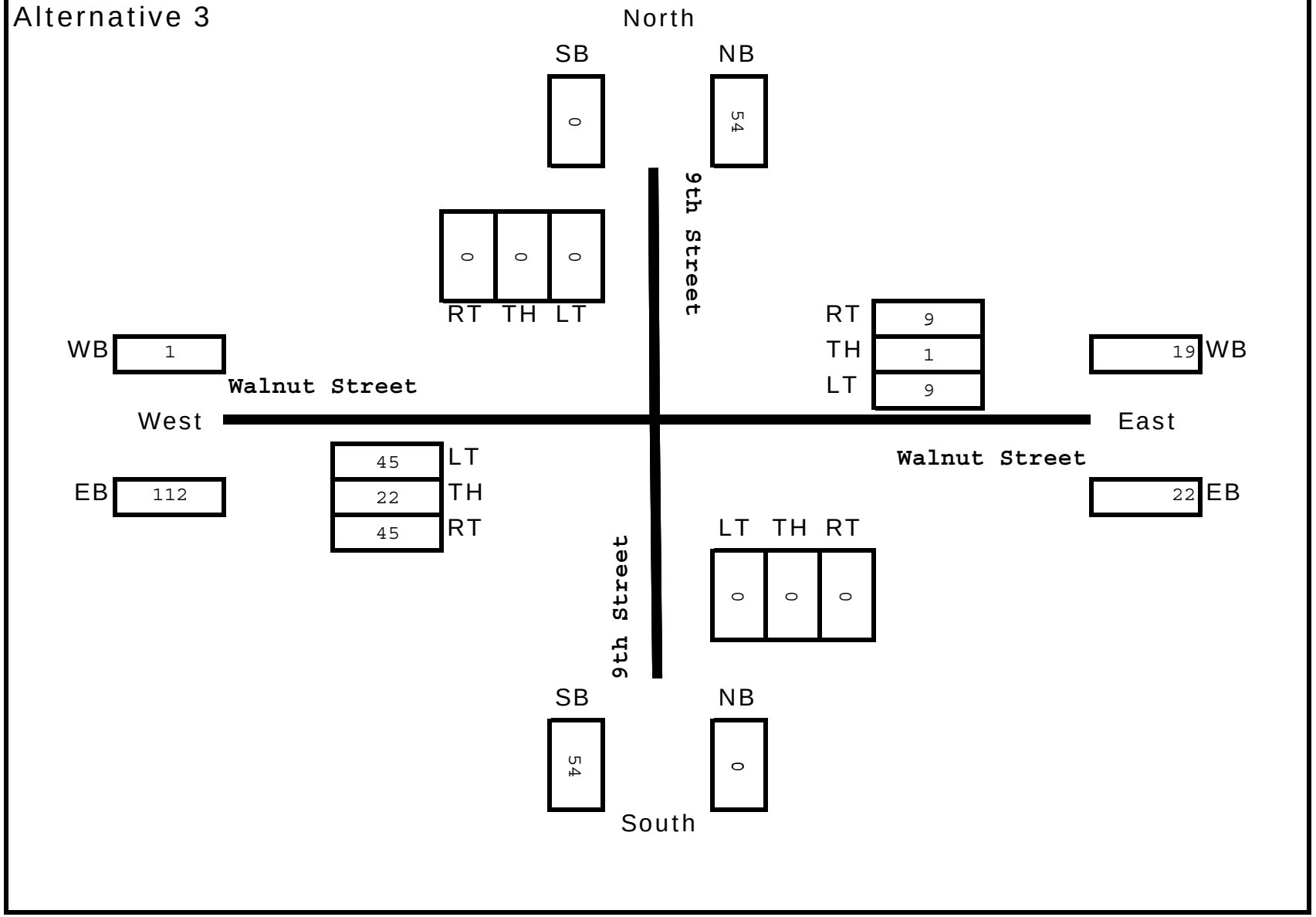


Walnut Street at 7th Street
PM Turning Movement Forecast
Year 2022
Alternative 3

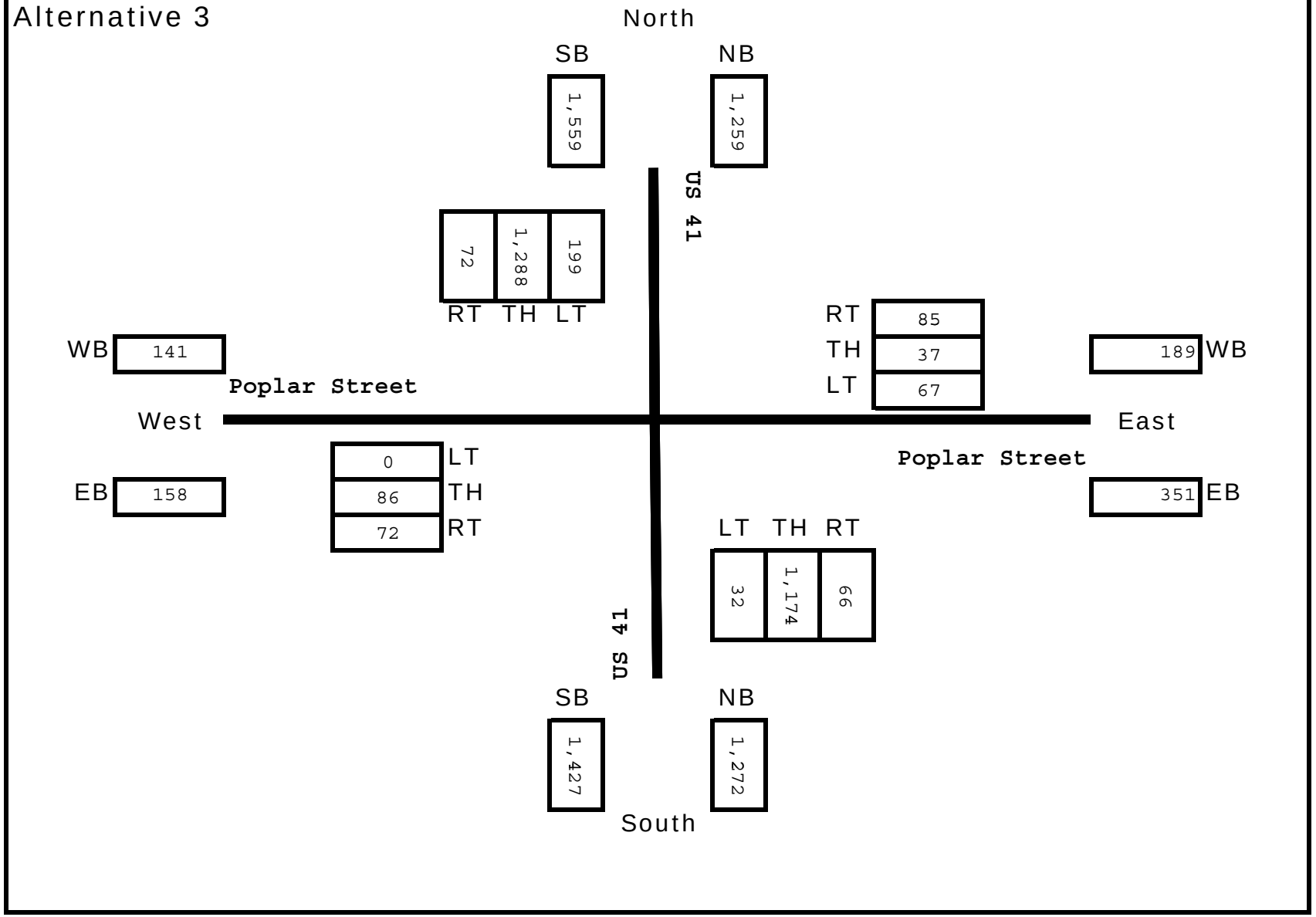



Walnut Street at 8th Street
PM Turning Movement Forecast
Year 2022
Alternative 3
North
SB
NB
67
67
8th Street
0
67
0
RT TH LT
RT
TH
LT
1
1
1
WB
27
3
WB
Walnut Street
West
East
Walnut Street
0
21
41
LT
TH
RT
EB
62
96
EB
LT TH RT
26
66
75
8th Street
SB
NB
109
167
South

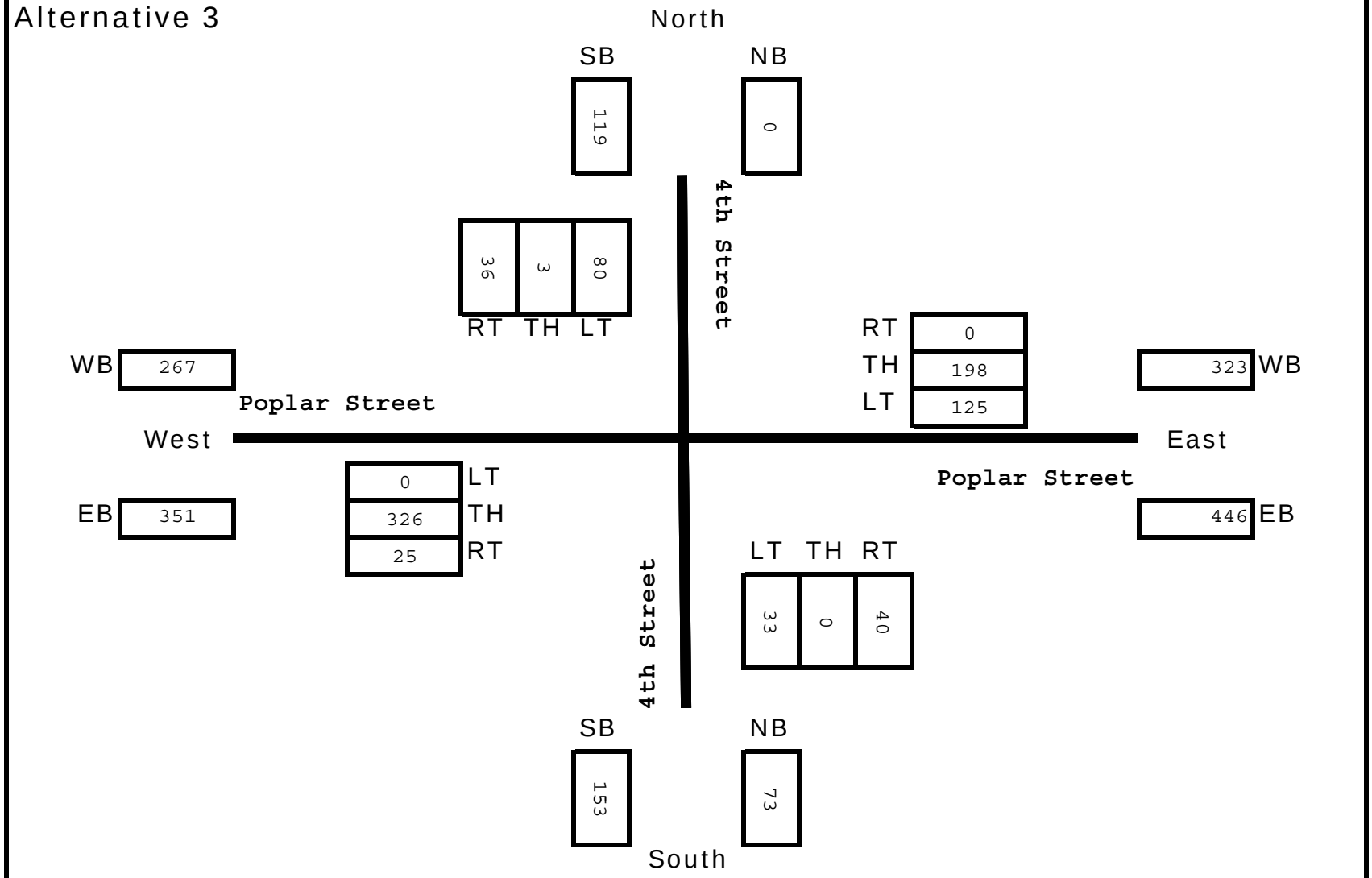
Walnut Street at 9th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



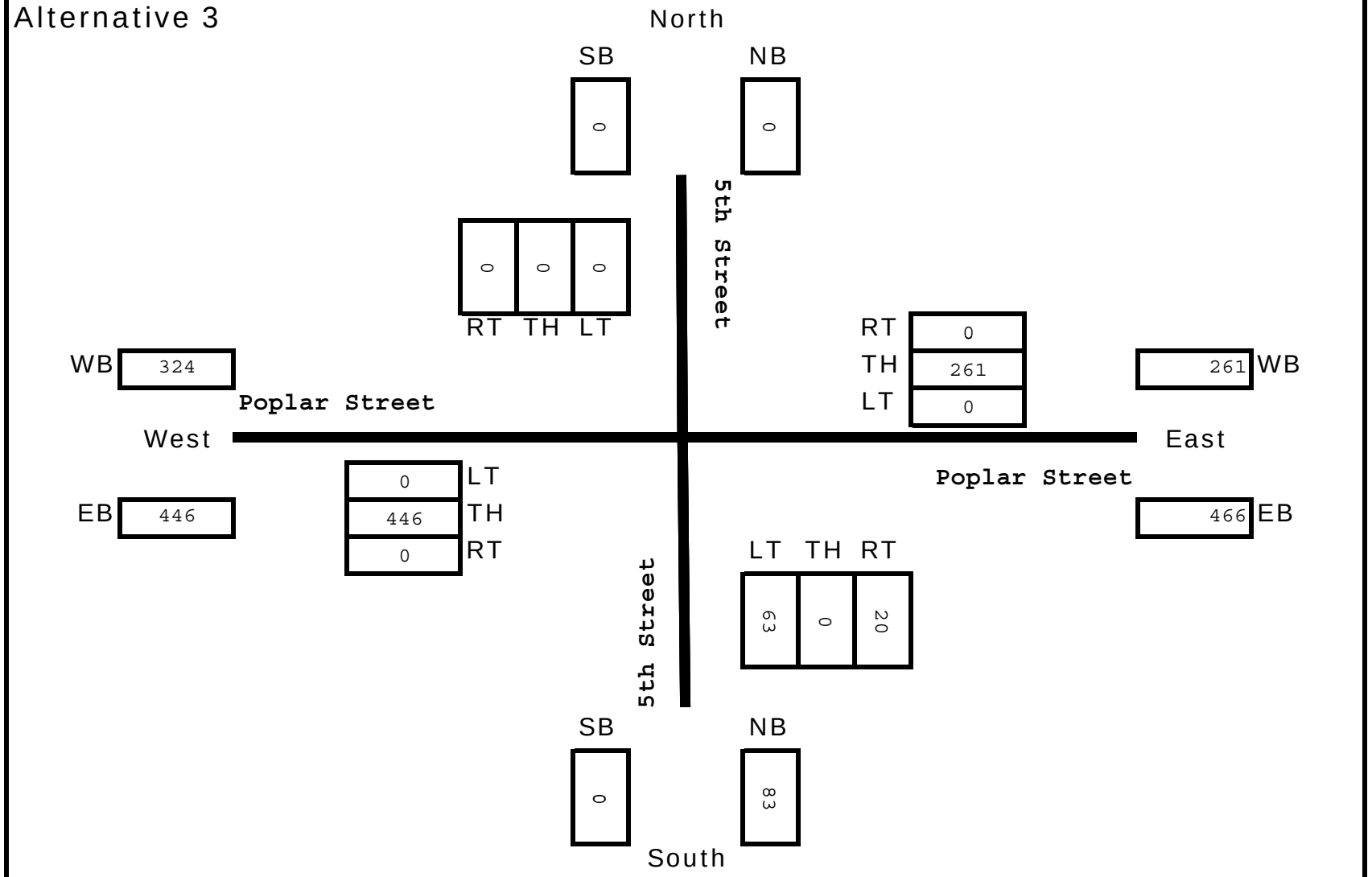
Poplar Street at US 41
PM Turning Movement Forecast
Year 2022
Alternative 3



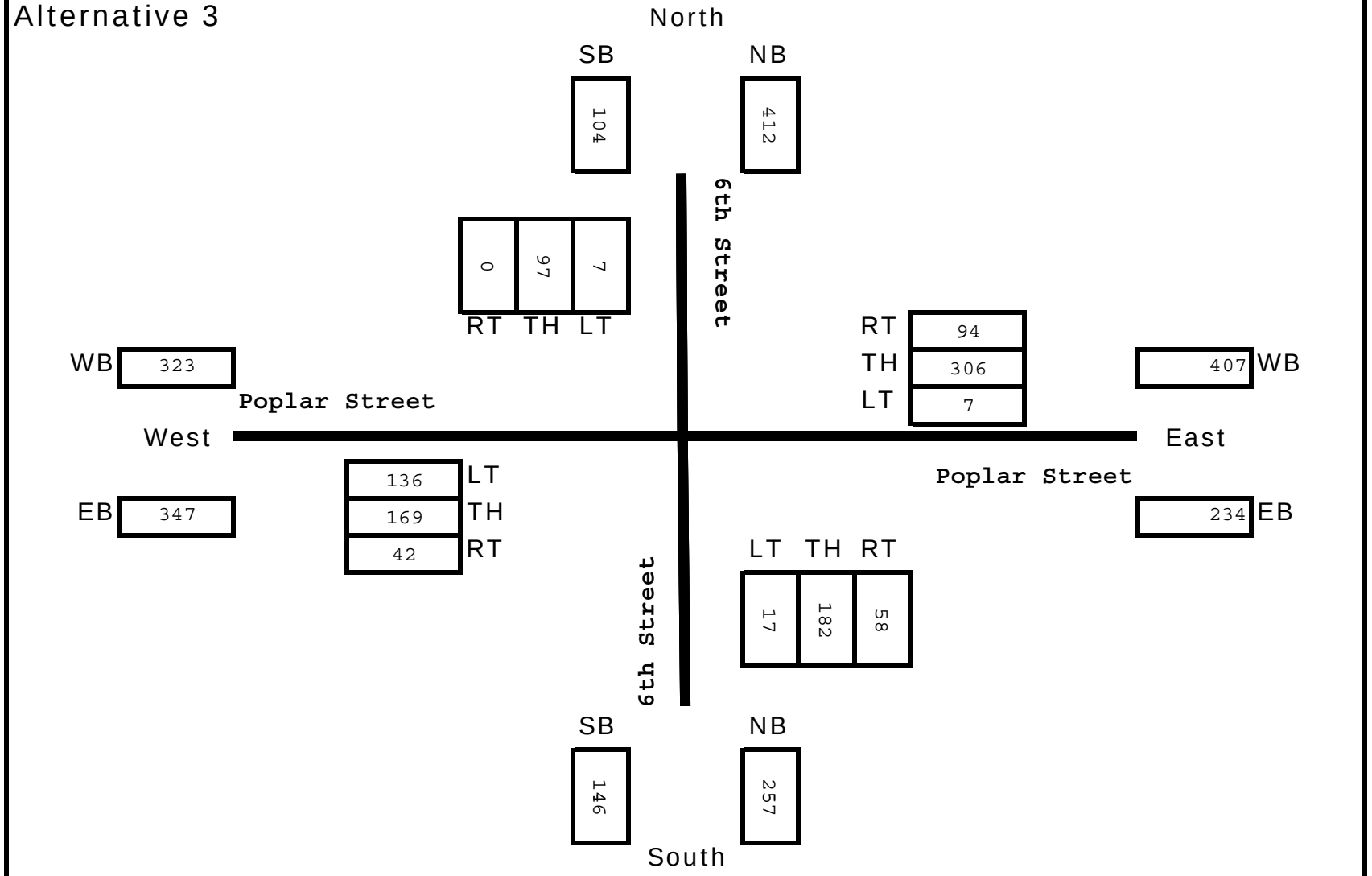
Poplar Street at 4th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



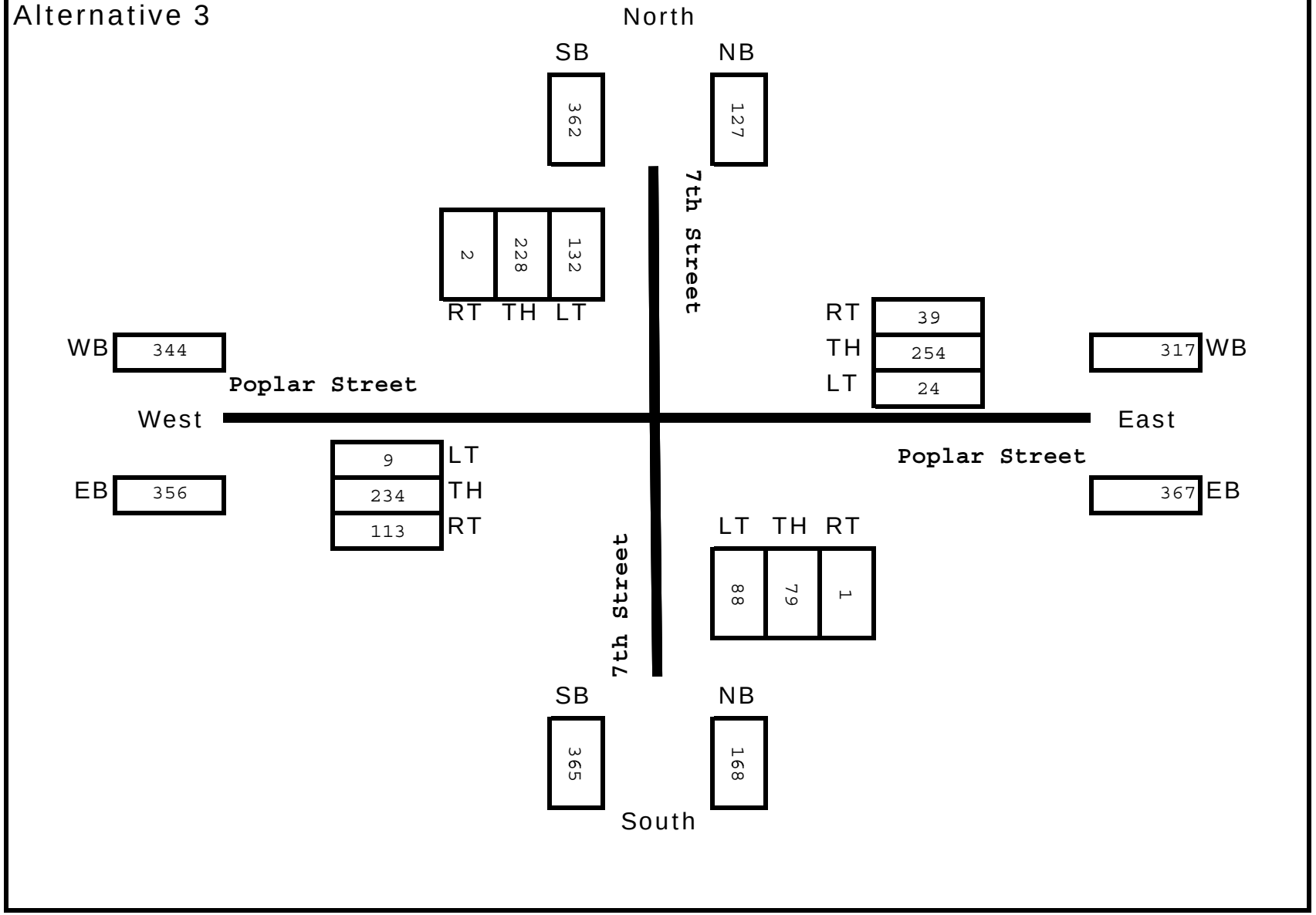
Poplar Street at 5th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



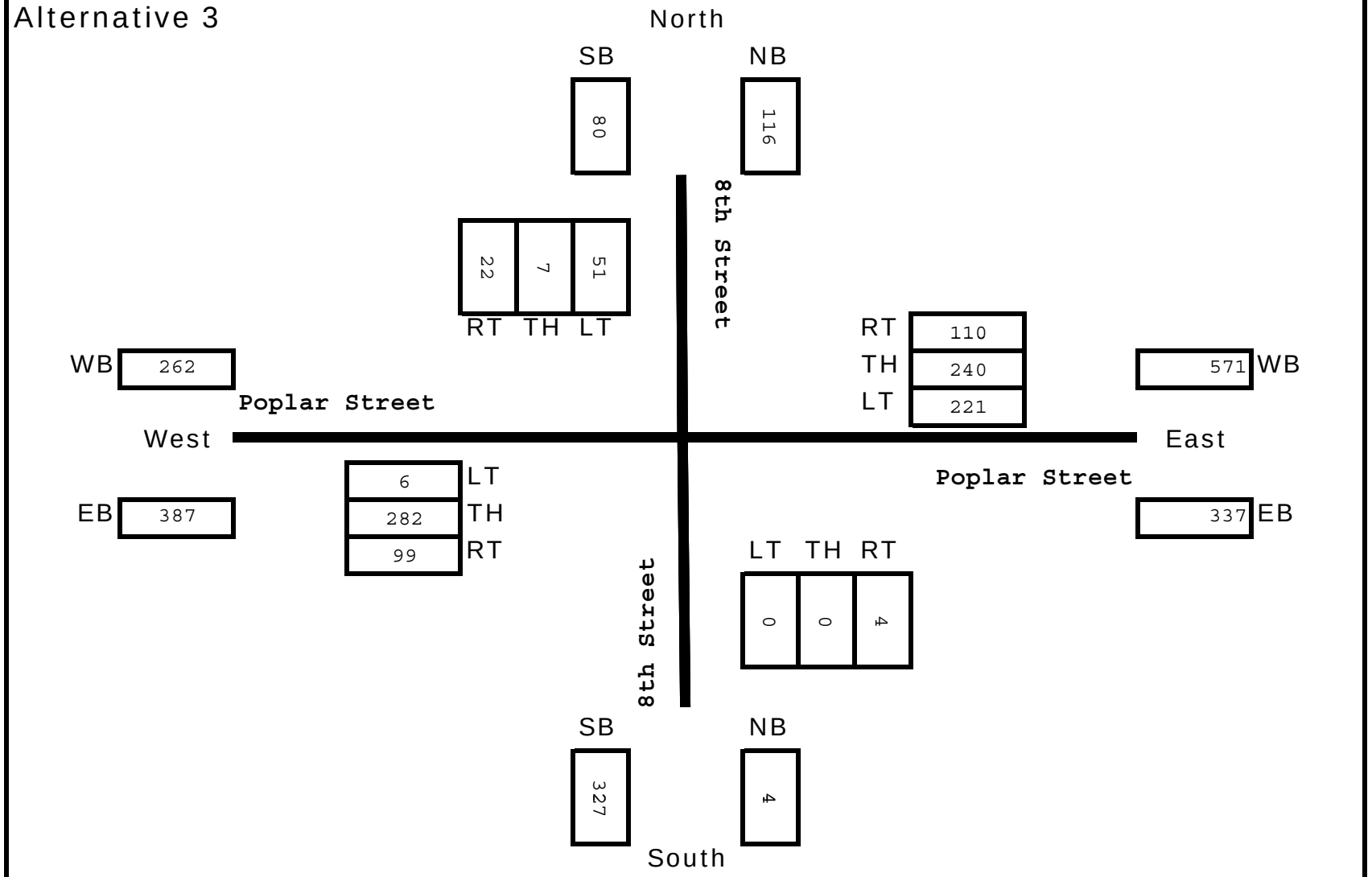
Poplar Street at 6th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



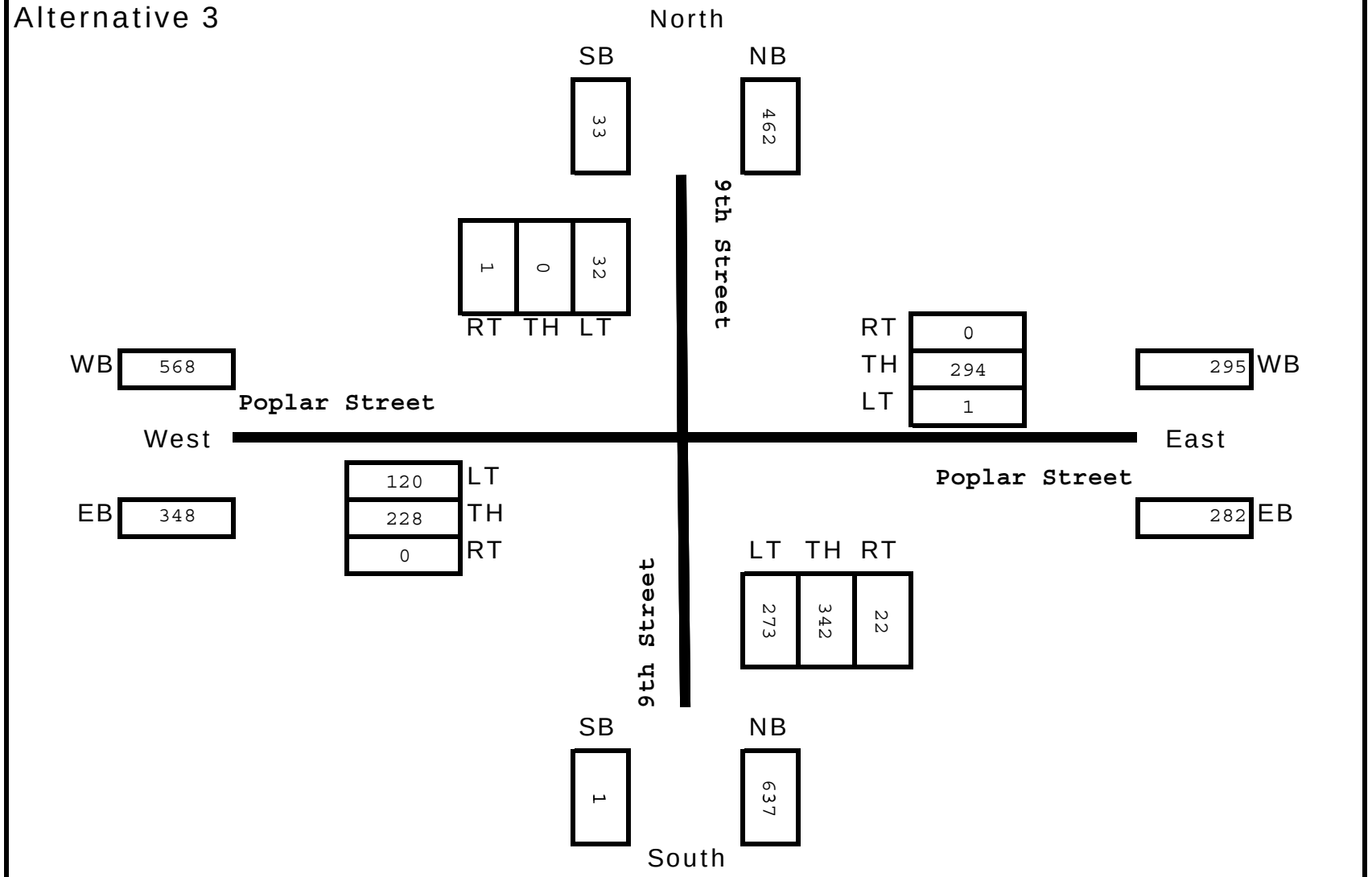
Poplar Street at 7th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



Poplar Street at 8th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



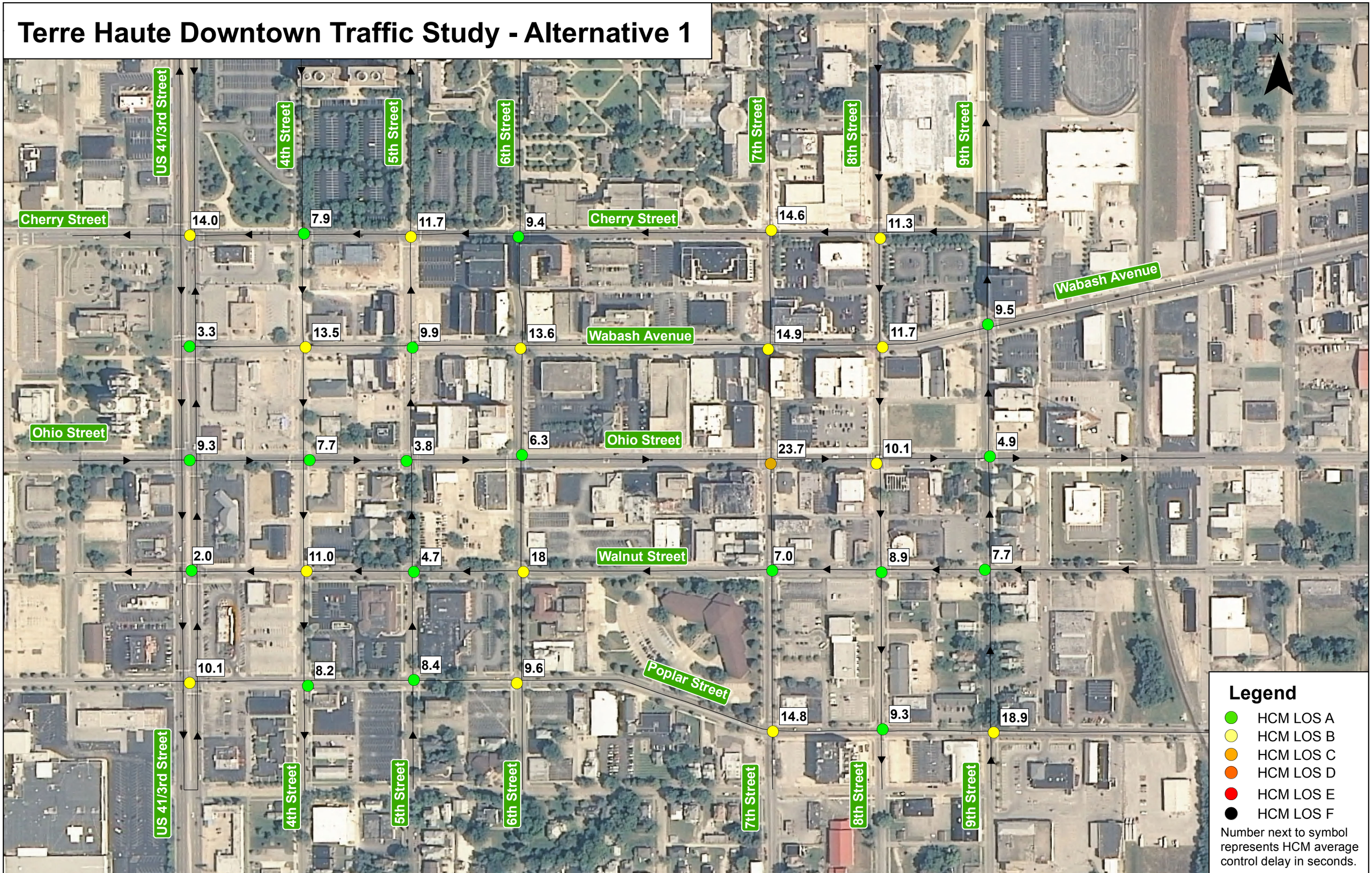
Poplar Street at 9th Street
PM Turning Movement Forecast
Year 2022
Alternative 3



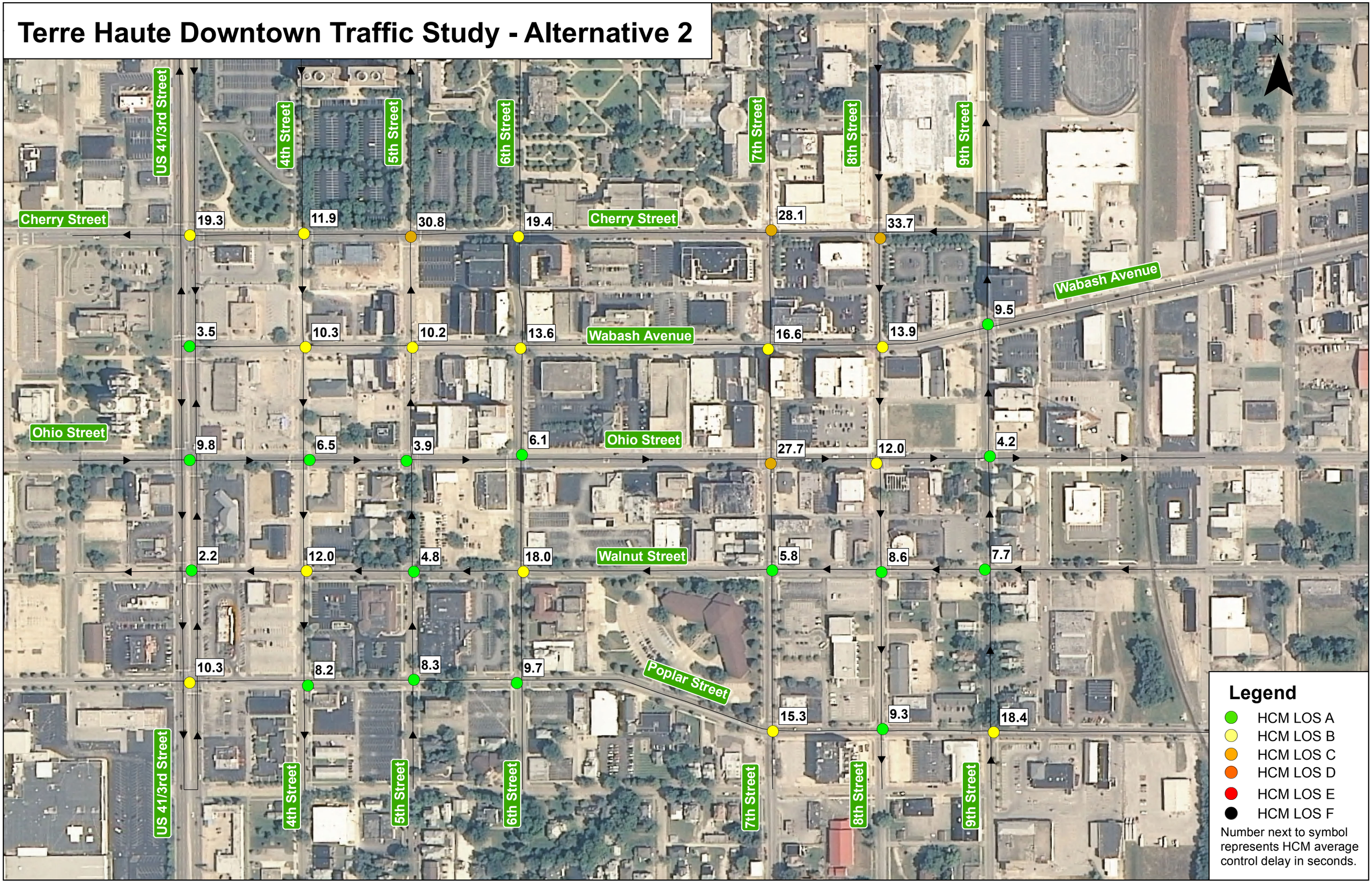
Appendix D

Capacity Analysis

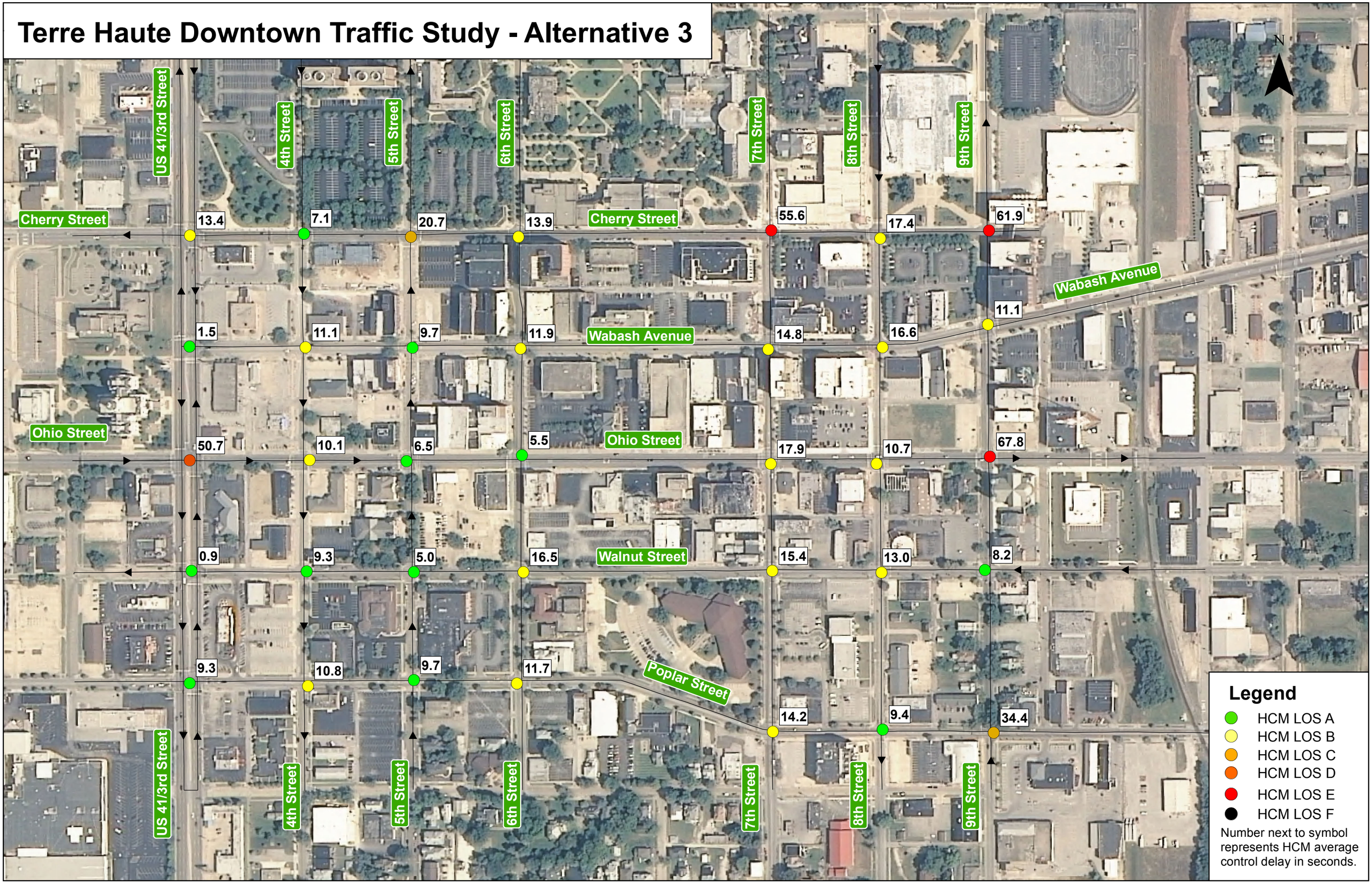
Terre Haute Downtown Traffic Study - Alternative 1



Terre Haute Downtown Traffic Study - Alternative 2



Terre Haute Downtown Traffic Study - Alternative 3



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	107	205	249	236	1171	0	0	987	352
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0	4.0			4.0	
Lane Util. Factor					0.91		1.00	0.91			0.91	
Frpb, ped/bikes					0.99		1.00	1.00			0.99	
Flpb, ped/bikes					1.00		1.00	1.00			1.00	
Frt					0.93		1.00	1.00			0.96	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					4561		1736	4988			4765	
Flt Permitted					0.99		0.14	1.00			1.00	
Satd. Flow (perm)					4561		250	4988			4765	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	126	241	293	278	1378	0	0	1161	414
RTOR Reduction (vph)	0	0	0	0	37	0	0	0	0	0	101	0
Lane Group Flow (vph)	0	0	0	0	623	0	278	1378	0	0	1474	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type				Perm			pm+pt					
Protected Phases					8		5	2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					13.9		38.1	38.1			25.2	
Effective Green, g (s)					13.9		38.1	38.1			25.2	
Actuated g/C Ratio					0.23		0.64	0.64			0.42	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Vehicle Extension (s)					3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)					1057		379	3167			2001	
v/s Ratio Prot							c0.11	0.28			0.31	
v/s Ratio Perm					0.14		c0.36					
v/c Ratio					0.59		0.73	0.44			0.74	
Uniform Delay, d1					20.5		10.3	5.5			14.6	
Progression Factor					0.75		1.72	1.27			1.00	
Incremental Delay, d2					0.8		6.4	0.4			2.5	
Delay (s)					16.0		24.2	7.4			17.1	
Level of Service					B		C	A			B	
Approach Delay (s)		0.0			16.0			10.2			17.1	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	14.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	194	448	0	0	0	0	0	56	120
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)					4.0						4.0	
Lane Util. Factor					0.95						1.00	
Frpb, ped/bikes					1.00						0.99	
Flpb, ped/bikes					1.00						1.00	
Frt					1.00						0.91	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					2665						1281	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					2665						1281	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	228	527	0	0	0	0	0	66	141
RTOR Reduction (vph)	0	0	0	0	81	0	0	0	0	0	94	0
Lane Group Flow (vph)	0	0	0	0	674	0	0	0	0	0	113	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type				Perm								
Protected Phases					8						6	
Permitted Phases				8								
Actuated Green, G (s)					32.0						20.0	
Effective Green, g (s)					32.0						20.0	
Actuated g/C Ratio					0.53						0.33	
Clearance Time (s)					4.0						4.0	
Vehicle Extension (s)					3.0						3.0	
Lane Grp Cap (vph)					1421						427	
v/s Ratio Prot											c0.09	
v/s Ratio Perm					0.25							
v/c Ratio					0.47						0.26	
Uniform Delay, d1					8.7						14.6	
Progression Factor					0.52						1.00	
Incremental Delay, d2					1.1						1.5	
Delay (s)					5.6						16.1	
Level of Service					A						B	
Approach Delay (s)		0.0			5.6			0.0			16.1	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	7.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	493	32	51	80	0	0	0	97
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)					4.0		4.0	4.0				4.0
Lane Util. Factor					0.95		1.00	1.00				1.00
Frpb, ped/bikes					1.00		1.00	1.00				0.98
Flpb, ped/bikes					1.00		0.99	1.00				1.00
Frt					0.99		1.00	1.00				0.86
Flt Protected					1.00		0.95	1.00				1.00
Satd. Flow (prot)					2418		1347	1144				1212
Flt Permitted					1.00		0.95	1.00				1.00
Satd. Flow (perm)					2418		1347	1144				1212
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	0	580	38	60	94	0	0	0	114
RTOR Reduction (vph)	0	0	0	0	8	0	40	0	0	0	0	76
Lane Group Flow (vph)	0	0	0	0	610	0	20	94	0	0	0	38
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20			20			20	
Turn Type							Perm					custom
Protected Phases					8			2				
Permitted Phases							2					6
Actuated Green, G (s)					32.0		20.0	20.0				20.0
Effective Green, g (s)					32.0		20.0	20.0				20.0
Actuated g/C Ratio					0.53		0.33	0.33				0.33
Clearance Time (s)					4.0		4.0	4.0				4.0
Vehicle Extension (s)					3.0		3.0	3.0				3.0
Lane Grp Cap (vph)					1290		449	381				404
v/s Ratio Prot					c0.25			c0.08				
v/s Ratio Perm							0.01					0.03
v/c Ratio					0.47		0.04	0.25				0.09
Uniform Delay, d1					8.7		13.5	14.5				13.8
Progression Factor					1.14		0.74	0.80				1.00
Incremental Delay, d2					1.2		0.2	1.5				0.5
Delay (s)					11.2		10.2	13.1				14.2
Level of Service					B		B	B				B
Approach Delay (s)		0.0			11.2			12.0			14.2	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	78	389	0	103	0	0	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.95			1.00				
Frpb, ped/bikes					1.00			1.00				
Flpb, ped/bikes					1.00			0.99				
Frt					1.00			1.00				
Flt Protected					0.99			0.95				
Satd. Flow (prot)					2420			1347				
Flt Permitted					0.99			0.76				
Satd. Flow (perm)					2420			1073				
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	92	458	0	121	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	550	0	0	121	0	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20							
Turn Type				Perm			Perm					
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					31.0			21.0				
Effective Green, g (s)					31.0			21.0				
Actuated g/C Ratio					0.52			0.35				
Clearance Time (s)					4.0			4.0				
Vehicle Extension (s)					3.0			3.0				
Lane Grp Cap (vph)					1250			376				
v/s Ratio Prot												
v/s Ratio Perm					0.23			c0.11				
v/c Ratio					0.44			0.32				
Uniform Delay, d1					9.1			14.3				
Progression Factor					0.82			0.83				
Incremental Delay, d2					0.9			2.1				
Delay (s)					8.4			14.0				
Level of Service					A			B				
Approach Delay (s)		0.0			8.4			14.0			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	9.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	39.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	384	56	131	156	0	0	232	14
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)					4.0		4.0	4.0			4.0	
Lane Util. Factor					0.95		1.00	1.00			1.00	
Frpb, ped/bikes					1.00		1.00	1.00			1.00	
Flpb, ped/bikes					1.00		1.00	1.00			1.00	
Frt					0.98		1.00	1.00			0.99	
Flt Protected					1.00		0.95	1.00			1.00	
Satd. Flow (prot)					2389		1356	1430			1418	
Flt Permitted					1.00		0.43	1.00			1.00	
Satd. Flow (perm)					2389		617	1430			1418	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	0	452	66	154	184	0	0	273	16
RTOR Reduction (vph)	0	0	0	0	20	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	0	498	0	154	184	0	0	286	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20							
Turn Type				Perm			pm+pt					
Protected Phases					8		5	2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					19.2		32.8	32.8			23.2	
Effective Green, g (s)					19.2		32.8	32.8			23.2	
Actuated g/C Ratio					0.32		0.55	0.55			0.39	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Vehicle Extension (s)					3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)					764		406	782			548	
v/s Ratio Prot					c0.21		c0.04	0.13			c0.20	
v/s Ratio Perm							0.17					
v/c Ratio					0.65		0.38	0.24			0.52	
Uniform Delay, d1					17.5		7.5	7.1			14.1	
Progression Factor					0.75		1.01	1.01			1.00	
Incremental Delay, d2					4.1		0.5	0.6			3.5	
Delay (s)					17.3		8.0	7.8			17.7	
Level of Service					B		A	A			B	
Approach Delay (s)		0.0			17.3			7.9			17.7	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM Average Control Delay	14.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	3	229	0	0	0	0	0	267	197
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)					4.0						4.0	
Lane Util. Factor					0.95						0.95	
Frpb, ped/bikes					1.00						0.99	
Flpb, ped/bikes					1.00						1.00	
Frt					1.00						0.94	
Flt Protected					1.00						1.00	
Satd. Flow (prot)					2444						2522	
Flt Permitted					1.00						1.00	
Satd. Flow (perm)					2444						2522	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	4	269	0	0	0	0	0	314	232
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	124	0
Lane Group Flow (vph)	0	0	0	0	271	0	0	0	0	0	422	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20							
Turn Type				Perm								
Protected Phases					8						6	
Permitted Phases				8								
Actuated Green, G (s)					24.0						28.0	
Effective Green, g (s)					24.0						28.0	
Actuated g/C Ratio					0.40						0.47	
Clearance Time (s)					4.0						4.0	
Vehicle Extension (s)					3.0						3.0	
Lane Grp Cap (vph)					978						1177	
v/s Ratio Prot											c0.17	
v/s Ratio Perm					0.11							
v/c Ratio					0.28						0.36	
Uniform Delay, d1					12.1						10.2	
Progression Factor					0.91						1.00	
Incremental Delay, d2					0.6						0.9	
Delay (s)					11.7						11.1	
Level of Service					B						B	
Approach Delay (s)		0.0			11.7			0.0			11.1	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM Average Control Delay	11.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	164	94	1314	136	0	1095
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0
Lane Util. Factor	1.00	1.00	0.91			0.91
Frpb, ped/bikes	1.00	0.98	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	0.85	0.99			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1736	1521	4901			4988
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	1736	1521	4901			4988
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	193	111	1546	160	0	1288
RTOR Reduction (vph)	0	21	16	0	0	0
Lane Group Flow (vph)	193	90	1690	0	0	1288
Confl. Peds. (#/hr)	8	8		8	8	
Turn Type		Perm				
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	11.9	11.9	40.1			40.1
Effective Green, g (s)	11.9	11.9	40.1			40.1
Actuated g/C Ratio	0.20	0.20	0.67			0.67
Clearance Time (s)	4.0	4.0	4.0			4.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	344	302	3276			3334
v/s Ratio Prot	c0.11		c0.34			0.26
v/s Ratio Perm		0.06				
v/c Ratio	0.56	0.30	0.52			0.39
Uniform Delay, d1	21.7	20.5	5.0			4.4
Progression Factor	0.73	0.69	0.31			0.38
Incremental Delay, d2	1.7	0.4	0.5			0.2
Delay (s)	17.5	14.5	2.1			1.9
Level of Service	B	B	A			A
Approach Delay (s)	16.4		2.1			1.9
Approach LOS	B		A			A

Intersection Summary			
HCM Average Control Delay	3.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	137	2	67	244	0	0	0	0	72	108	63
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		1.00		1.00	1.00						1.00	
Frpb, ped/bikes		1.00		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		0.99	1.00						1.00	
Frt		1.00		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		1142		1343	1144						1074	
Flt Permitted		1.00		0.65	1.00						0.99	
Satd. Flow (perm)		1142		924	1144						1074	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	161	2	79	287	0	0	0	0	85	127	74
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	21	0
Lane Group Flow (vph)	0	162	0	79	287	0	0	0	0	0	265	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20			20						20	
Turn Type				Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases				8						6		
Actuated Green, G (s)		25.0		25.0	25.0						27.0	
Effective Green, g (s)		25.0		25.0	25.0						27.0	
Actuated g/C Ratio		0.42		0.42	0.42						0.45	
Clearance Time (s)		4.0		4.0	4.0						4.0	
Lane Grp Cap (vph)		476		385	477						483	
v/s Ratio Prot		0.14			c0.25							
v/s Ratio Perm				0.09							0.25	
v/c Ratio		0.34		0.21	0.60						0.55	
Uniform Delay, d1		11.9		11.2	13.6						12.1	
Progression Factor		1.02		0.69	0.68						0.84	
Incremental Delay, d2		1.7		1.1	4.9						4.0	
Delay (s)		13.8		8.8	14.1						14.1	
Level of Service		B		A	B						B	
Approach Delay (s)		13.8			13.0			0.0			14.1	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	13.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	190	0	0	251	32	95	18	49	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0			4.0			4.0	4.0			
Lane Util. Factor	1.00	1.00			1.00			1.00	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	0.97			
Flpb, ped/bikes	0.99	1.00			1.00			0.99	1.00			
Frt	1.00	1.00			0.98			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.96	1.00			
Satd. Flow (prot)	1352	1144			1124			1084	1174			
Flt Permitted	0.52	1.00			1.00			0.96	1.00			
Satd. Flow (perm)	738	1144			1124			1084	1174			
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	44	224	0	0	295	38	112	21	58	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	39	0	0	0
Lane Group Flow (vph)	44	224	0	0	325	0	0	133	19	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20			20			20				
Turn Type	Perm						Perm		Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	32.0	32.0			32.0			20.0	20.0			
Effective Green, g (s)	32.0	32.0			32.0			20.0	20.0			
Actuated g/C Ratio	0.53	0.53			0.53			0.33	0.33			
Clearance Time (s)	4.0	4.0			4.0			4.0	4.0			
Lane Grp Cap (vph)	394	610			599			361	391			
v/s Ratio Prot		0.20			c0.29							
v/s Ratio Perm	0.06							0.12	0.02			
v/c Ratio	0.11	0.37			0.54			0.37	0.05			
Uniform Delay, d1	6.9	8.1			9.2			15.2	13.6			
Progression Factor	0.39	0.38			0.68			1.02	1.39			
Incremental Delay, d2	0.5	1.6			3.0			2.9	0.2			
Delay (s)	3.2	4.7			9.3			18.3	19.0			
Level of Service	A	A			A			B	B			
Approach Delay (s)		4.5			9.3			18.5			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	9.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	220	67	29	248	57	49	21	37	57	17	9
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99			0.99			1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00			0.99			0.99	
Frt	1.00	0.96		1.00	0.97			0.95			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.97	
Satd. Flow (prot)	1348	1095		1347	1105			1048			1077	
Flt Permitted	0.50	1.00		0.52	1.00			0.85			0.77	
Satd. Flow (perm)	711	1095		737	1105			910			859	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	26	259	79	34	292	67	58	25	44	67	20	11
RTOR Reduction (vph)	0	18	0	0	14	0	0	30	0	0	8	0
Lane Group Flow (vph)	26	320	0	34	345	0	0	97	0	0	90	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20			20			20			20	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	33.0	33.0		33.0	33.0			19.0			19.0	
Effective Green, g (s)	33.0	33.0		33.0	33.0			19.0			19.0	
Actuated g/C Ratio	0.55	0.55		0.55	0.55			0.32			0.32	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)	391	602		405	608			288			272	
v/s Ratio Prot		0.29			c0.31							
v/s Ratio Perm	0.04			0.05				c0.11			0.11	
v/c Ratio	0.07	0.53		0.08	0.57			0.34			0.33	
Uniform Delay, d1	6.3	8.6		6.4	8.8			15.7			15.7	
Progression Factor	0.98	0.72		1.25	1.36			1.04			0.99	
Incremental Delay, d2	0.3	3.3		0.3	3.0			3.1			3.0	
Delay (s)	6.5	9.5		8.3	15.0			19.4			18.5	
Level of Service	A	A		A	B			B			B	
Approach Delay (s)		9.3			14.4			19.4			18.5	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	13.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	231	23	59	245	92	98	179	50	43	199	15
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	0.96		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1349	1125		1346	1087		1346	1098		1346	1412	
Flt Permitted	0.44	1.00		0.53	1.00		0.55	1.00		0.53	1.00	
Satd. Flow (perm)	628	1125		757	1087		779	1098		748	1412	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	93	272	27	69	288	108	115	211	59	51	234	18
RTOR Reduction (vph)	0	6	0	0	23	0	0	17	0	0	4	0
Lane Group Flow (vph)	93	293	0	69	373	0	115	253	0	51	248	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20			20			20				
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	29.0	29.0		29.0	29.0		23.0	23.0		23.0	23.0	
Effective Green, g (s)	29.0	29.0		29.0	29.0		23.0	23.0		23.0	23.0	
Actuated g/C Ratio	0.48	0.48		0.48	0.48		0.38	0.38		0.38	0.38	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	304	544		366	525		299	421		287	541	
v/s Ratio Prot		0.26			c0.34			c0.23			0.18	
v/s Ratio Perm	0.15			0.09			0.15			0.07		
v/c Ratio	0.31	0.54		0.19	0.71		0.38	0.60		0.18	0.46	
Uniform Delay, d1	9.4	10.8		8.8	12.2		13.4	14.8		12.2	13.8	
Progression Factor	0.97	0.96		0.66	0.50		1.01	1.02		0.90	1.05	
Incremental Delay, d2	2.3	3.4		0.9	6.4		3.1	5.2		1.2	2.5	
Delay (s)	11.4	13.8		6.7	12.5		16.6	20.4		12.3	17.1	
Level of Service	B	B		A	B		B	C		B	B	
Approach Delay (s)		13.3			11.7			19.3			16.3	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	287	38	3	361	0	0	0	0	57	158	36
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		1.00		1.00	1.00						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						1.00	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.98		1.00	1.00						0.98	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		1123		1352	1144						2347	
Flt Permitted		1.00		0.50	1.00						0.99	
Satd. Flow (perm)		1123		709	1144						2347	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	338	45	4	425	0	0	0	0	67	186	42
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	0	0	22	0
Lane Group Flow (vph)	0	375	0	4	425	0	0	0	0	0	273	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20			20						20	
Turn Type				Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases				8						6		
Actuated Green, G (s)		36.0		36.0	36.0						16.0	
Effective Green, g (s)		36.0		36.0	36.0						16.0	
Actuated g/C Ratio		0.60		0.60	0.60						0.27	
Clearance Time (s)		4.0		4.0	4.0						4.0	
Lane Grp Cap (vph)		674		425	686						626	
v/s Ratio Prot		0.33			c0.37							
v/s Ratio Perm				0.01							0.12	
v/c Ratio		0.56		0.01	0.62						0.44	
Uniform Delay, d1		7.2		4.8	7.6						18.3	
Progression Factor		0.77		0.64	0.63						1.01	
Incremental Delay, d2		2.9		0.0	3.8						2.0	
Delay (s)		8.5		3.1	8.7						20.5	
Level of Service		A		A	A						C	
Approach Delay (s)		8.5			8.6			0.0			20.5	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	200	137	0	0	343	486	22	125	0	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	1.00	1.00			1.00	1.00		0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.98		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		1.00				
Flt Protected	0.95	1.00			1.00	1.00		0.99				
Satd. Flow (prot)	1503	1272			1589	1323		2692				
Flt Permitted	0.47	1.00			1.00	1.00		0.99				
Satd. Flow (perm)	744	1272			1589	1323		2692				
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	235	161	0	0	404	572	26	147	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	235	0	0	0	0	0	0
Lane Group Flow (vph)	235	161	0	0	404	337	0	173	0	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20						20				
Turn Type	Perm					Perm	Perm					
Protected Phases		4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)	34.0	34.0			34.0	34.0		18.0				
Effective Green, g (s)	34.0	34.0			34.0	34.0		18.0				
Actuated g/C Ratio	0.57	0.57			0.57	0.57		0.30				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Grp Cap (vph)	422	721			900	750		808				
v/s Ratio Prot		0.13			0.25							
v/s Ratio Perm	c0.32					0.25		0.06				
v/c Ratio	0.56	0.22			0.45	0.45		0.21				
Uniform Delay, d1	8.2	6.4			7.6	7.6		15.7				
Progression Factor	0.66	0.75			1.00	1.00		0.84				
Incremental Delay, d2	4.4	0.6			1.6	1.9		0.6				
Delay (s)	9.9	5.5			9.2	9.5		13.8				
Level of Service	A	A			A	A		B				
Approach Delay (s)		8.1			9.4			13.8			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	169	459	166	0	0	0	0	1245	64	47	1169	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00					0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.98					1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00	1.00					1.00		1.00	1.00	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1720	3471	1521					4946		1736	4988	
Flt Permitted	0.95	1.00	1.00					1.00		0.11	1.00	
Satd. Flow (perm)	1720	3471	1521					4946		209	4988	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	199	540	195	0	0	0	0	1465	75	55	1375	0
RTOR Reduction (vph)	0	0	37	0	0	0	0	8	0	0	0	0
Lane Group Flow (vph)	199	540	158	0	0	0	0	1532	0	55	1375	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type	Perm		Perm							pm+pt		
Protected Phases		4						2		1	6	
Permitted Phases	4		4							6		
Actuated Green, G (s)	14.6	14.6	14.6					31.0		37.4	37.4	
Effective Green, g (s)	14.6	14.6	14.6					31.0		37.4	37.4	
Actuated g/C Ratio	0.24	0.24	0.24					0.52		0.62	0.62	
Clearance Time (s)	4.0	4.0	4.0					4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)	419	845	370					2555		191	3109	
v/s Ratio Prot		c0.16						c0.31		0.01	c0.28	
v/s Ratio Perm	0.12		0.10							0.17		
v/c Ratio	0.47	0.64	0.43					0.60		0.29	0.44	
Uniform Delay, d1	19.4	20.3	19.2					10.2		6.1	5.9	
Progression Factor	1.00	1.00	1.00					0.51		1.22	0.76	
Incremental Delay, d2	0.9	1.6	0.8					1.0		0.8	0.4	
Delay (s)	20.3	21.9	20.0					6.1		8.3	4.9	
Level of Service	C	C	B					A		A	A	
Approach Delay (s)		21.2			0.0			6.1			5.0	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	508	70	0	0	0	0	0	0	97	43	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0									4.0	
Lane Util. Factor		0.91									1.00	
Frpb, ped/bikes		1.00									1.00	
Flpb, ped/bikes		1.00									0.99	
Frt		0.98									1.00	
Flt Protected		1.00									0.97	
Satd. Flow (prot)		3564									1099	
Flt Permitted		1.00									0.97	
Satd. Flow (perm)		3564									1099	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	598	82	0	0	0	0	0	0	114	51	0
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	0	0	98	0
Lane Group Flow (vph)	0	665	0	0	0	0	0	0	0	0	67	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20									20	
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		43.7									8.3	
Effective Green, g (s)		43.7									8.3	
Actuated g/C Ratio		0.73									0.14	
Clearance Time (s)		4.0									4.0	
Vehicle Extension (s)		3.0									3.0	
Lane Grp Cap (vph)		2596									152	
v/s Ratio Prot		c0.19										
v/s Ratio Perm											0.06	
v/c Ratio		0.26									0.44	
Uniform Delay, d1		2.7									23.7	
Progression Factor		1.45									0.87	
Incremental Delay, d2		0.2									1.9	
Delay (s)		4.2									22.4	
Level of Service		A									C	
Approach Delay (s)		4.2			0.0			0.0			22.4	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM Average Control Delay	7.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	645	0	0	0	0	0	80	0	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.91						0.95				
Frpb, ped/bikes		1.00						1.00				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						1.00				
Flt Protected		1.00						1.00				
Satd. Flow (prot)		3640						2446				
Flt Permitted		1.00						1.00				
Satd. Flow (perm)		3640						2446				
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	18	759	0	0	0	0	0	94	0	0	0	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	775	0	0	0	0	0	94	0	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20						20				
Turn Type	Perm											
Protected Phases		4						2				
Permitted Phases	4											
Actuated Green, G (s)		45.4						6.6				
Effective Green, g (s)		45.4						6.6				
Actuated g/C Ratio		0.76						0.11				
Clearance Time (s)		4.0						4.0				
Vehicle Extension (s)		3.0						3.0				
Lane Grp Cap (vph)		2754						269				
v/s Ratio Prot								c0.04				
v/s Ratio Perm		0.21										
v/c Ratio		0.28						0.35				
Uniform Delay, d1		2.3						24.7				
Progression Factor		0.38						1.00				
Incremental Delay, d2		0.3						0.8				
Delay (s)		1.1						25.5				
Level of Service		A						C				
Approach Delay (s)		1.1			0.0			25.5			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	3.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	30.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	33	616	19	0	0	0	0	22	37	52	40	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0						4.0			4.0	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						0.99			1.00	
Flpb, ped/bikes		1.00						1.00			1.00	
Frt		1.00						0.92			1.00	
Flt Protected		1.00						1.00			0.97	
Satd. Flow (prot)		3614						1034			1108	
Flt Permitted		1.00						1.00			0.80	
Satd. Flow (perm)		3614						1034			909	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	39	725	22	0	0	0	0	26	44	61	47	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	36	0	0	0	0
Lane Group Flow (vph)	0	783	0	0	0	0	0	34	0	0	108	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20						20			20	
Turn Type	Perm									Perm		
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		41.0						11.0			11.0	
Effective Green, g (s)		41.0						11.0			11.0	
Actuated g/C Ratio		0.68						0.18			0.18	
Clearance Time (s)		4.0						4.0			4.0	
Vehicle Extension (s)		3.0						3.0			3.0	
Lane Grp Cap (vph)		2470						190			167	
v/s Ratio Prot								0.03				
v/s Ratio Perm		0.22									c0.12	
v/c Ratio		0.32						0.18			0.65	
Uniform Delay, d1		3.8						20.7			22.7	
Progression Factor		0.33						1.26			0.84	
Incremental Delay, d2		0.3						0.4			7.8	
Delay (s)		1.6						26.6			26.9	
Level of Service		A						C			C	
Approach Delay (s)		1.6			0.0			26.6			26.9	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM Average Control Delay	6.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	184	415	151	0	0	0	0	221	67	226	60	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0						4.0		4.0	4.0	
Lane Util. Factor		0.91						1.00		1.00	1.00	
Frpb, ped/bikes		0.99						1.00		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		1.00	1.00	
Frt		0.97						0.97		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		3455						1103		1352	1430	
Flt Permitted		0.99						1.00		0.48	1.00	
Satd. Flow (perm)		3455						1103		676	1430	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	216	488	178	0	0	0	0	260	79	266	71	0
RTOR Reduction (vph)	0	63	0	0	0	0	0	22	0	0	0	0
Lane Group Flow (vph)	0	819	0	0	0	0	0	317	0	266	71	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20						20				
Turn Type	Perm									Perm		
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		25.8						26.2		26.2	26.2	
Effective Green, g (s)		25.8						26.2		26.2	26.2	
Actuated g/C Ratio		0.43						0.44		0.44	0.44	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Vehicle Extension (s)		3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)		1486						482		295	624	
v/s Ratio Prot								0.29			0.05	
v/s Ratio Perm		0.24								c0.39		
v/c Ratio		0.55						0.66		0.90	0.11	
Uniform Delay, d1		12.8						13.4		15.7	10.0	
Progression Factor		1.41						1.18		1.26	1.18	
Incremental Delay, d2		1.4						3.1		27.1	0.1	
Delay (s)		19.4						18.9		47.0	11.9	
Level of Service		B						B		D	B	
Approach Delay (s)		19.4			0.0			18.9			39.6	
Approach LOS		B			A			B			D	

Intersection Summary			
HCM Average Control Delay	23.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	633	69	0	0	0	0	0	0	152	57	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0									4.0	
Lane Util. Factor		0.91									0.95	
Frpb, ped/bikes		1.00									1.00	
Flpb, ped/bikes		1.00									0.99	
Frt		0.99									1.00	
Flt Protected		1.00									0.96	
Satd. Flow (prot)		3584									2345	
Flt Permitted		1.00									0.96	
Satd. Flow (perm)		3584									2345	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	745	81	0	0	0	0	0	0	179	67	0
RTOR Reduction (vph)	0	12	0	0	0	0	0	0	0	0	136	0
Lane Group Flow (vph)	0	814	0	0	0	0	0	0	0	0	110	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20									20	
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		43.8									8.2	
Effective Green, g (s)		43.8									8.2	
Actuated g/C Ratio		0.73									0.14	
Clearance Time (s)		4.0									4.0	
Vehicle Extension (s)		3.0									3.0	
Lane Grp Cap (vph)		2616									320	
v/s Ratio Prot		c0.23										
v/s Ratio Perm											0.05	
v/c Ratio		0.31									0.34	
Uniform Delay, d1		2.8									23.5	
Progression Factor		0.95									1.43	
Incremental Delay, d2		0.2									0.6	
Delay (s)		2.9									34.2	
Level of Service		A									C	
Approach Delay (s)		2.9			0.0			0.0			34.2	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	117	668	0	0	0	0	0	87	25	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.91						0.95				
Frpb, ped/bikes		1.00						1.00				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.97				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		3613						2354				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		3613						2354				
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	138	786	0	0	0	0	0	102	29	0	0	0
RTOR Reduction (vph)	0	23	0	0	0	0	0	26	0	0	0	0
Lane Group Flow (vph)	0	901	0	0	0	0	0	105	0	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20						20				
Turn Type	Perm											
Protected Phases		4						2				
Permitted Phases	4											
Actuated Green, G (s)		45.0						7.0				
Effective Green, g (s)		45.0						7.0				
Actuated g/C Ratio		0.75						0.12				
Clearance Time (s)		4.0						4.0				
Vehicle Extension (s)		3.0						3.0				
Lane Grp Cap (vph)		2710						275				
v/s Ratio Prot								c0.04				
v/s Ratio Perm		0.25										
v/c Ratio		0.33						0.38				
Uniform Delay, d1		2.5						24.5				
Progression Factor		0.76						0.93				
Incremental Delay, d2		0.3						0.9				
Delay (s)		2.2						23.8				
Level of Service		A						C				
Approach Delay (s)		2.2			0.0			23.8			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	4.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	21	5	172	65	1132	0	0	1297	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0	4.0			4.0	
Lane Util. Factor					0.95		1.00	0.91			0.91	
Frpb, ped/bikes					0.98		1.00	1.00			1.00	
Flpb, ped/bikes					1.00		1.00	1.00			1.00	
Frt					0.87		1.00	1.00			1.00	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					2947		1734	4988			4969	
Flt Permitted					0.99		0.14	1.00			1.00	
Satd. Flow (perm)					2947		252	4988			4969	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	25	6	202	76	1332	0	0	1526	34
RTOR Reduction (vph)	0	0	0	0	46	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	0	187	0	76	1332	0	0	1557	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type				Perm			Perm					
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					9.0		43.0	43.0			43.0	
Effective Green, g (s)					9.0		43.0	43.0			43.0	
Actuated g/C Ratio					0.15		0.72	0.72			0.72	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Vehicle Extension (s)					3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)					442		181	3575			3561	
v/s Ratio Prot								0.27			c0.31	
v/s Ratio Perm					0.06		0.30					
v/c Ratio					0.42		0.42	0.37			0.44	
Uniform Delay, d1					23.1		3.4	3.3			3.5	
Progression Factor					0.42		0.84	0.17			0.28	
Incremental Delay, d2					0.6		6.4	0.3			0.4	
Delay (s)					10.3		9.3	0.8			1.3	
Level of Service					B		A	A			A	
Approach Delay (s)		0.0			10.3			1.3			1.3	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM Average Control Delay	2.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	14	186	0	0	0	0	0	95	12
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				1.00	1.00						1.00	
Frpb, ped/bikes				1.00	1.00						1.00	
Flpb, ped/bikes				0.98	1.00						1.00	
Frt				1.00	1.00						0.98	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1339	1144						1125	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1339	1144						1125	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	16	219	0	0	0	0	0	112	14
RTOR Reduction (vph)	0	0	0	8	0	0	0	0	0	0	8	0
Lane Group Flow (vph)	0	0	0	8	219	0	0	0	0	0	118	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20						20	
Turn Type				Perm								
Protected Phases					8						6	
Permitted Phases				8								
Actuated Green, G (s)				30.0	30.0						22.0	
Effective Green, g (s)				30.0	30.0						22.0	
Actuated g/C Ratio				0.50	0.50						0.37	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				670	572						413	
v/s Ratio Prot					c0.19						c0.11	
v/s Ratio Perm				0.01								
v/c Ratio				0.01	0.38						0.29	
Uniform Delay, d1				7.5	9.3						13.4	
Progression Factor				1.31	1.05						0.63	
Incremental Delay, d2				0.0	1.9						1.7	
Delay (s)				9.9	11.6						10.2	
Level of Service				A	B						B	
Approach Delay (s)		0.0			11.5			0.0			10.2	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM Average Control Delay	11.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	188	93	0	0	0	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)					4.0	4.0						
Lane Util. Factor					1.00	1.00						
Frpb, ped/bikes					1.00	0.98						
Flpb, ped/bikes					1.00	1.00						
Frt					1.00	0.85						
Flt Protected					1.00	1.00						
Satd. Flow (prot)					1144	1191						
Flt Permitted					1.00	1.00						
Satd. Flow (perm)					1144	1191						
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	0	221	109	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	44	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	221	65	0	0	0	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20			20				
Turn Type						Perm	Perm					
Protected Phases					8			2				
Permitted Phases						8	2					
Actuated Green, G (s)					36.0	36.0						
Effective Green, g (s)					36.0	36.0						
Actuated g/C Ratio					0.60	0.60						
Clearance Time (s)					4.0	4.0						
Lane Grp Cap (vph)					686	715						
v/s Ratio Prot					c0.19							
v/s Ratio Perm						0.05						
v/c Ratio					0.32	0.09						
Uniform Delay, d1					6.0	5.1						
Progression Factor					0.61	0.85						
Incremental Delay, d2					1.2	0.2						
Delay (s)					4.8	4.6						
Level of Service					A	A						
Approach Delay (s)		0.0			4.7			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	4.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	21	105	19	164	44	0	0	73	6
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)					4.0			4.0			4.0	
Lane Util. Factor					0.95			1.00			1.00	
Frpb, ped/bikes					1.00			1.00			1.00	
Flpb, ped/bikes					1.00			0.99			1.00	
Frt					0.98			1.00			0.99	
Flt Protected					0.99			0.96			1.00	
Satd. Flow (prot)					2366			1094			1131	
Flt Permitted					0.99			0.73			1.00	
Satd. Flow (perm)					2366			826			1131	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	25	124	22	193	52	0	0	86	7
RTOR Reduction (vph)	0	0	0	0	16	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	0	155	0	0	245	0	0	90	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20			20			20	
Turn Type				Perm			Perm					
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					16.0			36.0			36.0	
Effective Green, g (s)					16.0			36.0			36.0	
Actuated g/C Ratio					0.27			0.60			0.60	
Clearance Time (s)					4.0			4.0			4.0	
Lane Grp Cap (vph)					631			496			679	
v/s Ratio Prot											0.08	
v/s Ratio Perm					0.07			c0.30				
v/c Ratio					0.25			0.49			0.13	
Uniform Delay, d1					17.3			6.8			5.2	
Progression Factor					1.53			1.67			1.82	
Incremental Delay, d2					0.9			3.2			0.4	
Delay (s)					27.2			14.6			9.9	
Level of Service					C			B			A	
Approach Delay (s)		0.0			27.2			14.6			9.9	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM Average Control Delay	18.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	40.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	3	83	101	26	193	0	0	178	24
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)					4.0		4.0	4.0			4.0	
Lane Util. Factor					0.95		1.00	1.00			1.00	
Frpb, ped/bikes					0.98		1.00	1.00			1.00	
Flpb, ped/bikes					1.00		0.99	1.00			1.00	
Frt					0.92		1.00	1.00			0.98	
Flt Protected					1.00		0.95	1.00			1.00	
Satd. Flow (prot)					2204		1350	1144			1123	
Flt Permitted					1.00		0.61	1.00			1.00	
Satd. Flow (perm)					2204		866	1144			1123	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	4	98	119	31	227	0	0	209	28
RTOR Reduction (vph)	0	0	0	0	81	0	0	0	0	0	8	0
Lane Group Flow (vph)	0	0	0	0	140	0	31	227	0	0	229	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20			20			20	
Turn Type				Perm			Perm					
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					19.0		33.0	33.0			33.0	
Effective Green, g (s)					19.0		33.0	33.0			33.0	
Actuated g/C Ratio					0.32		0.55	0.55			0.55	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)					698		476	629			618	
v/s Ratio Prot								0.20			c0.20	
v/s Ratio Perm					0.06		0.04					
v/c Ratio					0.20		0.07	0.36			0.37	
Uniform Delay, d1					15.0		6.3	7.6			7.6	
Progression Factor					0.17		1.05	1.06			0.86	
Incremental Delay, d2					0.6		0.2	1.5			1.6	
Delay (s)					3.1		6.9	9.5			8.1	
Level of Service					A		A	A			A	
Approach Delay (s)		0.0			3.1			9.2			8.1	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	7.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	40.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	39	180	0	0	0	0	0	158	8
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				1.00	1.00						0.95	
Frpb, ped/bikes				1.00	1.00						1.00	
Flpb, ped/bikes				0.99	1.00						1.00	
Frt				1.00	1.00						0.99	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1347	1144						2427	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1347	1144						2427	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	46	212	0	0	0	0	0	186	9
RTOR Reduction (vph)	0	0	0	22	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	0	0	24	212	0	0	0	0	0	189	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20						20	
Turn Type				Perm								
Protected Phases					8						6	
Permitted Phases				8								
Actuated Green, G (s)				31.0	31.0						21.0	
Effective Green, g (s)				31.0	31.0						21.0	
Actuated g/C Ratio				0.52	0.52						0.35	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				696	591						849	
v/s Ratio Prot					c0.19						c0.08	
v/s Ratio Perm				0.02								
v/c Ratio				0.03	0.36						0.22	
Uniform Delay, d1				7.1	8.6						13.7	
Progression Factor				0.17	0.39						1.05	
Incremental Delay, d2				0.1	1.5						0.6	
Delay (s)				1.3	4.9						15.0	
Level of Service				A	A						B	
Approach Delay (s)		0.0			4.3			0.0			15.0	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	8.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	264	144	0	0	0	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)					4.0	4.0						
Lane Util. Factor					1.00	1.00						
Frpb, ped/bikes					1.00	0.98						
Flpb, ped/bikes					1.00	1.00						
Frt					1.00	0.85						
Flt Protected					1.00	1.00						
Satd. Flow (prot)					1144	1191						
Flt Permitted					1.00	1.00						
Satd. Flow (perm)					1144	1191						
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	0	311	169	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	68	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	311	101	0	0	0	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20			20				
Turn Type						Perm	Perm					
Protected Phases					8			2				
Permitted Phases						8	2					
Actuated Green, G (s)					36.0	36.0						
Effective Green, g (s)					36.0	36.0						
Actuated g/C Ratio					0.60	0.60						
Clearance Time (s)					4.0	4.0						
Lane Grp Cap (vph)					686	715						
v/s Ratio Prot					c0.27							
v/s Ratio Perm						0.09						
v/c Ratio					0.45	0.14						
Uniform Delay, d1					6.6	5.2						
Progression Factor					1.00	1.00						
Incremental Delay, d2					2.2	0.4						
Delay (s)					8.8	5.7						
Level of Service					A	A						
Approach Delay (s)		0.0			7.7			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	7.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	37.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	60	66	63	37	74	14	1106	52	134	1140	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt		0.93		1.00	0.90		1.00	0.99		1.00	0.99	
Flt Protected		1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1679		1723	1622		1735	4946		1735	4941	
Flt Permitted		1.00		0.60	1.00		0.18	1.00		0.14	1.00	
Satd. Flow (perm)		1679		1097	1622		325	4946		251	4941	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	71	78	74	44	87	16	1301	61	158	1341	71
RTOR Reduction (vph)	0	68	0	0	75	0	0	6	0	0	6	0
Lane Group Flow (vph)	0	81	0	74	56	0	16	1356	0	158	1406	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.0		8.0	8.0		34.8	33.6		44.0	38.8	
Effective Green, g (s)		8.0		8.0	8.0		34.8	33.6		44.0	38.8	
Actuated g/C Ratio		0.13		0.13	0.13		0.58	0.56		0.73	0.65	
Clearance Time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		224		146	216		217	2770		342	3195	
v/s Ratio Prot		0.05			0.03		0.00	0.27		c0.05	0.28	
v/s Ratio Perm				c0.07			0.04			c0.29		
v/c Ratio		0.36		0.51	0.26		0.07	0.49		0.46	0.44	
Uniform Delay, d1		23.7		24.2	23.3		5.3	8.0		3.9	5.2	
Progression Factor		1.00		1.10	1.30		1.00	1.00		2.39	1.27	
Incremental Delay, d2		1.0		2.7	0.6		0.1	0.6		0.9	0.4	
Delay (s)		24.7		29.2	31.0		5.5	8.6		10.3	7.1	
Level of Service		C		C	C		A	A		B	A	
Approach Delay (s)		24.7			30.3			8.6			7.4	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	227	21	116	186	0	30	0	35	96	2	30
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0		4.0	4.0		4.0		4.0		4.0	
Lane Util. Factor		1.00		1.00	1.00		1.00		1.00		1.00	
Frpb, ped/bikes		1.00		1.00	1.00		1.00		0.97		0.99	
Flpb, ped/bikes		1.00		0.99	1.00		0.99		1.00		0.99	
Frt		0.99		1.00	1.00		1.00		0.85		0.97	
Flt Protected		1.00		0.95	1.00		0.95		1.00		0.96	
Satd. Flow (prot)		1410		1346	1430		1344		1174		1309	
Flt Permitted		1.00		0.55	1.00		0.69		1.00		0.96	
Satd. Flow (perm)		1410		774	1430		978		1174		1309	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	267	25	136	219	0	35	0	41	113	2	35
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	26	0	18	0
Lane Group Flow (vph)	0	287	0	136	219	0	35	0	15	0	132	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type				Perm			custom		custom	Perm		
Protected Phases		4			8						6	
Permitted Phases				8			2		2	6		
Actuated Green, G (s)		30.0		30.0	30.0		22.0		22.0		22.0	
Effective Green, g (s)		30.0		30.0	30.0		22.0		22.0		22.0	
Actuated g/C Ratio		0.50		0.50	0.50		0.37		0.37		0.37	
Clearance Time (s)		4.0		4.0	4.0		4.0		4.0		4.0	
Lane Grp Cap (vph)		705		387	715		359		430		480	
v/s Ratio Prot		c0.20			0.15							
v/s Ratio Perm				0.18			0.04		0.01		0.10	
v/c Ratio		0.41		0.35	0.31		0.10		0.03		0.27	
Uniform Delay, d1		9.4		9.1	8.9		12.5		12.2		13.4	
Progression Factor		1.01		0.47	0.48		1.00		1.00		0.31	
Incremental Delay, d2		1.6		2.4	1.1		0.5		0.2		1.4	
Delay (s)		11.2		6.7	5.3		13.0		12.3		5.6	
Level of Service		B		A	A		B		B		A	
Approach Delay (s)		11.2			5.8			12.7			5.6	
Approach LOS		B			A			B			A	

Intersection Summary			
HCM Average Control Delay	8.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	359	0	0	257	0	45	0	28	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			1.00			0.99				
Flpb, ped/bikes		1.00			1.00			0.99				
Frt		1.00			1.00			0.94				
Flt Protected		1.00			1.00			0.97				
Satd. Flow (prot)		1430			1430			2429				
Flt Permitted		1.00			1.00			0.97				
Satd. Flow (perm)		1430			1430			2429				
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	422	0	0	302	0	53	0	33	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	24	0	0	0	0
Lane Group Flow (vph)	0	422	0	0	302	0	0	62	0	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type	Perm						Perm					
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		35.0			35.0			17.0				
Effective Green, g (s)		35.0			35.0			17.0				
Actuated g/C Ratio		0.58			0.58			0.28				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		834			834			688				
v/s Ratio Prot		c0.30			0.21							
v/s Ratio Perm								0.03				
v/c Ratio		0.51			0.36			0.09				
Uniform Delay, d1		7.4			6.6			15.8				
Progression Factor		0.76			0.93			1.00				
Incremental Delay, d2		2.1			1.0			0.3				
Delay (s)		7.7			7.1			16.1				
Level of Service		A			A			B				
Approach Delay (s)		7.7			7.1			16.1			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	8.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	43.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	86	139	52	3	296	84	15	37	81	22	72	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99			0.98			1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00			1.00			1.00	
Frt	1.00	0.96		1.00	0.97			0.92			1.00	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1350	1359		1344	1372			1277			1410	
Flt Permitted	0.44	1.00		0.62	1.00			0.97			0.92	
Satd. Flow (perm)	620	1359		874	1372			1242			1314	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	101	164	61	4	348	99	18	44	95	26	85	0
RTOR Reduction (vph)	0	23	0	0	17	0	0	67	0	0	0	0
Lane Group Flow (vph)	101	202	0	4	430	0	0	91	0	0	111	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	34.0	34.0		34.0	34.0			18.0			18.0	
Effective Green, g (s)	34.0	34.0		34.0	34.0			18.0			18.0	
Actuated g/C Ratio	0.57	0.57		0.57	0.57			0.30			0.30	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)	351	770		495	777			373			394	
v/s Ratio Prot		0.15			c0.31							
v/s Ratio Perm	0.16			0.00				0.07			c0.08	
v/c Ratio	0.29	0.26		0.01	0.55			0.24			0.28	
Uniform Delay, d1	6.7	6.6		5.7	8.2			15.9			16.1	
Progression Factor	0.33	0.21		1.30	1.12			1.00			0.53	
Incremental Delay, d2	1.8	0.7		0.0	2.5			1.5			1.8	
Delay (s)	4.0	2.2		7.4	11.7			17.4			10.3	
Level of Service	A	A		A	B			B			B	
Approach Delay (s)		2.7			11.7			17.4			10.3	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	9.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	192	91	4	245	121	85	116	4	74	232	1
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.95		1.00	0.95		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1350	1346		1347	1344		1346	1421		1342	1430	
Flt Permitted	0.41	1.00		0.50	1.00		0.52	1.00		0.67	1.00	
Satd. Flow (perm)	584	1346		711	1344		741	1421		942	1430	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	62	226	107	5	288	142	100	136	5	87	273	1
RTOR Reduction (vph)	0	28	0	0	29	0	0	2	0	0	0	0
Lane Group Flow (vph)	62	305	0	5	401	0	100	139	0	87	274	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	29.0	29.0		29.0	29.0		23.0	23.0		23.0	23.0	
Effective Green, g (s)	29.0	29.0		29.0	29.0		23.0	23.0		23.0	23.0	
Actuated g/C Ratio	0.48	0.48		0.48	0.48		0.38	0.38		0.38	0.38	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	282	651		344	650		284	545		361	548	
v/s Ratio Prot		0.23			c0.30			0.10			c0.19	
v/s Ratio Perm	0.11			0.01			0.13			0.09		
v/c Ratio	0.22	0.47		0.01	0.62		0.35	0.25		0.24	0.50	
Uniform Delay, d1	9.0	10.3		8.1	11.4		13.2	12.6		12.6	14.1	
Progression Factor	1.13	1.16		0.87	0.78		1.00	1.00		1.15	1.07	
Incremental Delay, d2	1.8	2.4		0.1	4.1		3.4	1.1		1.6	3.2	
Delay (s)	11.9	14.4		7.1	13.1		16.6	13.8		16.1	18.3	
Level of Service	B	B		A	B		B	B		B	B	
Approach Delay (s)		14.0			13.0			14.9			17.7	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	14.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	260	50	258	292	0	0	0	0	169	0	47
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		1.00		1.00	1.00						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		0.99	1.00						0.99	
Frt		0.98		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.96	
Satd. Flow (prot)		1395		1352	1430						2482	
Flt Permitted		1.00		0.51	1.00						0.96	
Satd. Flow (perm)		1395		729	1430						2482	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	306	59	304	344	0	0	0	0	199	0	55
RTOR Reduction (vph)	0	12	0	0	0	0	0	0	0	0	40	0
Lane Group Flow (vph)	0	353	0	304	344	0	0	0	0	0	214	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type				Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases				8						6		
Actuated Green, G (s)		36.0		36.0	36.0						16.0	
Effective Green, g (s)		36.0		36.0	36.0						16.0	
Actuated g/C Ratio		0.60		0.60	0.60						0.27	
Clearance Time (s)		4.0		4.0	4.0						4.0	
Lane Grp Cap (vph)		837		437	858						662	
v/s Ratio Prot		0.25			0.24							
v/s Ratio Perm				c0.42							0.09	
v/c Ratio		0.42		0.70	0.40						0.32	
Uniform Delay, d1		6.4		8.2	6.3						17.7	
Progression Factor		0.86		0.70	0.80						0.70	
Incremental Delay, d2		1.5		6.3	1.0						1.3	
Delay (s)		7.0		12.1	6.0						13.7	
Level of Service		A		B	A						B	
Approach Delay (s)		7.0			8.9			0.0			13.7	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	105	381	0	0	341	0	208	10	539	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	1.00			1.00			0.95				
Frpb, ped/bikes	1.00	1.00			1.00			0.98				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			1.00			0.89				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1353	1430			1430			2326				
Flt Permitted	0.40	1.00			1.00			0.99				
Satd. Flow (perm)	568	1430			1430			2326				
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	124	448	0	0	401	0	245	12	634	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	141	0	0	0	0
Lane Group Flow (vph)	124	448	0	0	401	0	0	750	0	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type	Perm						Perm					
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)	25.0	25.0			25.0			27.0				
Effective Green, g (s)	25.0	25.0			25.0			27.0				
Actuated g/C Ratio	0.42	0.42			0.42			0.45				
Clearance Time (s)	4.0	4.0			4.0			4.0				
Lane Grp Cap (vph)	237	596			596			1047				
v/s Ratio Prot		c0.31			0.28							
v/s Ratio Perm	0.22							0.32				
v/c Ratio	0.52	0.75			0.67			0.93dr				
Uniform Delay, d1	13.1	14.9			14.2			13.4				
Progression Factor	0.85	0.83			1.00			1.00				
Incremental Delay, d2	7.7	8.1			6.0			4.2				
Delay (s)	18.8	20.5			20.2			17.6				
Level of Service	B	C			C			B				
Approach Delay (s)		20.1			20.2			17.6			0.0	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM Average Control Delay	18.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	86	204	124	238	1180	141	72	944	327
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor					0.95		1.00	0.91		1.00	0.91	
Frpb, ped/bikes					0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes					1.00		1.00	1.00		1.00	1.00	
Frt					0.96		1.00	0.98		1.00	0.96	
Flt Protected					0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)					3254		1736	4889		1736	4769	
Flt Permitted					0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)					3254		1736	4889		1736	4769	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	101	240	146	280	1388	166	85	1111	385
RTOR Reduction (vph)	0	0	0	0	86	0	0	21	0	0	95	0
Lane Group Flow (vph)	0	0	0	0	401	0	280	1533	0	85	1401	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type				Perm			Prot			Prot		
Protected Phases					8		5	2		1	6	
Permitted Phases				8								
Actuated Green, G (s)					12.5		13.0	29.4		6.1	22.5	
Effective Green, g (s)					12.5		13.0	29.4		6.1	22.5	
Actuated g/C Ratio					0.21		0.22	0.49		0.10	0.38	
Clearance Time (s)					4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)					3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)					678		376	2396		176	1788	
v/s Ratio Prot							c0.16	0.31		0.05	c0.29	
v/s Ratio Perm					0.12							
v/c Ratio					0.59		0.74	0.64		0.48	0.78	
Uniform Delay, d1					21.4		21.9	11.4		25.5	16.6	
Progression Factor					1.00		1.17	1.19		1.00	1.00	
Incremental Delay, d2					1.3		6.8	1.1		2.1	3.5	
Delay (s)					22.7		32.4	14.6		27.5	20.1	
Level of Service					C		C	B		C	C	
Approach Delay (s)		0.0			22.7			17.4			20.5	
Approach LOS		A			C			B			C	

Intersection Summary			
HCM Average Control Delay	19.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	92	122	105	300	0	0	0	0	21	34	120
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		1.00		1.00	1.00						1.00	
Frpb, ped/bikes		0.98		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		0.99	1.00						1.00	
Frt		0.92		1.00	1.00						0.91	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		1294		1345	1430						1270	
Flt Permitted		1.00		0.60	1.00						0.99	
Satd. Flow (perm)		1294		843	1430						1270	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	108	144	124	353	0	0	0	0	25	40	141
RTOR Reduction (vph)	0	65	0	0	0	0	0	0	0	0	96	0
Lane Group Flow (vph)	0	187	0	124	353	0	0	0	0	0	110	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type				Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases				8						6		
Actuated Green, G (s)		33.0		33.0	33.0						19.0	
Effective Green, g (s)		33.0		33.0	33.0						19.0	
Actuated g/C Ratio		0.55		0.55	0.55						0.32	
Clearance Time (s)		4.0		4.0	4.0						4.0	
Lane Grp Cap (vph)		712		464	787						402	
v/s Ratio Prot		0.14			c0.25							
v/s Ratio Perm				0.15							0.09	
v/c Ratio		0.26		0.27	0.45						0.27	
Uniform Delay, d1		7.1		7.1	8.1						15.3	
Progression Factor		1.94		0.99	0.91						1.00	
Incremental Delay, d2		0.8		0.8	1.0						1.7	
Delay (s)		14.6		7.8	8.4						17.0	
Level of Service		B		A	A						B	
Approach Delay (s)		14.6			8.2			0.0			17.0	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	112	0	0	340	108	41	32	215	204	0	25
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0		4.0		4.0
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			0.99		1.00	0.97		1.00		0.97
Flpb, ped/bikes	0.99	1.00			1.00		1.00	1.00		0.99		1.00
Frt	1.00	1.00			0.97		1.00	0.87		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1352	1430			1098		1359	965		1347		1174
Flt Permitted	0.33	1.00			1.00		0.95	1.00		0.50		1.00
Satd. Flow (perm)	463	1430			1098		1359	965		712		1174
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	1	132	0	0	400	127	48	38	253	240	0	29
RTOR Reduction (vph)	0	0	0	0	19	0	0	156	0	0	0	18
Lane Group Flow (vph)	1	132	0	0	508	0	48	135	0	240	0	11
Confl. Peds. (#/hr)	8		8	8		8			8	8		8
Parking (#/hr)					20			20			20	
Turn Type	Perm						Perm			custom		custom
Protected Phases		4			8			2				
Permitted Phases	4						2			6		6
Actuated Green, G (s)	29.0	29.0			29.0		23.0	23.0		23.0		23.0
Effective Green, g (s)	29.0	29.0			29.0		23.0	23.0		23.0		23.0
Actuated g/C Ratio	0.48	0.48			0.48		0.38	0.38		0.38		0.38
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0		4.0		4.0
Lane Grp Cap (vph)	224	691			531		521	370		273		450
v/s Ratio Prot		0.09			c0.46			0.14				
v/s Ratio Perm	0.00						0.04			c0.34		0.01
v/c Ratio	0.00	0.19			0.96		0.09	0.36		0.88		0.02
Uniform Delay, d1	8.0	8.8			14.9		11.8	13.3		17.2		11.5
Progression Factor	0.94	1.05			0.85		1.01	1.10		1.00		1.00
Incremental Delay, d2	0.0	0.6			25.9		0.3	2.8		30.7		0.1
Delay (s)	7.6	9.8			38.5		12.3	17.3		47.9		11.6
Level of Service	A	A			D		B	B		D		B
Approach Delay (s)		9.8			38.5			16.6			44.0	
Approach LOS		A			D			B			D	

Intersection Summary			
HCM Average Control Delay	30.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	504	36	44	334	0	88	0	209	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0		4.0	4.0			4.0				
Lane Util. Factor		1.00		1.00	1.00			1.00				
Frpb, ped/bikes		1.00		1.00	1.00			0.98				
Flpb, ped/bikes		1.00		1.00	1.00			1.00				
Frt		0.99		1.00	1.00			0.91				
Flt Protected		1.00		0.95	1.00			0.99				
Satd. Flow (prot)		1413		1353	1144			1239				
Flt Permitted		1.00		0.30	1.00			0.91				
Satd. Flow (perm)		1413		423	1144			1140				
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	593	42	52	393	0	104	0	246	0	0	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	142	0	0	0	0
Lane Group Flow (vph)	0	631	0	52	393	0	0	208	0	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20							
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		34.0		34.0	34.0			18.0				
Effective Green, g (s)		34.0		34.0	34.0			18.0				
Actuated g/C Ratio		0.57		0.57	0.57			0.30				
Clearance Time (s)		4.0		4.0	4.0			4.0				
Lane Grp Cap (vph)		801		240	648			342				
v/s Ratio Prot		c0.45			0.34							
v/s Ratio Perm				0.12				c0.18				
v/c Ratio		0.79		0.22	0.61			0.61				
Uniform Delay, d1		10.2		6.4	8.6			18.0				
Progression Factor		1.21		1.14	0.98			1.33				
Incremental Delay, d2		6.3		1.5	3.0			7.4				
Delay (s)		18.6		8.8	11.4			31.3				
Level of Service		B		A	B			C				
Approach Delay (s)		18.6			11.1			31.3			0.0	
Approach LOS		B			B			C			A	

Intersection Summary			
HCM Average Control Delay	19.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	362	300	0	347	57	31	155	50	80	122	10
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.98			1.00		1.00	0.99			1.00	
Flpb, ped/bikes	0.99	1.00			1.00		0.99	1.00			1.00	
Frt	1.00	0.93			0.98		1.00	0.96			0.99	
Flt Protected	0.95	1.00			1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1350	1312			1115		1347	1366			1387	
Flt Permitted	0.41	1.00			1.00		0.57	1.00			0.77	
Satd. Flow (perm)	589	1312			1115		805	1366			1082	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	8	426	353	0	408	67	36	182	59	94	144	12
RTOR Reduction (vph)	0	50	0	0	10	0	0	20	0	0	3	0
Lane Group Flow (vph)	8	729	0	0	465	0	36	221	0	0	247	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20							
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	34.0	34.0			34.0		18.0	18.0			18.0	
Effective Green, g (s)	34.0	34.0			34.0		18.0	18.0			18.0	
Actuated g/C Ratio	0.57	0.57			0.57		0.30	0.30			0.30	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)	334	743			632		242	410			325	
v/s Ratio Prot		c0.56			0.42			0.16				
v/s Ratio Perm	0.01						0.04				c0.23	
v/c Ratio	0.02	0.98			0.74		0.15	0.54			0.76	
Uniform Delay, d1	5.7	12.7			9.7		15.4	17.5			19.0	
Progression Factor	1.34	1.08			1.44		0.79	0.73			1.00	
Incremental Delay, d2	0.1	21.8			5.9		1.1	4.4			15.4	
Delay (s)	7.7	35.5			19.8		13.3	17.1			34.4	
Level of Service	A	D			B		B	B			C	
Approach Delay (s)		35.2			19.8			16.6			34.4	
Approach LOS		D			B			B			C	

Intersection Summary			
HCM Average Control Delay	28.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	494	4	195	0	0	0	0	0	196	194
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)			4.0	4.0	4.0						4.0	
Lane Util. Factor			1.00	1.00	1.00						0.95	
Frpb, ped/bikes			0.98	1.00	1.00						0.98	
Flpb, ped/bikes			1.00	1.00	1.00						1.00	
Frt			0.86	1.00	1.00						0.93	
Flt Protected			1.00	0.95	1.00						1.00	
Satd. Flow (prot)			1212	1359	1144						2472	
Flt Permitted			1.00	0.95	1.00						1.00	
Satd. Flow (perm)			1212	1359	1144						2472	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	581	5	229	0	0	0	0	0	231	228
RTOR Reduction (vph)	0	0	426	4	0	0	0	0	0	0	167	0
Lane Group Flow (vph)	0	0	155	1	229	0	0	0	0	0	292	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20							
Turn Type			custom	Split								
Protected Phases				8	8						6	
Permitted Phases			4									
Actuated Green, G (s)			16.0	16.0	16.0						16.0	
Effective Green, g (s)			16.0	16.0	16.0						16.0	
Actuated g/C Ratio			0.27	0.27	0.27						0.27	
Clearance Time (s)			4.0	4.0	4.0						4.0	
Lane Grp Cap (vph)			323	362	305						659	
v/s Ratio Prot				0.00	c0.20						c0.12	
v/s Ratio Perm			c0.13									
v/c Ratio			0.48	0.00	0.75						0.44	
Uniform Delay, d1			18.5	16.1	20.2						18.3	
Progression Factor			2.33	0.75	0.87						1.00	
Incremental Delay, d2			2.1	0.0	13.9						2.2	
Delay (s)			45.2	12.1	31.4						20.4	
Level of Service			D	B	C						C	
Approach Delay (s)		45.2			31.0			0.0			20.4	
Approach LOS		D			C			A			C	

Intersection Summary			
HCM Average Control Delay	33.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	160	95	1464	73	0	1031
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0
Lane Util. Factor	1.00	1.00	0.91			0.91
Frpb, ped/bikes	1.00	0.98	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	0.85	0.99			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1736	1521	4944			4988
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	1736	1521	4944			4988
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	188	112	1722	86	0	1213
RTOR Reduction (vph)	0	14	7	0	0	0
Lane Group Flow (vph)	188	98	1801	0	0	1213
Confl. Peds. (#/hr)	8	8		8	8	
Turn Type		Perm				
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	11.7	11.7	40.3			40.3
Effective Green, g (s)	11.7	11.7	40.3			40.3
Actuated g/C Ratio	0.19	0.19	0.67			0.67
Clearance Time (s)	4.0	4.0	4.0			4.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	339	297	3321			3350
v/s Ratio Prot	c0.11		c0.36			0.24
v/s Ratio Perm		0.06				
v/c Ratio	0.55	0.33	0.54			0.36
Uniform Delay, d1	21.8	20.8	5.1			4.3
Progression Factor	0.86	0.83	0.40			0.20
Incremental Delay, d2	1.8	0.6	0.5			0.2
Delay (s)	20.6	17.8	2.6			1.0
Level of Service	C	B	A			A
Approach Delay (s)	19.5		2.6			1.0
Approach LOS	B		A			A

Intersection Summary			
HCM Average Control Delay	3.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	73	2	67	245	0	0	0	0	16	22	60
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		1.00		1.00	1.00						1.00	
Frpb, ped/bikes		1.00		1.00	1.00						0.98	
Flpb, ped/bikes		1.00		0.99	1.00						1.00	
Frt		1.00		1.00	1.00						0.92	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		1140		1341	1144						1017	
Flt Permitted		1.00		0.70	1.00						0.99	
Satd. Flow (perm)		1140		988	1144						1017	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	86	2	79	288	0	0	0	0	19	26	71
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	49	0
Lane Group Flow (vph)	0	87	0	79	288	0	0	0	0	0	67	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20			20						20	
Turn Type				Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases				8						6		
Actuated Green, G (s)		33.0		33.0	33.0						19.0	
Effective Green, g (s)		33.0		33.0	33.0						19.0	
Actuated g/C Ratio		0.55		0.55	0.55						0.32	
Clearance Time (s)		4.0		4.0	4.0						4.0	
Lane Grp Cap (vph)		627		543	629						322	
v/s Ratio Prot		0.08			c0.25							
v/s Ratio Perm				0.08							0.07	
v/c Ratio		0.14		0.15	0.46						0.21	
Uniform Delay, d1		6.6		6.6	8.1						15.0	
Progression Factor		0.81		0.88	0.77						1.34	
Incremental Delay, d2		0.4		0.5	2.1						1.4	
Delay (s)		5.7		6.3	8.3						21.5	
Level of Service		A		A	A						C	
Approach Delay (s)		5.7			7.9			0.0			21.5	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM Average Control Delay	10.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	108	0	0	254	42	95	3	51	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0			4.0			4.0	4.0			
Lane Util. Factor	1.00	1.00			1.00			1.00	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	0.97			
Flpb, ped/bikes	0.99	1.00			1.00			0.99	1.00			
Frt	1.00	1.00			0.98			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.95	1.00			
Satd. Flow (prot)	1352	1144			1119			1076	1174			
Flt Permitted	0.51	1.00			1.00			0.95	1.00			
Satd. Flow (perm)	727	1144			1119			1076	1174			
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	2	127	0	0	299	49	112	4	60	0	0	0
RTOR Reduction (vph)	0	0	0	0	10	0	0	0	41	0	0	0
Lane Group Flow (vph)	2	127	0	0	338	0	0	116	19	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20			20			20				
Turn Type	Perm						Perm		Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	33.0	33.0			33.0			19.0	19.0			
Effective Green, g (s)	33.0	33.0			33.0			19.0	19.0			
Actuated g/C Ratio	0.55	0.55			0.55			0.32	0.32			
Clearance Time (s)	4.0	4.0			4.0			4.0	4.0			
Lane Grp Cap (vph)	400	629			615			341	372			
v/s Ratio Prot		0.11			c0.30							
v/s Ratio Perm	0.00							0.11	0.02			
v/c Ratio	0.01	0.20			0.55			0.34	0.05			
Uniform Delay, d1	6.1	6.8			8.7			15.7	14.2			
Progression Factor	0.41	0.40			0.67			0.97	1.24			
Incremental Delay, d2	0.0	0.7			2.9			2.7	0.3			
Delay (s)	2.5	3.5			8.7			17.9	17.8			
Level of Service	A	A			A			B	B			
Approach Delay (s)		3.4			8.7			17.9			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	10.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	138	61	32	30	259	52	51	49	31	13	14	10
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99			0.99			0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00			0.99			1.00	
Frt	1.00	0.95		1.00	0.97			0.97			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.98	
Satd. Flow (prot)	1348	1072		1341	1109			1072			1068	
Flt Permitted	0.49	1.00		0.69	1.00			0.89			0.91	
Satd. Flow (perm)	695	1072		969	1109			969			990	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	162	72	38	35	305	61	60	58	36	15	16	12
RTOR Reduction (vph)	0	18	0	0	12	0	0	18	0	0	8	0
Lane Group Flow (vph)	162	92	0	35	354	0	0	136	0	0	35	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20			20			20			20	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	32.0	32.0		32.0	32.0			20.0			20.0	
Effective Green, g (s)	32.0	32.0		32.0	32.0			20.0			20.0	
Actuated g/C Ratio	0.53	0.53		0.53	0.53			0.33			0.33	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)	371	572		517	591			323			330	
v/s Ratio Prot		0.09			c0.32							
v/s Ratio Perm	0.23			0.04				c0.14			0.04	
v/c Ratio	0.44	0.16		0.07	0.60			0.42			0.11	
Uniform Delay, d1	8.5	7.1		6.8	9.6			15.5			13.8	
Progression Factor	0.67	0.65		1.33	1.36			0.93			1.15	
Incremental Delay, d2	3.7	0.6		0.2	3.0			4.0			0.6	
Delay (s)	9.4	5.2		9.2	16.0			18.4			16.5	
Level of Service	A	A		A	B			B			B	
Approach Delay (s)		7.7			15.4			18.4			16.5	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	13.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	70	10	60	248	92	101	122	34	1	360	25
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.98		1.00	0.96		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1349	1117		1341	1088		1351	1099		1343	1414	
Flt Permitted	0.41	1.00		0.70	1.00		0.36	1.00		0.64	1.00	
Satd. Flow (perm)	583	1117		983	1088		509	1099		907	1414	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	8	82	12	71	292	108	119	144	40	1	424	29
RTOR Reduction (vph)	0	7	0	0	22	0	0	16	0	0	4	0
Lane Group Flow (vph)	8	87	0	71	378	0	119	168	0	1	449	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20			20			20				
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	26.0	26.0		26.0	26.0		26.0	26.0		26.0	26.0	
Effective Green, g (s)	26.0	26.0		26.0	26.0		26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.43	0.43		0.43	0.43	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	253	484		426	471		221	476		393	613	
v/s Ratio Prot		0.08			c0.35			0.15			c0.32	
v/s Ratio Perm	0.01			0.07			0.23			0.00		
v/c Ratio	0.03	0.18		0.17	0.80		0.54	0.35		0.00	0.73	
Uniform Delay, d1	9.8	10.4		10.4	14.8		12.6	11.4		9.6	14.1	
Progression Factor	0.97	1.04		0.62	0.47		1.29	1.39		0.93	0.95	
Incremental Delay, d2	0.2	0.8		0.6	10.2		8.0	1.8		0.0	3.0	
Delay (s)	9.7	11.7		7.1	17.1		24.2	17.5		9.0	16.3	
Level of Service	A	B		A	B		C	B		A	B	
Approach Delay (s)		11.5			15.6			20.1			16.3	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM Average Control Delay	16.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	88	18	5	360	0	0	0	0	214	173	39
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		1.00		1.00	1.00						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						1.00	
Flpb, ped/bikes		1.00		0.99	1.00						0.99	
Frt		0.98		1.00	1.00						0.99	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		1115		1349	1144						2328	
Flt Permitted		1.00		0.68	1.00						0.98	
Satd. Flow (perm)		1115		961	1144						2328	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	104	21	6	424	0	0	0	0	252	204	46
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	116	0	6	424	0	0	0	0	0	489	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20			20						20	
Turn Type				Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases				8						6		
Actuated Green, G (s)		33.0		33.0	33.0						19.0	
Effective Green, g (s)		33.0		33.0	33.0						19.0	
Actuated g/C Ratio		0.55		0.55	0.55						0.32	
Clearance Time (s)		4.0		4.0	4.0						4.0	
Lane Grp Cap (vph)		613		529	629						737	
v/s Ratio Prot		0.10			c0.37							
v/s Ratio Perm				0.01							0.21	
v/c Ratio		0.19		0.01	0.67						0.66	
Uniform Delay, d1		6.8		6.1	9.7						17.7	
Progression Factor		0.72		0.59	0.55						0.87	
Incremental Delay, d2		0.7		0.0	5.3						3.5	
Delay (s)		5.5		3.6	10.6						18.8	
Level of Service		A		A	B						B	
Approach Delay (s)		5.5			10.5			0.0			18.8	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	161	0	0	346	480	18	40	0	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0				
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00				
Frpb, ped/bikes	1.00	1.00			1.00	0.98	1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00				
Frt	1.00	1.00			1.00	0.85	1.00	1.00				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	1503	1272			1589	1323	1510	1272				
Flt Permitted	0.47	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	740	1272			1589	1323	1510	1272				
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	159	189	0	0	407	565	21	47	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	245	0	0	0	0	0	0
Lane Group Flow (vph)	159	189	0	0	407	320	21	47	0	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20						20				
Turn Type	Perm					Perm	Split					
Protected Phases		4			8		2	2				
Permitted Phases	4					8						
Actuated Green, G (s)	34.0	34.0			34.0	34.0	18.0	18.0				
Effective Green, g (s)	34.0	34.0			34.0	34.0	18.0	18.0				
Actuated g/C Ratio	0.57	0.57			0.57	0.57	0.30	0.30				
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0				
Lane Grp Cap (vph)	419	721			900	750	453	382				
v/s Ratio Prot		0.15			c0.26		0.01	c0.04				
v/s Ratio Perm	0.21					0.24						
v/c Ratio	0.38	0.26			0.45	0.43	0.05	0.12				
Uniform Delay, d1	7.2	6.6			7.6	7.4	14.9	15.3				
Progression Factor	1.26	1.17			1.00	1.00	0.80	0.82				
Incremental Delay, d2	2.2	0.8			1.6	1.8	0.2	0.7				
Delay (s)	11.3	8.5			9.2	9.2	12.1	13.1				
Level of Service	B	A			A	A	B	B				
Approach Delay (s)		9.8			9.2			12.8			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	240	391	167	0	0	0	0	1288	53	34	1142	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00					0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.98					1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00	1.00					1.00		1.00	1.00	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1720	3471	1521					4954		1736	4988	
Flt Permitted	0.95	1.00	1.00					1.00		0.11	1.00	
Satd. Flow (perm)	1720	3471	1521					4954		209	4988	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	282	460	196	0	0	0	0	1515	62	40	1344	0
RTOR Reduction (vph)	0	0	32	0	0	0	0	6	0	0	0	0
Lane Group Flow (vph)	282	460	164	0	0	0	0	1571	0	40	1344	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type	Perm		Perm							pm+pt		
Protected Phases		4						2		1	6	
Permitted Phases	4		4							6		
Actuated Green, G (s)	15.5	15.5	15.5					30.9		36.5	36.5	
Effective Green, g (s)	15.5	15.5	15.5					30.9		36.5	36.5	
Actuated g/C Ratio	0.26	0.26	0.26					0.51		0.61	0.61	
Clearance Time (s)	4.0	4.0	4.0					4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)	444	897	393					2551		168	3034	
v/s Ratio Prot		0.13						c0.32		0.01	c0.27	
v/s Ratio Perm	c0.16		0.11							0.14		
v/c Ratio	0.64	0.51	0.42					0.62		0.24	0.44	
Uniform Delay, d1	19.7	19.0	18.5					10.3		6.5	6.3	
Progression Factor	1.00	1.00	1.00					0.58		1.23	0.81	
Incremental Delay, d2	3.0	0.5	0.7					1.1		0.7	0.4	
Delay (s)	22.7	19.5	19.2					7.1		8.7	5.5	
Level of Service	C	B	B					A		A	A	
Approach Delay (s)		20.4			0.0			7.1			5.6	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	413	71	0	0	0	0	0	0	10	43	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0									4.0	
Lane Util. Factor		0.91									1.00	
Frpb, ped/bikes		0.99									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.98									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		3546									1132	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		3546									1132	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	486	84	0	0	0	0	0	0	12	51	0
RTOR Reduction (vph)	0	18	0	0	0	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	552	0	0	0	0	0	0	0	0	52	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20									20	
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		46.0									6.0	
Effective Green, g (s)		46.0									6.0	
Actuated g/C Ratio		0.77									0.10	
Clearance Time (s)		4.0									4.0	
Vehicle Extension (s)		3.0									3.0	
Lane Grp Cap (vph)		2719									113	
v/s Ratio Prot		c0.16										
v/s Ratio Perm											0.05	
v/c Ratio		0.20									0.46	
Uniform Delay, d1		1.9									25.5	
Progression Factor		2.07									0.98	
Incremental Delay, d2		0.2									2.9	
Delay (s)		4.2									27.8	
Level of Service		A									C	
Approach Delay (s)		4.2			0.0			0.0			27.8	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM Average Control Delay	6.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	30.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	461	0	0	0	0	0	66	0	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.91						0.95				
Frpb, ped/bikes		1.00						1.00				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						1.00				
Flt Protected		1.00						1.00				
Satd. Flow (prot)		3638						2446				
Flt Permitted		1.00						1.00				
Satd. Flow (perm)		3638						2446				
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	18	542	0	0	0	0	0	78	0	0	0	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	557	0	0	0	0	0	78	0	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20						20				
Turn Type	Perm											
Protected Phases		4						2				
Permitted Phases	4											
Actuated Green, G (s)		47.0						5.0				
Effective Green, g (s)		47.0						5.0				
Actuated g/C Ratio		0.78						0.08				
Clearance Time (s)		4.0						4.0				
Vehicle Extension (s)		3.0						3.0				
Lane Grp Cap (vph)		2850						204				
v/s Ratio Prot								c0.03				
v/s Ratio Perm		0.15										
v/c Ratio		0.20						0.38				
Uniform Delay, d1		1.7						26.0				
Progression Factor		0.31						1.00				
Incremental Delay, d2		0.2						1.2				
Delay (s)		0.7						27.2				
Level of Service		A						C				
Approach Delay (s)		0.7			0.0			27.2			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	3.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	25.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	43	422	19	0	0	0	0	29	38	9	40	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0						4.0			4.0	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						0.99			1.00	
Flpb, ped/bikes		1.00						1.00			1.00	
Frt		0.99						0.92			1.00	
Flt Protected		1.00						1.00			0.99	
Satd. Flow (prot)		3598						1044			1132	
Flt Permitted		1.00						1.00			0.92	
Satd. Flow (perm)		3598						1044			1055	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	51	496	22	0	0	0	0	34	45	11	47	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	40	0	0	0	0
Lane Group Flow (vph)	0	566	0	0	0	0	0	39	0	0	58	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20						20			20	
Turn Type	Perm									Perm		
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		45.7						6.3			6.3	
Effective Green, g (s)		45.7						6.3			6.3	
Actuated g/C Ratio		0.76						0.10			0.10	
Clearance Time (s)		4.0						4.0			4.0	
Vehicle Extension (s)		3.0						3.0			3.0	
Lane Grp Cap (vph)		2740						110			111	
v/s Ratio Prot								0.04				
v/s Ratio Perm		0.16									c0.05	
v/c Ratio		0.21						0.35			0.52	
Uniform Delay, d1		2.0						25.0			25.4	
Progression Factor		0.37						1.08			0.85	
Incremental Delay, d2		0.2						1.8			4.4	
Delay (s)		0.9						28.7			25.9	
Level of Service		A						C			C	
Approach Delay (s)		0.9			0.0			28.7			25.9	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM Average Control Delay	6.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	31.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	99	275	140	0	0	0	0	231	56	349	79	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0						4.0		4.0	4.0	
Lane Util. Factor		0.91						1.00		1.00	1.00	
Frpb, ped/bikes		0.99						1.00		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		0.99	1.00	
Frt		0.96						0.97		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		3420						1110		1352	1430	
Flt Permitted		0.99						1.00		0.53	1.00	
Satd. Flow (perm)		3420						1110		749	1430	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	116	324	165	0	0	0	0	272	66	411	93	0
RTOR Reduction (vph)	0	108	0	0	0	0	0	15	0	0	0	0
Lane Group Flow (vph)	0	497	0	0	0	0	0	323	0	411	93	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20						20				
Turn Type	Perm									Perm		
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		17.5						34.5		34.5	34.5	
Effective Green, g (s)		17.5						34.5		34.5	34.5	
Actuated g/C Ratio		0.29						0.58		0.58	0.58	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Vehicle Extension (s)		3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)		998						638		431	822	
v/s Ratio Prot								0.29			0.07	
v/s Ratio Perm		0.15								c0.55		
v/c Ratio		0.50						0.51		0.95	0.11	
Uniform Delay, d1		17.6						7.6		12.0	5.8	
Progression Factor		1.69						1.20		1.29	0.72	
Incremental Delay, d2		1.8						0.6		26.5	0.0	
Delay (s)		31.5						9.8		42.0	4.2	
Level of Service		C						A		D	A	
Approach Delay (s)		31.5			0.0			9.8			35.1	
Approach LOS		C			A			A			D	

Intersection Summary			
HCM Average Control Delay	27.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	604	70	0	0	0	0	0	0	146	57	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0									4.0	
Lane Util. Factor		0.91									0.95	
Frpb, ped/bikes		1.00									1.00	
Flpb, ped/bikes		1.00									0.99	
Frt		0.98									1.00	
Flt Protected		1.00									0.97	
Satd. Flow (prot)		3581									2346	
Flt Permitted		1.00									0.97	
Satd. Flow (perm)		3581									2346	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	711	82	0	0	0	0	0	0	172	67	0
RTOR Reduction (vph)	0	13	0	0	0	0	0	0	0	0	150	0
Lane Group Flow (vph)	0	780	0	0	0	0	0	0	0	0	89	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20									20	
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		44.3									7.7	
Effective Green, g (s)		44.3									7.7	
Actuated g/C Ratio		0.74									0.13	
Clearance Time (s)		4.0									4.0	
Vehicle Extension (s)		3.0									3.0	
Lane Grp Cap (vph)		2644									301	
v/s Ratio Prot		c0.22										
v/s Ratio Perm											0.04	
v/c Ratio		0.30									0.30	
Uniform Delay, d1		2.6									23.7	
Progression Factor		1.37									1.64	
Incremental Delay, d2		0.2									0.4	
Delay (s)		3.8									39.4	
Level of Service		A									D	
Approach Delay (s)		3.8			0.0			0.0			39.4	
Approach LOS		A			A			A			D	

Intersection Summary			
HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	39.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	715	0	0	0	0	0	80	26	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.91						0.95				
Frpb, ped/bikes		1.00						0.99				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.96				
Flt Protected		1.00						1.00				
Satd. Flow (prot)		3635						2343				
Flt Permitted		1.00						1.00				
Satd. Flow (perm)		3635						2343				
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	40	841	0	0	0	0	0	94	31	0	0	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	27	0	0	0	0
Lane Group Flow (vph)	0	877	0	0	0	0	0	98	0	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20						20				
Turn Type	Perm											
Protected Phases		4						2				
Permitted Phases	4											
Actuated Green, G (s)		45.2						6.8				
Effective Green, g (s)		45.2						6.8				
Actuated g/C Ratio		0.75						0.11				
Clearance Time (s)		4.0						4.0				
Vehicle Extension (s)		3.0						3.0				
Lane Grp Cap (vph)		2738						266				
v/s Ratio Prot								c0.04				
v/s Ratio Perm		0.24										
v/c Ratio		0.32						0.37				
Uniform Delay, d1		2.4						24.6				
Progression Factor		0.49						0.93				
Incremental Delay, d2		0.3						0.8				
Delay (s)		1.5						23.8				
Level of Service		A						C				
Approach Delay (s)		1.5			0.0			23.8			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	4.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	32.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	23	6	183	66	1152	0	0	1271	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0	4.0			4.0	
Lane Util. Factor					0.95		1.00	0.91			0.91	
Frpb, ped/bikes					0.98		1.00	1.00			1.00	
Flpb, ped/bikes					1.00		1.00	1.00			1.00	
Frt					0.87		1.00	1.00			1.00	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					2948		1734	4988			4969	
Flt Permitted					0.99		0.14	1.00			1.00	
Satd. Flow (perm)					2948		261	4988			4969	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	27	7	215	78	1355	0	0	1495	34
RTOR Reduction (vph)	0	0	0	0	43	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	0	206	0	78	1355	0	0	1526	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type				Perm			Perm					
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					9.4		42.6	42.6			42.6	
Effective Green, g (s)					9.4		42.6	42.6			42.6	
Actuated g/C Ratio					0.16		0.71	0.71			0.71	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Vehicle Extension (s)					3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)					462		185	3541			3528	
v/s Ratio Prot								0.27			c0.31	
v/s Ratio Perm					0.07		0.30					
v/c Ratio					0.45		0.42	0.38			0.43	
Uniform Delay, d1					22.9		3.6	3.5			3.6	
Progression Factor					0.46		0.75	0.18			0.36	
Incremental Delay, d2					0.6		6.3	0.3			0.4	
Delay (s)					11.1		9.0	0.9			1.6	
Level of Service					B		A	A			A	
Approach Delay (s)		0.0			11.1			1.3			1.6	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM Average Control Delay	2.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	15	199	0	0	0	0	0	95	13
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				1.00	1.00						1.00	
Frpb, ped/bikes				1.00	1.00						1.00	
Flpb, ped/bikes				0.98	1.00						1.00	
Frt				1.00	1.00						0.98	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1339	1144						1123	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1339	1144						1123	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	18	234	0	0	0	0	0	112	15
RTOR Reduction (vph)	0	0	0	9	0	0	0	0	0	0	8	0
Lane Group Flow (vph)	0	0	0	9	234	0	0	0	0	0	119	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20						20	
Turn Type				Perm								
Protected Phases					8						6	
Permitted Phases				8								
Actuated Green, G (s)				31.0	31.0						21.0	
Effective Green, g (s)				31.0	31.0						21.0	
Actuated g/C Ratio				0.52	0.52						0.35	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				692	591						393	
v/s Ratio Prot					c0.20						c0.11	
v/s Ratio Perm				0.01								
v/c Ratio				0.01	0.40						0.30	
Uniform Delay, d1				7.1	8.8						14.2	
Progression Factor				1.44	1.10						0.78	
Incremental Delay, d2				0.0	1.9						2.0	
Delay (s)				10.2	11.6						13.0	
Level of Service				B	B						B	
Approach Delay (s)		0.0			11.5			0.0			13.0	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	200	79	0	0	0	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)					4.0	4.0						
Lane Util. Factor					1.00	1.00						
Frpb, ped/bikes					1.00	0.98						
Flpb, ped/bikes					1.00	1.00						
Frt					1.00	0.85						
Flt Protected					1.00	1.00						
Satd. Flow (prot)					1144	1191						
Flt Permitted					1.00	1.00						
Satd. Flow (perm)					1144	1191						
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	0	235	93	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	37	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	235	56	0	0	0	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20			20				
Turn Type						Perm	Perm					
Protected Phases					8			2				
Permitted Phases						8	2					
Actuated Green, G (s)					36.0	36.0						
Effective Green, g (s)					36.0	36.0						
Actuated g/C Ratio					0.60	0.60						
Clearance Time (s)					4.0	4.0						
Lane Grp Cap (vph)					686	715						
v/s Ratio Prot					c0.21							
v/s Ratio Perm						0.05						
v/c Ratio					0.34	0.08						
Uniform Delay, d1					6.0	5.0						
Progression Factor					0.64	0.76						
Incremental Delay, d2					1.3	0.2						
Delay (s)					5.2	4.0						
Level of Service					A	A						
Approach Delay (s)		0.0			4.8			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	4.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	25	111	19	156	51	0	0	72	6
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)					4.0			4.0			4.0	
Lane Util. Factor					0.95			1.00			1.00	
Frpb, ped/bikes					1.00			1.00			1.00	
Flpb, ped/bikes					1.00			0.99			1.00	
Frt					0.98			1.00			0.99	
Flt Protected					0.99			0.96			1.00	
Satd. Flow (prot)					2367			1096			1131	
Flt Permitted					0.99			0.74			1.00	
Satd. Flow (perm)					2367			839			1131	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	29	131	22	184	60	0	0	85	7
RTOR Reduction (vph)	0	0	0	0	16	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	0	166	0	0	244	0	0	89	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20			20			20	
Turn Type				Perm			Perm					
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					16.0			36.0			36.0	
Effective Green, g (s)					16.0			36.0			36.0	
Actuated g/C Ratio					0.27			0.60			0.60	
Clearance Time (s)					4.0			4.0			4.0	
Lane Grp Cap (vph)					631			503			679	
v/s Ratio Prot											0.08	
v/s Ratio Perm					0.07			c0.29				
v/c Ratio					0.26			0.49			0.13	
Uniform Delay, d1					17.3			6.8			5.2	
Progression Factor					1.47			1.64			2.13	
Incremental Delay, d2					1.0			3.1			0.4	
Delay (s)					26.4			14.2			11.5	
Level of Service					C			B			B	
Approach Delay (s)		0.0			26.4			14.2			11.5	
Approach LOS		A			C			B			B	

Intersection Summary			
HCM Average Control Delay	18.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	4	86	100	28	192	0	0	181	29
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)					4.0		4.0	4.0			4.0	
Lane Util. Factor					0.95		1.00	1.00			1.00	
Frpb, ped/bikes					0.98		1.00	1.00			1.00	
Flpb, ped/bikes					1.00		0.99	1.00			1.00	
Frt					0.92		1.00	1.00			0.98	
Flt Protected					1.00		0.95	1.00			1.00	
Satd. Flow (prot)					2208		1350	1144			1120	
Flt Permitted					1.00		0.60	1.00			1.00	
Satd. Flow (perm)					2208		853	1144			1120	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	5	101	118	33	226	0	0	213	34
RTOR Reduction (vph)	0	0	0	0	81	0	0	0	0	0	9	0
Lane Group Flow (vph)	0	0	0	0	143	0	33	226	0	0	238	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20			20			20	
Turn Type				Perm			Perm					
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					19.0		33.0	33.0			33.0	
Effective Green, g (s)					19.0		33.0	33.0			33.0	
Actuated g/C Ratio					0.32		0.55	0.55			0.55	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)					699		469	629			616	
v/s Ratio Prot								0.20			c0.21	
v/s Ratio Perm					0.06		0.04					
v/c Ratio					0.21		0.07	0.36			0.39	
Uniform Delay, d1					15.0		6.3	7.6			7.7	
Progression Factor					0.17		1.04	1.03			0.40	
Incremental Delay, d2					0.6		0.3	1.5			1.7	
Delay (s)					3.2		6.8	9.3			4.8	
Level of Service					A		A	A			A	
Approach Delay (s)		0.0			3.2			9.0			4.8	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	5.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	40.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	39	182	0	0	0	0	0	159	8
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				1.00	1.00						0.95	
Frpb, ped/bikes				1.00	1.00						1.00	
Flpb, ped/bikes				0.99	1.00						1.00	
Frt				1.00	1.00						0.99	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1347	1144						2427	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1347	1144						2427	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	46	214	0	0	0	0	0	187	9
RTOR Reduction (vph)	0	0	0	22	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	0	0	24	214	0	0	0	0	0	190	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20						20	
Turn Type				Perm								
Protected Phases					8						6	
Permitted Phases				8								
Actuated Green, G (s)				31.0	31.0						21.0	
Effective Green, g (s)				31.0	31.0						21.0	
Actuated g/C Ratio				0.52	0.52						0.35	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				696	591						849	
v/s Ratio Prot					c0.19						c0.08	
v/s Ratio Perm				0.02								
v/c Ratio				0.03	0.36						0.22	
Uniform Delay, d1				7.1	8.6						13.8	
Progression Factor				0.17	0.39						0.99	
Incremental Delay, d2				0.1	1.6						0.6	
Delay (s)				1.3	4.9						14.2	
Level of Service				A	A						B	
Approach Delay (s)		0.0			4.3			0.0			14.2	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	8.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	269	143	0	0	0	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)					4.0	4.0						
Lane Util. Factor					1.00	1.00						
Frpb, ped/bikes					1.00	0.98						
Flpb, ped/bikes					1.00	1.00						
Frt					1.00	0.85						
Flt Protected					1.00	1.00						
Satd. Flow (prot)					1144	1191						
Flt Permitted					1.00	1.00						
Satd. Flow (perm)					1144	1191						
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	0	316	168	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	67	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	316	101	0	0	0	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20			20				
Turn Type						Perm	Perm					
Protected Phases					8			2				
Permitted Phases						8	2					
Actuated Green, G (s)					36.0	36.0						
Effective Green, g (s)					36.0	36.0						
Actuated g/C Ratio					0.60	0.60						
Clearance Time (s)					4.0	4.0						
Lane Grp Cap (vph)					686	715						
v/s Ratio Prot					c0.28							
v/s Ratio Perm						0.08						
v/c Ratio					0.46	0.14						
Uniform Delay, d1					6.6	5.2						
Progression Factor					1.00	1.00						
Incremental Delay, d2					2.2	0.4						
Delay (s)					8.9	5.7						
Level of Service					A	A						
Approach Delay (s)		0.0			7.7			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	7.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	61	66	63	37	85	14	1115	52	130	1119	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt		0.93		1.00	0.90		1.00	0.99		1.00	0.99	
Flt Protected		1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1680		1723	1613		1735	4947		1735	4940	
Flt Permitted		1.00		0.60	1.00		0.18	1.00		0.14	1.00	
Satd. Flow (perm)		1680		1091	1613		333	4947		247	4940	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	72	78	74	44	100	16	1312	61	153	1316	72
RTOR Reduction (vph)	0	68	0	0	87	0	0	6	0	0	7	0
Lane Group Flow (vph)	0	82	0	74	57	0	16	1367	0	153	1381	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.0		8.0	8.0		34.9	33.7		44.0	38.8	
Effective Green, g (s)		8.0		8.0	8.0		34.9	33.7		44.0	38.8	
Actuated g/C Ratio		0.13		0.13	0.13		0.58	0.56		0.73	0.65	
Clearance Time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		224		145	215		222	2779		337	3195	
v/s Ratio Prot		0.05			0.04		0.00	c0.28		c0.05	0.28	
v/s Ratio Perm				c0.07			0.04			0.28		
v/c Ratio		0.37		0.51	0.27		0.07	0.49		0.45	0.43	
Uniform Delay, d1		23.7		24.2	23.4		5.3	8.0		3.9	5.2	
Progression Factor		1.00		1.06	1.23		1.00	1.00		2.56	1.36	
Incremental Delay, d2		1.0		2.9	0.6		0.1	0.6		0.9	0.4	
Delay (s)		24.7		28.6	29.5		5.4	8.6		10.9	7.5	
Level of Service		C		C	C		A	A		B	A	
Approach Delay (s)		24.7			29.2			8.6			7.8	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	10.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	224	21	111	196	0	30	0	36	96	2	31
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0		4.0	4.0		4.0		4.0		4.0	
Lane Util. Factor		1.00		1.00	1.00		1.00		1.00		1.00	
Frpb, ped/bikes		1.00		1.00	1.00		1.00		0.97		0.99	
Flpb, ped/bikes		1.00		0.99	1.00		0.99		1.00		0.99	
Frt		0.99		1.00	1.00		1.00		0.85		0.97	
Flt Protected		1.00		0.95	1.00		0.95		1.00		0.96	
Satd. Flow (prot)		1410		1346	1430		1344		1174		1309	
Flt Permitted		1.00		0.55	1.00		0.69		1.00		0.96	
Satd. Flow (perm)		1410		778	1430		977		1174		1309	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	264	25	131	231	0	35	0	42	113	2	36
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	27	0	19	0
Lane Group Flow (vph)	0	284	0	131	231	0	35	0	15	0	132	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type				Perm			custom		custom	Perm		
Protected Phases		4			8						6	
Permitted Phases				8			2		2	6		
Actuated Green, G (s)		30.0		30.0	30.0		22.0		22.0		22.0	
Effective Green, g (s)		30.0		30.0	30.0		22.0		22.0		22.0	
Actuated g/C Ratio		0.50		0.50	0.50		0.37		0.37		0.37	
Clearance Time (s)		4.0		4.0	4.0		4.0		4.0		4.0	
Lane Grp Cap (vph)		705		389	715		358		430		480	
v/s Ratio Prot		c0.20			0.16							
v/s Ratio Perm				0.17			0.04		0.01		0.10	
v/c Ratio		0.40		0.34	0.32		0.10		0.04		0.28	
Uniform Delay, d1		9.4		9.0	8.9		12.5		12.2		13.4	
Progression Factor		1.03		0.53	0.53		1.00		1.00		0.23	
Incremental Delay, d2		1.6		2.3	1.2		0.5		0.2		1.4	
Delay (s)		11.3		7.1	5.9		13.0		12.3		4.5	
Level of Service		B		A	A		B		B		A	
Approach Delay (s)		11.3			6.3			12.7			4.5	
Approach LOS		B			A			B			A	

Intersection Summary			
HCM Average Control Delay	8.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	355	0	0	251	0	56	0	18	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			1.00			0.99				
Flpb, ped/bikes		1.00			1.00			0.99				
Frt		1.00			1.00			0.96				
Flt Protected		1.00			1.00			0.96				
Satd. Flow (prot)		1430			1430			2474				
Flt Permitted		1.00			1.00			0.96				
Satd. Flow (perm)		1430			1430			2474				
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	418	0	0	295	0	66	0	21	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	15	0	0	0	0
Lane Group Flow (vph)	0	418	0	0	295	0	0	72	0	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type	Perm						Perm					
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		35.0			35.0			17.0				
Effective Green, g (s)		35.0			35.0			17.0				
Actuated g/C Ratio		0.58			0.58			0.28				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		834			834			701				
v/s Ratio Prot		c0.29			0.21							
v/s Ratio Perm								0.03				
v/c Ratio		0.50			0.35			0.10				
Uniform Delay, d1		7.4			6.6			15.9				
Progression Factor		0.74			0.93			1.00				
Incremental Delay, d2		2.1			1.0			0.3				
Delay (s)		7.5			7.1			16.2				
Level of Service		A			A			B				
Approach Delay (s)		7.5			7.1			16.2			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	8.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	138	51	4	289	93	16	38	81	22	75	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99			0.98			1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00			1.00			1.00	
Frt	1.00	0.96		1.00	0.96			0.92			1.00	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1350	1360		1344	1367			1278			1411	
Flt Permitted	0.43	1.00		0.62	1.00			0.97			0.92	
Satd. Flow (perm)	617	1360		877	1367			1241			1316	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	88	162	60	5	340	109	19	45	95	26	88	0
RTOR Reduction (vph)	0	22	0	0	19	0	0	67	0	0	0	0
Lane Group Flow (vph)	88	200	0	5	430	0	0	93	0	0	114	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	34.0	34.0		34.0	34.0			18.0			18.0	
Effective Green, g (s)	34.0	34.0		34.0	34.0			18.0			18.0	
Actuated g/C Ratio	0.57	0.57		0.57	0.57			0.30			0.30	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)	350	771		497	775			372			395	
v/s Ratio Prot		0.15			c0.31							
v/s Ratio Perm	0.14			0.01				0.07			c0.09	
v/c Ratio	0.25	0.26		0.01	0.55			0.25			0.29	
Uniform Delay, d1	6.6	6.6		5.7	8.2			15.9			16.1	
Progression Factor	0.31	0.18		1.30	1.13			1.00			0.52	
Incremental Delay, d2	1.5	0.7		0.0	2.5			1.6			1.8	
Delay (s)	3.5	1.9		7.4	11.8			17.5			10.2	
Level of Service	A	A		A	B			B			B	
Approach Delay (s)		2.4			11.8			17.5			10.2	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	9.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	191	93	5	249	119	86	119	5	75	234	2
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.95		1.00	0.95		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1350	1345		1347	1346		1346	1420		1342	1429	
Flt Permitted	0.41	1.00		0.50	1.00		0.52	1.00		0.66	1.00	
Satd. Flow (perm)	580	1345		710	1346		736	1420		938	1429	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	61	225	109	6	293	140	101	140	6	88	275	2
RTOR Reduction (vph)	0	29	0	0	28	0	0	2	0	0	1	0
Lane Group Flow (vph)	61	305	0	6	405	0	101	144	0	88	276	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	29.0	29.0		29.0	29.0		23.0	23.0		23.0	23.0	
Effective Green, g (s)	29.0	29.0		29.0	29.0		23.0	23.0		23.0	23.0	
Actuated g/C Ratio	0.48	0.48		0.48	0.48		0.38	0.38		0.38	0.38	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	280	650		343	651		282	544		360	548	
v/s Ratio Prot		0.23			c0.30			0.10			c0.19	
v/s Ratio Perm	0.11			0.01			0.14			0.09		
v/c Ratio	0.22	0.47		0.02	0.62		0.36	0.26		0.24	0.50	
Uniform Delay, d1	9.0	10.4		8.1	11.4		13.2	12.7		12.6	14.1	
Progression Factor	1.14	1.17		0.85	0.75		1.00	1.00		1.30	1.22	
Incremental Delay, d2	1.8	2.4		0.1	4.2		3.5	1.2		1.6	3.2	
Delay (s)	12.0	14.5		6.9	12.8		16.7	13.9		18.0	20.5	
Level of Service	B	B		A	B		B	B		B	C	
Approach Delay (s)		14.1			12.7			15.0			19.9	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	15.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	260	52	262	294	0	0	0	0	167	0	50
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		1.00		1.00	1.00						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		0.99	1.00						0.99	
Frt		0.98		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.96	
Satd. Flow (prot)		1394		1352	1430						2477	
Flt Permitted		1.00		0.51	1.00						0.96	
Satd. Flow (perm)		1394		726	1430						2477	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	306	61	308	346	0	0	0	0	196	0	59
RTOR Reduction (vph)	0	12	0	0	0	0	0	0	0	0	43	0
Lane Group Flow (vph)	0	355	0	308	346	0	0	0	0	0	212	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type				Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases				8						6		
Actuated Green, G (s)		36.0		36.0	36.0						16.0	
Effective Green, g (s)		36.0		36.0	36.0						16.0	
Actuated g/C Ratio		0.60		0.60	0.60						0.27	
Clearance Time (s)		4.0		4.0	4.0						4.0	
Lane Grp Cap (vph)		836		436	858						661	
v/s Ratio Prot		0.25			0.24							
v/s Ratio Perm				c0.42							0.09	
v/c Ratio		0.42		0.71	0.40						0.32	
Uniform Delay, d1		6.4		8.3	6.3						17.6	
Progression Factor		0.90		0.68	0.77						0.68	
Incremental Delay, d2		1.5		6.7	1.0						1.3	
Delay (s)		7.3		12.3	5.9						13.2	
Level of Service		A		B	A						B	
Approach Delay (s)		7.3			8.9			0.0			13.2	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	102	382	0	0	350	0	204	5	535	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	1.00			1.00			0.95				
Frpb, ped/bikes	1.00	1.00			1.00			0.98				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			1.00			0.89				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1353	1430			1430			2323				
Flt Permitted	0.40	1.00			1.00			0.99				
Satd. Flow (perm)	568	1430			1430			2323				
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	120	449	0	0	412	0	240	6	629	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	153	0	0	0	0
Lane Group Flow (vph)	120	449	0	0	412	0	0	722	0	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type	Perm						Perm					
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)	26.0	26.0			26.0			26.0				
Effective Green, g (s)	26.0	26.0			26.0			26.0				
Actuated g/C Ratio	0.43	0.43			0.43			0.43				
Clearance Time (s)	4.0	4.0			4.0			4.0				
Lane Grp Cap (vph)	246	620			620			1007				
v/s Ratio Prot		c0.31			0.29							
v/s Ratio Perm	0.21							0.31				
v/c Ratio	0.49	0.72			0.66			0.93dr				
Uniform Delay, d1	12.2	14.0			13.5			14.0				
Progression Factor	0.83	0.82			1.00			1.00				
Incremental Delay, d2	6.4	6.9			5.5			4.4				
Delay (s)	16.6	18.3			19.1			18.4				
Level of Service	B	B			B			B				
Approach Delay (s)		18.0			19.1			18.4			0.0	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM Average Control Delay	18.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	63	193	172	257	1357	143	73	952	333
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor					0.95		1.00	0.91		1.00	0.91	
Frpb, ped/bikes					0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes					1.00		1.00	1.00		1.00	1.00	
Frt					0.94		1.00	0.99		1.00	0.96	
Flt Protected					0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)					3207		1735	4900		1733	4768	
Flt Permitted					0.99		0.14	1.00		0.16	1.00	
Satd. Flow (perm)					3207		248	4900		286	4768	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	74	227	202	302	1596	168	86	1120	392
RTOR Reduction (vph)	0	0	0	0	22	0	0	19	0	0	104	0
Lane Group Flow (vph)	0	0	0	0	481	0	302	1745	0	86	1409	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type				Perm			pm+pt			Perm		
Protected Phases					8		5	2			6	
Permitted Phases				8			2			6		
Actuated Green, G (s)					13.7		38.3	38.3		25.5	25.5	
Effective Green, g (s)					13.7		38.3	38.3		25.5	25.5	
Actuated g/C Ratio					0.23		0.64	0.64		0.42	0.42	
Clearance Time (s)					4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)					3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)					732		376	3128		122	2026	
v/s Ratio Prot							c0.12	0.36			0.30	
v/s Ratio Perm					0.15		c0.39			0.30		
v/c Ratio					0.66		0.80	0.56		0.70	0.70	
Uniform Delay, d1					21.0		11.5	6.1		14.2	14.1	
Progression Factor					0.79		2.03	0.68		1.00	1.00	
Incremental Delay, d2					1.9		10.4	0.6		28.9	2.0	
Delay (s)					18.5		33.8	4.8		43.1	16.1	
Level of Service					B		C	A		D	B	
Approach Delay (s)		0.0			18.5			9.0			17.5	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	94	123	68	311	0	0	0	0	22	34	123
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		1.00		1.00	1.00						1.00	
Frpb, ped/bikes		0.98		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		0.99	1.00						1.00	
Frt		0.92		1.00	1.00						0.91	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		1295		1345	1430						1269	
Flt Permitted		1.00		0.59	1.00						0.99	
Satd. Flow (perm)		1295		838	1430						1269	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	111	145	80	366	0	0	0	0	26	40	145
RTOR Reduction (vph)	0	65	0	0	0	0	0	0	0	0	99	0
Lane Group Flow (vph)	0	191	0	80	366	0	0	0	0	0	112	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type				Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases				8						6		
Actuated Green, G (s)		33.0		33.0	33.0						19.0	
Effective Green, g (s)		33.0		33.0	33.0						19.0	
Actuated g/C Ratio		0.55		0.55	0.55						0.32	
Clearance Time (s)		4.0		4.0	4.0						4.0	
Lane Grp Cap (vph)		712		461	787						402	
v/s Ratio Prot		0.15			c0.26							
v/s Ratio Perm				0.10							0.09	
v/c Ratio		0.27		0.17	0.47						0.28	
Uniform Delay, d1		7.1		6.7	8.2						15.4	
Progression Factor		0.05		0.66	0.55						1.00	
Incremental Delay, d2		0.7		0.6	1.5						1.7	
Delay (s)		1.1		5.1	6.1						17.1	
Level of Service		A		A	A						B	
Approach Delay (s)		1.1			5.9			0.0			17.1	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	7.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	115	0	0	307	44	46	26	211	171	0	26
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0		4.0		4.0
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			1.00		1.00	0.97		1.00		0.97
Flpb, ped/bikes	0.99	1.00			1.00		0.98	1.00		0.99		1.00
Frt	1.00	1.00			0.98		1.00	0.87		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1349	1430			1120		1339	961		1346		1174
Flt Permitted	0.43	1.00			1.00		0.95	1.00		0.52		1.00
Satd. Flow (perm)	606	1430			1120		1339	961		733		1174
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	1	135	0	0	361	52	54	31	248	201	0	31
RTOR Reduction (vph)	0	0	0	0	9	0	0	153	0	0	0	19
Lane Group Flow (vph)	1	135	0	0	404	0	54	126	0	201	0	12
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20			20			20	
Turn Type	Perm						Perm			custom		custom
Protected Phases		4			8			2				
Permitted Phases	4						2			6		6
Actuated Green, G (s)	29.0	29.0			29.0		23.0	23.0		23.0		23.0
Effective Green, g (s)	29.0	29.0			29.0		23.0	23.0		23.0		23.0
Actuated g/C Ratio	0.48	0.48			0.48		0.38	0.38		0.38		0.38
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0		4.0		4.0
Lane Grp Cap (vph)	293	691			541		513	368		281		450
v/s Ratio Prot		0.09			c0.36			0.13				
v/s Ratio Perm	0.00						0.04			c0.27		0.01
v/c Ratio	0.00	0.20			0.75		0.11	0.34		0.72		0.03
Uniform Delay, d1	8.0	8.8			12.5		11.9	13.1		15.7		11.5
Progression Factor	1.29	1.20			1.43		0.94	0.82		1.00		1.00
Incremental Delay, d2	0.0	0.6			8.1		0.4	2.5		14.5		0.1
Delay (s)	10.4	11.2			26.1		11.6	13.2		30.2		11.6
Level of Service	B	B			C		B	B		C		B
Approach Delay (s)		11.2			26.1			13.0			27.7	
Approach LOS		B			C			B			C	

Intersection Summary			
HCM Average Control Delay	20.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	470	36	11	299	0	35	0	207	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0		4.0	4.0			4.0				
Lane Util. Factor		1.00		1.00	1.00			1.00				
Frpb, ped/bikes		1.00		1.00	1.00			0.97				
Flpb, ped/bikes		1.00		1.00	1.00			1.00				
Frt		0.99		1.00	1.00			0.88				
Flt Protected		1.00		0.95	1.00			0.99				
Satd. Flow (prot)		1412		1352	1144			1216				
Flt Permitted		1.00		0.34	1.00			0.96				
Satd. Flow (perm)		1412		489	1144			1178				
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	553	42	13	352	0	41	0	244	0	0	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	179	0	0	0	0
Lane Group Flow (vph)	0	591	0	13	352	0	0	106	0	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20							
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		36.0		36.0	36.0			16.0				
Effective Green, g (s)		36.0		36.0	36.0			16.0				
Actuated g/C Ratio		0.60		0.60	0.60			0.27				
Clearance Time (s)		4.0		4.0	4.0			4.0				
Lane Grp Cap (vph)		847		293	686			314				
v/s Ratio Prot		c0.42			0.31							
v/s Ratio Perm				0.03				c0.09				
v/c Ratio		0.70		0.04	0.51			0.34				
Uniform Delay, d1		8.3		4.9	6.9			17.7				
Progression Factor		1.41		1.25	0.83			0.86				
Incremental Delay, d2		4.1		0.2	1.9			2.7				
Delay (s)		15.7		6.3	7.7			18.0				
Level of Service		B		A	A			B				
Approach Delay (s)		15.7			7.6			18.0			0.0	
Approach LOS		B			A			B			A	

Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	401	225	1	286	52	24	95	0	76	71	10
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00			1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00			0.99	
Frt	1.00	0.95		1.00	0.98		1.00	1.00			0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1349	1336		1359	1112		1352	1430			1373	
Flt Permitted	0.43	1.00		0.14	1.00		0.59	1.00			0.81	
Satd. Flow (perm)	614	1336		204	1112		836	1430			1136	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	8	472	265	1	336	61	28	112	0	89	84	12
RTOR Reduction (vph)	0	34	0	0	11	0	0	0	0	0	4	0
Lane Group Flow (vph)	8	703	0	1	386	0	28	112	0	0	181	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20							
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	28.0	28.0		28.0	28.0		24.0	24.0			16.0	
Effective Green, g (s)	28.0	28.0		28.0	28.0		24.0	24.0			16.0	
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.40	0.40			0.27	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)	287	623		95	519		369	572			303	
v/s Ratio Prot		c0.53			0.35		0.01	c0.08				
v/s Ratio Perm	0.01			0.00			0.03				c0.16	
v/c Ratio	0.03	1.13		0.01	0.74		0.08	0.20			0.60	
Uniform Delay, d1	8.6	16.0		8.6	13.1		11.6	11.7			19.2	
Progression Factor	1.32	1.09		0.73	0.94		0.98	0.95			1.00	
Incremental Delay, d2	0.1	73.0		0.2	8.1		0.3	0.6			8.4	
Delay (s)	11.5	90.5		6.4	20.4		11.7	11.8			27.6	
Level of Service	B	F		A	C		B	B			C	
Approach Delay (s)		89.7			20.3			11.8			27.6	
Approach LOS		F			C			B			C	

Intersection Summary			
HCM Average Control Delay	55.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	248	281	0	115	0	0	0	0	40	119	193
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frpb, ped/bikes		0.98			1.00						0.98	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.93			1.00						0.93	
Flt Protected		1.00			1.00						0.99	
Satd. Flow (prot)		1303			1144						1290	
Flt Permitted		1.00			1.00						0.97	
Satd. Flow (perm)		1303			1144						1259	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	292	331	0	135	0	0	0	0	47	140	227
RTOR Reduction (vph)	0	68	0	0	0	0	0	0	0	0	73	0
Lane Group Flow (vph)	0	555	0	0	135	0	0	0	0	0	341	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20							
Turn Type				Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases				8			2			6		
Actuated Green, G (s)		31.0			31.0						21.0	
Effective Green, g (s)		31.0			31.0						21.0	
Actuated g/C Ratio		0.52			0.52						0.35	
Clearance Time (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		673			591						441	
v/s Ratio Prot		c0.43			0.12							
v/s Ratio Perm											c0.27	
v/c Ratio		0.82			0.23						0.77	
Uniform Delay, d1		12.2			7.9						17.4	
Progression Factor		0.56			1.00						1.00	
Incremental Delay, d2		4.2			0.9						12.4	
Delay (s)		11.0			8.8						29.8	
Level of Service		B			A						C	
Approach Delay (s)		11.0			8.8			0.0			29.8	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM Average Control Delay	17.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	0	0	0	0	0	115	378	0	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0							4.0				
Lane Util. Factor	1.00							1.00				
Frpb, ped/bikes	1.00							1.00				
Flpb, ped/bikes	0.99							1.00				
Frt	1.00							1.00				
Flt Protected	0.95							0.99				
Satd. Flow (prot)	1345							1411				
Flt Permitted	0.76							0.93				
Satd. Flow (perm)	1072							1321				
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	229	0	0	0	0	0	135	445	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	229	0	0	0	0	0	0	580	0	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type	Perm						Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4						2			6		
Actuated Green, G (s)	16.0							16.0				
Effective Green, g (s)	16.0							16.0				
Actuated g/C Ratio	0.40							0.40				
Clearance Time (s)	4.0							4.0				
Lane Grp Cap (vph)	429							528				
v/s Ratio Prot												
v/s Ratio Perm	c0.21							c0.44				
v/c Ratio	0.53							1.10				
Uniform Delay, d1	9.2							12.0				
Progression Factor	1.00							1.00				
Incremental Delay, d2	4.7							68.8				
Delay (s)	13.9							80.8				
Level of Service	B							F				
Approach Delay (s)		13.9			0.0			80.8			0.0	
Approach LOS		B			A			F			A	

Intersection Summary			
HCM Average Control Delay	61.9	HCM Level of Service	E
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	0	43	1721	85	0	1016
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0			4.0
Lane Util. Factor		1.00	0.91			0.91
Frpb, ped/bikes		0.98	1.00			1.00
Flpb, ped/bikes		1.00	1.00			1.00
Frt		0.85	0.99			1.00
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		1521	4944			4988
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		1521	4944			4988
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	51	2025	100	0	1195
RTOR Reduction (vph)	0	9	5	0	0	0
Lane Group Flow (vph)	0	42	2120	0	0	1195
Confl. Peds. (#/hr)	8	8		8	8	
Turn Type		Perm				
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)		5.0	47.0			47.0
Effective Green, g (s)		5.0	47.0			47.0
Actuated g/C Ratio		0.08	0.78			0.78
Clearance Time (s)		4.0	4.0			4.0
Vehicle Extension (s)		3.0	3.0			3.0
Lane Grp Cap (vph)		127	3873			3907
v/s Ratio Prot			c0.43			0.24
v/s Ratio Perm		c0.03				
v/c Ratio		0.33	0.55			0.31
Uniform Delay, d1		25.9	2.5			1.9
Progression Factor		0.75	0.53			0.29
Incremental Delay, d2		1.5	0.2			0.1
Delay (s)		20.9	1.5			0.7
Level of Service		C	A			A
Approach Delay (s)	20.9		1.5			0.7
Approach LOS	C		A			A

Intersection Summary			
HCM Average Control Delay	1.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	77	2	151	85	0	0	0	0	16	80	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		1.00		1.00	1.00						1.00	
Frpb, ped/bikes		1.00		1.00	1.00						1.00	
Flpb, ped/bikes		1.00		0.99	1.00						1.00	
Frt		1.00		1.00	1.00						1.00	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		1140		1341	1144						1132	
Flt Permitted		1.00		0.70	1.00						0.99	
Satd. Flow (perm)		1140		984	1144						1132	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	91	2	178	100	0	0	0	0	19	94	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	92	0	178	100	0	0	0	0	0	113	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20			20						20	
Turn Type				Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases				8						6		
Actuated Green, G (s)		28.0		28.0	28.0						24.0	
Effective Green, g (s)		28.0		28.0	28.0						24.0	
Actuated g/C Ratio		0.47		0.47	0.47						0.40	
Clearance Time (s)		4.0		4.0	4.0						4.0	
Lane Grp Cap (vph)		532		459	534						453	
v/s Ratio Prot		0.08			0.09							
v/s Ratio Perm				c0.18							0.10	
v/c Ratio		0.17		0.39	0.19						0.25	
Uniform Delay, d1		9.3		10.4	9.4						12.0	
Progression Factor		1.23		0.68	0.72						1.26	
Incremental Delay, d2		0.6		2.3	0.7						1.3	
Delay (s)		12.0		9.3	7.4						16.4	
Level of Service		B		A	A						B	
Approach Delay (s)		12.0			8.6			0.0			16.4	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	11.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	111	0	0	200	56	50	18	51	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0			4.0			4.0	4.0			
Lane Util. Factor	1.00	1.00			1.00			1.00	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	0.97			
Flpb, ped/bikes	0.99	1.00			1.00			0.99	1.00			
Frt	1.00	1.00			0.97			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.96	1.00			
Satd. Flow (prot)	1351	1144			1105			1091	1174			
Flt Permitted	0.55	1.00			1.00			0.96	1.00			
Satd. Flow (perm)	778	1144			1105			1091	1174			
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	2	131	0	0	235	66	59	21	60	0	0	0
RTOR Reduction (vph)	0	0	0	0	17	0	0	0	40	0	0	0
Lane Group Flow (vph)	2	131	0	0	284	0	0	80	20	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20			20			20				
Turn Type	Perm						Perm		Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	32.0	32.0			32.0			20.0	20.0			
Effective Green, g (s)	32.0	32.0			32.0			20.0	20.0			
Actuated g/C Ratio	0.53	0.53			0.53			0.33	0.33			
Clearance Time (s)	4.0	4.0			4.0			4.0	4.0			
Lane Grp Cap (vph)	415	610			589			364	391			
v/s Ratio Prot		0.11			c0.26							
v/s Ratio Perm	0.00							0.07	0.02			
v/c Ratio	0.00	0.21			0.48			0.22	0.05			
Uniform Delay, d1	6.6	7.4			8.8			14.4	13.6			
Progression Factor	0.36	0.38			0.90			0.85	1.03			
Incremental Delay, d2	0.0	0.8			2.4			1.3	0.2			
Delay (s)	2.4	3.6			10.4			13.5	14.3			
Level of Service	A	A			B			B	B			
Approach Delay (s)		3.6			10.4			13.8			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	9.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	129	62	43	6	235	49	38	39	31	13	15	8
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99			0.99			0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00			0.99			1.00	
Frt	1.00	0.94		1.00	0.97			0.96			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.98	
Satd. Flow (prot)	1347	1058		1342	1108			1065			1079	
Flt Permitted	0.52	1.00		0.68	1.00			0.90			0.91	
Satd. Flow (perm)	734	1058		957	1108			980			1005	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	152	73	51	7	276	58	45	46	36	15	18	9
RTOR Reduction (vph)	0	24	0	0	13	0	0	24	0	0	6	0
Lane Group Flow (vph)	152	100	0	7	321	0	0	103	0	0	36	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20			20			20			20	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	32.0	32.0		32.0	32.0			20.0			20.0	
Effective Green, g (s)	32.0	32.0		32.0	32.0			20.0			20.0	
Actuated g/C Ratio	0.53	0.53		0.53	0.53			0.33			0.33	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)	391	564		510	591			327			335	
v/s Ratio Prot		0.09			c0.29							
v/s Ratio Perm	0.21			0.01				c0.11			0.04	
v/c Ratio	0.39	0.18		0.01	0.54			0.31			0.11	
Uniform Delay, d1	8.2	7.2		6.6	9.2			14.9			13.8	
Progression Factor	0.65	0.58		1.38	1.14			1.06			1.33	
Incremental Delay, d2	2.9	0.7		0.0	2.5			2.5			0.5	
Delay (s)	8.2	4.8		9.1	13.0			18.3			18.9	
Level of Service	A	A		A	B			B			B	
Approach Delay (s)		6.7			12.9			18.3			18.9	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	97	17	75	299	94	39	67	38	1	240	18
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.98		1.00	0.96		1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1350	1113		1342	1094		1347	1068		1342	1412	
Flt Permitted	0.41	1.00		0.67	1.00		0.46	1.00		0.68	1.00	
Satd. Flow (perm)	580	1113		948	1094		649	1068		957	1412	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	5	114	20	88	352	111	46	79	45	1	282	21
RTOR Reduction (vph)	0	9	0	0	19	0	0	30	0	0	5	0
Lane Group Flow (vph)	5	125	0	88	444	0	46	94	0	1	298	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20			20			20				
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	32.0	32.0		32.0	32.0		20.0	20.0		20.0	20.0	
Effective Green, g (s)	32.0	32.0		32.0	32.0		20.0	20.0		20.0	20.0	
Actuated g/C Ratio	0.53	0.53		0.53	0.53		0.33	0.33		0.33	0.33	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	309	594		506	583		216	356		319	471	
v/s Ratio Prot		0.11			c0.41			0.09			c0.21	
v/s Ratio Perm	0.01			0.09			0.07			0.00		
v/c Ratio	0.02	0.21		0.17	0.76		0.21	0.26		0.00	0.63	
Uniform Delay, d1	6.6	7.4		7.2	11.0		14.4	14.6		13.3	16.9	
Progression Factor	0.86	0.93		0.75	0.87		0.83	0.78		1.15	1.06	
Incremental Delay, d2	0.1	0.8		0.5	6.6		1.9	1.5		0.0	1.5	
Delay (s)	5.8	7.6		5.9	16.1		13.9	13.0		15.3	19.4	
Level of Service	A	A		A	B		B	B		B	B	
Approach Delay (s)		7.6			14.5			13.2			19.4	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	14.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	80	6	1	90	0	333	34	37	1	115	46
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes		1.00		1.00	1.00			1.00			0.99	
Flpb, ped/bikes		1.00		0.99	1.00			0.99			1.00	
Frt		0.99		1.00	1.00			0.99			0.96	
Flt Protected		0.98		0.95	1.00			0.96			1.00	
Satd. Flow (prot)		1110		1344	1144			1340			1089	
Flt Permitted		0.86		0.66	1.00			0.67			1.00	
Satd. Flow (perm)		976		931	1144			932			1088	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	59	94	7	1	106	0	392	40	44	1	135	54
RTOR Reduction (vph)	0	3	0	0	0	0	0	6	0	0	22	0
Lane Group Flow (vph)	0	157	0	1	106	0	0	470	0	0	168	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20			20						20	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		16.0		16.0	16.0			36.0			36.0	
Effective Green, g (s)		16.0		16.0	16.0			36.0			36.0	
Actuated g/C Ratio		0.27		0.27	0.27			0.60			0.60	
Clearance Time (s)		4.0		4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)		260		248	305			559			653	
v/s Ratio Prot					0.09							
v/s Ratio Perm		c0.16		0.00				c0.50			0.15	
v/c Ratio		0.60		0.00	0.35			0.84			0.26	
Uniform Delay, d1		19.2		16.2	17.8			9.7			5.7	
Progression Factor		0.87		0.68	0.64			0.71			0.76	
Incremental Delay, d2		9.8		0.0	3.1			11.5			0.5	
Delay (s)		26.6		11.1	14.4			18.3			4.8	
Level of Service		C		B	B			B			A	
Approach Delay (s)		26.6			14.4			18.3			4.8	
Approach LOS		C			B			B			A	

Intersection Summary			
HCM Average Control Delay	16.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	76	6	0	0	92	171	1	250	0	57	15	59
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00			0.98	
Flpb, ped/bikes	0.99	1.00			1.00	1.00		1.00			1.00	
Frt	1.00	1.00			1.00	0.85		1.00			0.94	
Flt Protected	0.95	1.00			1.00	1.00		1.00			0.98	
Satd. Flow (prot)	1490	1272			1589	1304		1271			1433	
Flt Permitted	0.69	1.00			1.00	1.00		1.00			0.80	
Satd. Flow (perm)	1078	1272			1589	1304		1271			1173	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	89	7	0	0	108	201	1	294	0	67	18	69
RTOR Reduction (vph)	0	0	0	0	0	137	0	0	0	0	31	0
Lane Group Flow (vph)	89	7	0	0	108	64	0	295	0	0	123	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20						20				
Turn Type	Perm					Perm	Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4					8	2			6		
Actuated Green, G (s)	19.0	19.0			19.0	19.0		33.0			33.0	
Effective Green, g (s)	19.0	19.0			19.0	19.0		33.0			33.0	
Actuated g/C Ratio	0.32	0.32			0.32	0.32		0.55			0.55	
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0			4.0	
Lane Grp Cap (vph)	341	403			503	413		699			645	
v/s Ratio Prot		0.01			0.07							
v/s Ratio Perm	c0.08					0.05		0.23			0.10	
v/c Ratio	0.26	0.02			0.21	0.15		0.42			0.19	
Uniform Delay, d1	15.3	14.1			15.0	14.7		7.9			6.8	
Progression Factor	0.94	1.10			1.00	1.00		0.84			1.00	
Incremental Delay, d2	1.3	0.1			1.0	0.8		0.2			0.7	
Delay (s)	15.7	15.5			16.0	15.5		6.8			7.4	
Level of Service	B	B			B	B		A			A	
Approach Delay (s)		15.7			15.7			6.8			7.4	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	11.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	242	288	237	244	0	482	0	1082	38	18	988	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	0.88	1.00		1.00		0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.98	1.00		0.98		1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00		0.85		0.99		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1736	1827	2676	1736		1521		4956		1736	4988	
Flt Permitted	0.95	1.00	1.00	0.95		1.00		1.00		0.20	1.00	
Satd. Flow (perm)	1736	1827	2676	1736		1521		4956		373	4988	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	285	339	279	287	0	567	0	1273	45	21	1162	0
RTOR Reduction (vph)	0	0	133	0	0	127	0	6	0	0	0	0
Lane Group Flow (vph)	285	339	146	287	0	440	0	1312	0	21	1162	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type	Split		Perm	Prot		custom				pm+pt		
Protected Phases	4	4		8				2		1	6	
Permitted Phases			4			8				6		
Actuated Green, G (s)	13.5	13.5	13.5	14.5		14.5		15.6		20.0	20.0	
Effective Green, g (s)	13.5	13.5	13.5	14.5		14.5		15.6		20.0	20.0	
Actuated g/C Ratio	0.22	0.22	0.22	0.24		0.24		0.26		0.33	0.33	
Clearance Time (s)	4.0	4.0	4.0	4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	391	411	602	420		368		1289		133	1663	
v/s Ratio Prot	0.16	c0.19		0.17				c0.26		0.00	c0.23	
v/s Ratio Perm			0.05			c0.29				0.05		
v/c Ratio	0.73	0.82	0.24	0.68		1.20		1.02		0.16	0.70	
Uniform Delay, d1	21.6	22.1	19.1	20.7		22.8		22.2		17.5	17.4	
Progression Factor	1.00	1.00	1.00	1.06		1.17		1.01		1.87	1.73	
Incremental Delay, d2	6.7	12.7	0.2	3.7		108.3		29.3		0.5	2.4	
Delay (s)	28.2	34.8	19.3	25.6		135.0		51.8		33.3	32.4	
Level of Service	C	C	B	C		F		D		C	C	
Approach Delay (s)		27.9			98.2			51.8			32.4	
Approach LOS		C			F			D			C	

Intersection Summary			
HCM Average Control Delay	50.7	HCM Level of Service	D
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	328	20	21	503	0	0	0	0	5	22	208
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0		4.0	4.0						4.0	
Lane Util. Factor		1.00		1.00	1.00						1.00	
Frpb, ped/bikes		1.00		1.00	1.00						0.97	
Flpb, ped/bikes		1.00		0.99	1.00						1.00	
Frt		0.99		1.00	1.00						0.88	
Flt Protected		1.00		0.95	1.00						1.00	
Satd. Flow (prot)		1133		1348	1430						975	
Flt Permitted		1.00		0.51	1.00						1.00	
Satd. Flow (perm)		1133		718	1430						975	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	386	24	25	592	0	0	0	0	6	26	245
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	0	0	205	0
Lane Group Flow (vph)	0	407	0	25	592	0	0	0	0	0	72	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20									20	
Turn Type				Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases				8						6		
Actuated Green, G (s)		42.1		42.1	42.1						9.9	
Effective Green, g (s)		42.1		42.1	42.1						9.9	
Actuated g/C Ratio		0.70		0.70	0.70						0.17	
Clearance Time (s)		4.0		4.0	4.0						4.0	
Vehicle Extension (s)		3.0		3.0	3.0						3.0	
Lane Grp Cap (vph)		795		504	1003						161	
v/s Ratio Prot		0.36			c0.41							
v/s Ratio Perm				0.03							0.07	
v/c Ratio		0.51		0.05	0.59						0.45	
Uniform Delay, d1		4.2		2.8	4.6						22.6	
Progression Factor		2.24		0.94	0.90						0.84	
Incremental Delay, d2		1.5		0.0	0.9						1.9	
Delay (s)		10.8		2.6	5.0						20.9	
Level of Service		B		A	A						C	
Approach Delay (s)		10.8			4.9			0.0			20.9	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	357	0	0	392	76	77	57	1	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	1.00			1.00			0.95				
Frpb, ped/bikes	1.00	1.00			1.00			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			0.99				
Frt	1.00	1.00			0.98			1.00				
Flt Protected	0.95	1.00			1.00			0.97				
Satd. Flow (prot)	1354	1144			1395			2355				
Flt Permitted	0.43	1.00			1.00			0.97				
Satd. Flow (perm)	607	1144			1395			2355				
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	12	420	0	0	461	89	91	67	1	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	1	0	0	0	0
Lane Group Flow (vph)	12	420	0	0	542	0	0	158	0	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20						20				
Turn Type	Perm						Perm					
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)	43.9	43.9			43.9			8.1				
Effective Green, g (s)	43.9	43.9			43.9			8.1				
Actuated g/C Ratio	0.73	0.73			0.73			0.13				
Clearance Time (s)	4.0	4.0			4.0			4.0				
Vehicle Extension (s)	3.0	3.0			3.0			3.0				
Lane Grp Cap (vph)	444	837			1021			318				
v/s Ratio Prot		0.37			c0.39							
v/s Ratio Perm	0.02							0.07				
v/c Ratio	0.03	0.50			0.53			0.50				
Uniform Delay, d1	2.2	3.4			3.5			24.1				
Progression Factor	1.23	1.08			0.71			0.82				
Incremental Delay, d2	0.1	1.9			0.5			1.2				
Delay (s)	2.8	5.6			3.0			20.9				
Level of Service	A	A			A			C				
Approach Delay (s)		5.5			3.0			20.9			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	6.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	325	10	45	428	17	2	25	15	4	30	32
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.99			0.98	
Flpb, ped/bikes	0.99	1.00		0.99	1.00			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.95			0.93	
Flt Protected	0.95	1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)	1350	1138		1347	1420			1071			1047	
Flt Permitted	0.45	1.00		0.53	1.00			0.99			0.98	
Satd. Flow (perm)	641	1138		751	1420			1057			1026	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	44	382	12	53	504	20	2	29	18	5	35	38
RTOR Reduction (vph)	0	1	0	0	1	0	0	16	0	0	34	0
Lane Group Flow (vph)	44	393	0	53	523	0	0	33	0	0	44	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20						20			20	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	45.9	45.9		45.9	45.9			6.1			6.1	
Effective Green, g (s)	45.9	45.9		45.9	45.9			6.1			6.1	
Actuated g/C Ratio	0.76	0.76		0.76	0.76			0.10			0.10	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	490	871		575	1086			107			104	
v/s Ratio Prot		0.35			c0.37							
v/s Ratio Perm	0.07			0.07				0.03			c0.04	
v/c Ratio	0.09	0.45		0.09	0.48			0.31			0.42	
Uniform Delay, d1	1.8	2.5		1.8	2.6			25.0			25.3	
Progression Factor	0.57	0.35		1.11	0.97			0.96			1.11	
Incremental Delay, d2	0.3	1.5		0.1	0.3			1.2			2.7	
Delay (s)	1.3	2.4		2.0	2.8			25.1			30.9	
Level of Service	A	A		A	A			C			C	
Approach Delay (s)		2.3			2.8			25.1			30.9	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM Average Control Delay	5.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	77	218	60	31	329	61	48	146	20	150	162	76
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99			1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00			1.00		0.99	1.00	
Frt	1.00	0.97		1.00	0.98			0.99		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1350	1099		1347	1389			1111		1347	1347	
Flt Permitted	0.42	1.00		0.53	1.00			0.88		0.55	1.00	
Satd. Flow (perm)	599	1099		752	1389			986		774	1347	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	91	256	71	36	387	72	56	172	24	176	191	89
RTOR Reduction (vph)	0	14	0	0	10	0	0	7	0	0	31	0
Lane Group Flow (vph)	91	313	0	36	449	0	0	245	0	176	249	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20						20				
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	33.3	33.3		33.3	33.3			18.7		18.7	18.7	
Effective Green, g (s)	33.3	33.3		33.3	33.3			18.7		18.7	18.7	
Actuated g/C Ratio	0.55	0.55		0.55	0.55			0.31		0.31	0.31	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	332	610		417	771			307		241	420	
v/s Ratio Prot		0.28			c0.32						0.18	
v/s Ratio Perm	0.15			0.05				c0.25		0.23		
v/c Ratio	0.27	0.51		0.09	0.58			0.80		0.73	0.59	
Uniform Delay, d1	7.0	8.3		6.2	8.8			18.9		18.4	17.4	
Progression Factor	1.42	1.33		1.15	0.97			0.91		1.12	1.13	
Incremental Delay, d2	1.9	2.9		0.1	0.7			12.2		10.0	2.1	
Delay (s)	11.8	13.9		7.2	9.2			29.3		30.6	21.8	
Level of Service	B	B		A	A			C		C	C	
Approach Delay (s)		13.4			9.1			29.3			25.2	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM Average Control Delay	17.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	329	22	6	376	283	33	26	41	91	8	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes		1.00		1.00	0.99			0.99			1.00	
Flpb, ped/bikes		1.00		0.99	1.00			1.00			0.99	
Frt		0.99		1.00	0.94			0.95			1.00	
Flt Protected		1.00		0.95	1.00			0.98			0.96	
Satd. Flow (prot)		1129		1349	1318			1306			1082	
Flt Permitted		0.94		0.52	1.00			0.89			0.70	
Satd. Flow (perm)		1064		741	1318			1180			788	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	29	387	26	7	442	333	39	31	48	107	9	0
RTOR Reduction (vph)	0	3	0	0	36	0	0	39	0	0	0	0
Lane Group Flow (vph)	0	439	0	7	739	0	0	79	0	0	116	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20									20	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		40.8		40.8	40.8			11.2			11.2	
Effective Green, g (s)		40.8		40.8	40.8			11.2			11.2	
Actuated g/C Ratio		0.68		0.68	0.68			0.19			0.19	
Clearance Time (s)		4.0		4.0	4.0			4.0			4.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		724		504	896			220			147	
v/s Ratio Prot					c0.56							
v/s Ratio Perm		0.41		0.01				0.07			c0.15	
v/c Ratio		0.61		0.01	0.82			0.36			0.79	
Uniform Delay, d1		5.2		3.1	7.0			21.3			23.3	
Progression Factor		1.05		0.58	0.44			1.34			1.04	
Incremental Delay, d2		3.2		0.0	0.6			1.0			23.3	
Delay (s)		8.6		1.8	3.7			29.4			47.5	
Level of Service		A		A	A			C			D	
Approach Delay (s)		8.6			3.7			29.4			47.5	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM Average Control Delay	10.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	430	0	0	455	153	207	125	0	97	0	3
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			0.99			1.00			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			0.99			0.99	
Frt	1.00	1.00			0.97			1.00			1.00	
Flt Protected	0.95	1.00			1.00			0.97			0.95	
Satd. Flow (prot)	1359	1144			1370			1101			1348	
Flt Permitted	0.15	1.00			1.00			0.76			0.59	
Satd. Flow (perm)	219	1144			1370			858			835	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	35	506	0	0	535	180	244	147	0	114	0	4
RTOR Reduction (vph)	0	0	0	0	20	0	0	0	0	0	2	0
Lane Group Flow (vph)	35	506	0	0	695	0	0	391	0	0	116	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)		20						20				
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	28.0	28.0			28.0			24.0			24.0	
Effective Green, g (s)	28.0	28.0			28.0			24.0			24.0	
Actuated g/C Ratio	0.47	0.47			0.47			0.40			0.40	
Clearance Time (s)	4.0	4.0			4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	102	534			639			343			334	
v/s Ratio Prot		0.44			c0.51							
v/s Ratio Perm	0.16							c0.46			0.14	
v/c Ratio	0.34	0.95			1.09			1.14			0.35	
Uniform Delay, d1	10.2	15.3			16.0			18.0			12.5	
Progression Factor	0.90	0.84			1.00			0.98			1.03	
Incremental Delay, d2	7.5	24.9			61.6			92.2			0.6	
Delay (s)	16.7	37.8			77.6			109.8			13.5	
Level of Service	B	D			E			F			B	
Approach Delay (s)		36.4			77.6			109.8			13.5	
Approach LOS		D			E			F			B	

Intersection Summary			
HCM Average Control Delay	67.8	HCM Level of Service	E
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	22	2	14	66	1101	0	44	1383	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor				1.00	1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes				1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes				0.99	1.00		1.00	1.00		1.00	1.00	
Frt				1.00	0.87		1.00	1.00		1.00	1.00	
Flt Protected				0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)				1720	1554		1734	4988		1731	4968	
Flt Permitted				0.95	1.00		0.13	1.00		0.20	1.00	
Satd. Flow (perm)				1720	1554		240	4988		367	4968	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	26	2	16	78	1295	0	52	1627	39
RTOR Reduction (vph)	0	0	0	0	15	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	0	0	26	3	0	78	1295	0	52	1664	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type				Perm			Perm			Perm		
Protected Phases					8			2			6	
Permitted Phases				8			2			6		
Actuated Green, G (s)				3.0	3.0		49.0	49.0		49.0	49.0	
Effective Green, g (s)				3.0	3.0		49.0	49.0		49.0	49.0	
Actuated g/C Ratio				0.05	0.05		0.82	0.82		0.82	0.82	
Clearance Time (s)				4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)				3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)				86	78		196	4074		300	4057	
v/s Ratio Prot					0.00			0.26			c0.34	
v/s Ratio Perm				c0.02			0.33			0.14		
v/c Ratio				0.30	0.04		0.40	0.32		0.17	0.41	
Uniform Delay, d1				27.5	27.1		1.5	1.4		1.2	1.5	
Progression Factor				0.52	0.36		1.61	0.11		0.31	0.33	
Incremental Delay, d2				2.0	0.2		5.3	0.2		1.0	0.2	
Delay (s)				16.2	10.1		7.7	0.3		1.3	0.7	
Level of Service				B	B		A	A		A	A	
Approach Delay (s)		0.0			13.7			0.7			0.8	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM Average Control Delay	0.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	44	6	36	0	0	0	0	4	37	2
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frpb, ped/bikes		0.97			1.00						1.00	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.86			1.00						0.99	
Flt Protected		1.00			0.99						1.00	
Satd. Flow (prot)		1194			1134						1130	
Flt Permitted		1.00			0.98						1.00	
Satd. Flow (perm)		1194			1118						1130	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	52	7	42	0	0	0	0	5	44	2
RTOR Reduction (vph)	0	29	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	23	0	0	49	0	0	0	0	0	50	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20						20	
Turn Type				Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases				8						6		
Actuated Green, G (s)		26.0			26.0						26.0	
Effective Green, g (s)		26.0			26.0						26.0	
Actuated g/C Ratio		0.43			0.43						0.43	
Clearance Time (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		517			484						490	
v/s Ratio Prot		0.02										
v/s Ratio Perm					c0.04						0.04	
v/c Ratio		0.04			0.10						0.10	
Uniform Delay, d1		9.8			10.1						10.1	
Progression Factor		1.00			0.84						0.87	
Incremental Delay, d2		0.2			0.4						0.4	
Delay (s)		10.0			8.8						9.1	
Level of Service		A			A						A	
Approach Delay (s)		10.0			8.8			0.0			9.1	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.10		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	22	0	0	42	148	0	0	0	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		1.00			1.00							
Frpb, ped/bikes		1.00			0.98							
Flpb, ped/bikes		1.00			1.00							
Frt		1.00			0.89							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		1427			1007							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		1423			1007							
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	1	26	0	0	49	174	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	70	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	27	0	0	153	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20			20				
Turn Type	Perm						Perm					
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		36.0			36.0							
Effective Green, g (s)		36.0			36.0							
Actuated g/C Ratio		0.60			0.60							
Clearance Time (s)		4.0			4.0							
Lane Grp Cap (vph)		854			604							
v/s Ratio Prot					c0.15							
v/s Ratio Perm		0.02										
v/c Ratio		0.03			0.25							
Uniform Delay, d1		4.9			5.7							
Progression Factor		1.07			0.74							
Incremental Delay, d2		0.1			0.8							
Delay (s)		5.3			5.0							
Level of Service		A			A							
Approach Delay (s)		5.3			5.0			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	5.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Volume (vph)	2	25	16	23	37	5	146	35	193	25	56	2
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			0.98			1.00	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.95			0.99			0.93			1.00	
Flt Protected		1.00			0.98			0.98			0.99	
Satd. Flow (prot)		1336			1104			1020			1121	
Flt Permitted		0.99			0.91			0.84			0.86	
Satd. Flow (perm)		1330			1023			877			982	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	2	29	19	27	44	6	172	41	227	29	66	2
RTOR Reduction (vph)	0	14	0	0	4	0	0	64	0	0	1	0
Lane Group Flow (vph)	0	36	0	0	73	0	0	376	0	0	96	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20			20			20	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		16.0			16.0			36.0			36.0	
Effective Green, g (s)		16.0			16.0			36.0			36.0	
Actuated g/C Ratio		0.27			0.27			0.60			0.60	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		355			273			526			589	
v/s Ratio Prot												
v/s Ratio Perm		0.03			c0.07			c0.43			0.10	
v/c Ratio		0.10			0.27			0.71			0.16	
Uniform Delay, d1		16.6			17.4			8.4			5.3	
Progression Factor		0.80			0.61			1.53			1.06	
Incremental Delay, d2		0.6			2.4			6.9			0.6	
Delay (s)		13.9			12.9			19.8			6.2	
Level of Service		B			B			B			A	
Approach Delay (s)		13.9			12.9			19.8			6.2	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM Average Control Delay	16.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	123	37	114	3	24	1	27	152	3	4	247	10
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frpb, ped/bikes		0.99			1.00		1.00	1.00			1.00	
Flpb, ped/bikes		0.99			1.00		0.99	1.00			1.00	
Frt		0.94			1.00		1.00	1.00			0.99	
Flt Protected		0.98			0.99		0.95	1.00			1.00	
Satd. Flow (prot)		1293			1131		1348	1140			1136	
Flt Permitted		0.85			0.97		0.54	1.00			1.00	
Satd. Flow (perm)		1124			1102		765	1140			1133	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	145	44	134	4	28	1	32	179	4	5	291	12
RTOR Reduction (vph)	0	43	0	0	1	0	0	1	0	0	2	0
Lane Group Flow (vph)	0	280	0	0	32	0	32	182	0	0	306	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20			20			20	
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		25.0			25.0		27.0	27.0			27.0	
Effective Green, g (s)		25.0			25.0		27.0	27.0			27.0	
Actuated g/C Ratio		0.42			0.42		0.45	0.45			0.45	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)		468			459		344	513			510	
v/s Ratio Prot								0.16				
v/s Ratio Perm		c0.25			0.03		0.04				c0.27	
v/c Ratio		0.60			0.07		0.09	0.35			0.60	
Uniform Delay, d1		13.6			10.5		9.5	10.8			12.4	
Progression Factor		0.78			1.43		0.84	0.83			1.14	
Incremental Delay, d2		4.7			0.3		0.5	1.9			4.7	
Delay (s)		15.3			15.3		8.5	10.8			18.9	
Level of Service		B			B		A	B			B	
Approach Delay (s)		15.3			15.3			10.5			18.9	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	15.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	19	37	1	1	1	24	60	68	0	61	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.98			0.99			0.98			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.91			0.95			0.94			1.00	
Flt Protected		1.00			0.98			0.99			1.00	
Satd. Flow (prot)		1272			1058			1310			1144	
Flt Permitted		1.00			0.97			0.96			1.00	
Satd. Flow (perm)		1272			1039			1270			1144	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	22	44	1	1	1	28	71	80	0	72	0
RTOR Reduction (vph)	0	28	0	0	1	0	0	40	0	0	0	0
Lane Group Flow (vph)	0	38	0	0	2	0	0	139	0	0	72	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20						20	
Turn Type				Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases				8			2			6		
Actuated Green, G (s)		22.0			22.0			30.0			30.0	
Effective Green, g (s)		22.0			22.0			30.0			30.0	
Actuated g/C Ratio		0.37			0.37			0.50			0.50	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		466			381			635			572	
v/s Ratio Prot		c0.03									0.06	
v/s Ratio Perm					0.00			c0.11				
v/c Ratio		0.08			0.01			0.22			0.13	
Uniform Delay, d1		12.4			12.1			8.4			8.0	
Progression Factor		0.68			0.87			1.88			0.93	
Incremental Delay, d2		0.3			0.0			0.8			0.4	
Delay (s)		8.7			10.5			16.6			7.9	
Level of Service		A			B			B			A	
Approach Delay (s)		8.7			10.5			16.6			7.9	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	13.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.16		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	41	20	41	8	1	8	0	0	0	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0			4.0							
Lane Util. Factor		1.00			1.00							
Frpb, ped/bikes		0.99			0.98							
Flpb, ped/bikes		0.99			0.99							
Frt		0.95			0.94							
Flt Protected		0.98			0.98							
Satd. Flow (prot)		1301			1023							
Flt Permitted		0.91			0.93							
Satd. Flow (perm)		1209			972							
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	48	24	48	9	1	9	0	0	0	0	0	0
RTOR Reduction (vph)	0	19	0	0	4	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	101	0	0	15	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Parking (#/hr)					20			20				
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		36.0			36.0							
Effective Green, g (s)		36.0			36.0							
Actuated g/C Ratio		0.60			0.60							
Clearance Time (s)		4.0			4.0							
Lane Grp Cap (vph)		725			583							
v/s Ratio Prot												
v/s Ratio Perm		c0.08			0.02							
v/c Ratio		0.14			0.03							
Uniform Delay, d1		5.2			4.9							
Progression Factor		1.59			1.00							
Incremental Delay, d2		0.4			0.1							
Delay (s)		8.7			5.0							
Level of Service		A			A							
Approach Delay (s)		8.7			5.0			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.14		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	78	65	61	34	77	29	1067	60	181	1171	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt		0.94		1.00	0.90		1.00	0.99		1.00	0.99	
Flt Protected		1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1699		1724	1613		1735	4938		1735	4939	
Flt Permitted		1.00		0.55	1.00		0.17	1.00		0.14	1.00	
Satd. Flow (perm)		1699		989	1613		311	4938		249	4939	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	92	76	72	40	91	34	1255	71	213	1378	76
RTOR Reduction (vph)	0	59	0	0	79	0	0	8	0	0	7	0
Lane Group Flow (vph)	0	109	0	72	52	0	34	1318	0	213	1447	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.2		8.2	8.2		33.8	31.3		43.8	37.3	
Effective Green, g (s)		8.2		8.2	8.2		33.8	31.3		43.8	37.3	
Actuated g/C Ratio		0.14		0.14	0.14		0.56	0.52		0.73	0.62	
Clearance Time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		232		135	220		235	2576		392	3070	
v/s Ratio Prot		0.06			0.03		0.01	0.27		c0.08	0.29	
v/s Ratio Perm				c0.07			0.08			c0.32		
v/c Ratio		0.47		0.53	0.24		0.14	0.51		0.54	0.47	
Uniform Delay, d1		23.9		24.1	23.1		5.8	9.4		4.8	6.1	
Progression Factor		1.00		1.08	1.27		1.00	1.00		2.55	0.46	
Incremental Delay, d2		1.5		3.9	0.6		0.3	0.7		1.5	0.5	
Delay (s)		25.4		29.9	29.8		6.1	10.1		13.8	3.3	
Level of Service		C		C	C		A	B		B	A	
Approach Delay (s)		25.4			29.8			10.0			4.6	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	296	23	114	180	0	30	0	36	73	3	33
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0		4.0	4.0		4.0		4.0		4.0	
Lane Util. Factor		1.00		1.00	1.00		1.00		1.00		1.00	
Frpb, ped/bikes		1.00		1.00	1.00		1.00		0.97		0.99	
Flpb, ped/bikes		1.00		0.99	1.00		0.99		1.00		0.99	
Frt		0.99		1.00	1.00		1.00		0.85		0.96	
Flt Protected		1.00		0.95	1.00		0.95		1.00		0.97	
Satd. Flow (prot)		1413		1348	1430		1343		1174		1301	
Flt Permitted		1.00		0.48	1.00		0.71		1.00		0.97	
Satd. Flow (perm)		1413		675	1430		1003		1174		1301	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	348	27	134	212	0	35	0	42	86	4	39
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	27	0	25	0
Lane Group Flow (vph)	0	370	0	134	212	0	35	0	15	0	104	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type				Perm			custom		custom	Perm		
Protected Phases		4			8						6	
Permitted Phases				8			2		2	6		
Actuated Green, G (s)		31.0		31.0	31.0		21.0		21.0		21.0	
Effective Green, g (s)		31.0		31.0	31.0		21.0		21.0		21.0	
Actuated g/C Ratio		0.52		0.52	0.52		0.35		0.35		0.35	
Clearance Time (s)		4.0		4.0	4.0		4.0		4.0		4.0	
Lane Grp Cap (vph)		730		349	739		351		411		455	
v/s Ratio Prot		c0.26			0.15							
v/s Ratio Perm				0.20			0.03		0.01		0.08	
v/c Ratio		0.51		0.38	0.29		0.10		0.04		0.23	
Uniform Delay, d1		9.5		8.7	8.2		13.1		12.8		13.8	
Progression Factor		0.99		0.66	0.65		1.00		1.00		1.08	
Incremental Delay, d2		2.3		3.1	0.9		0.6		0.2		1.2	
Delay (s)		11.7		8.8	6.3		13.7		13.0		16.0	
Level of Service		B		A	A		B		B		B	
Approach Delay (s)		11.7			7.3			13.3			16.0	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	405	0	0	237	0	57	0	18	0	0	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			1.00			0.99				
Flpb, ped/bikes		1.00			1.00			0.99				
Frt		1.00			1.00			0.96				
Flt Protected		1.00			1.00			0.96				
Satd. Flow (prot)		1430			1430			2475				
Flt Permitted		1.00			1.00			0.96				
Satd. Flow (perm)		1430			1430			2475				
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	476	0	0	279	0	67	0	21	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	15	0	0	0	0
Lane Group Flow (vph)	0	476	0	0	279	0	0	73	0	0	0	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type	Perm						Perm					
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		35.0			35.0			17.0				
Effective Green, g (s)		35.0			35.0			17.0				
Actuated g/C Ratio		0.58			0.58			0.28				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		834			834			701				
v/s Ratio Prot		c0.33			0.20							
v/s Ratio Perm								0.03				
v/c Ratio		0.57			0.33			0.10				
Uniform Delay, d1		7.8			6.5			15.9				
Progression Factor		0.79			1.30			1.00				
Incremental Delay, d2		2.6			0.8			0.3				
Delay (s)		8.8			9.3			16.2				
Level of Service		A			A			B				
Approach Delay (s)		8.8			9.3			16.2			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	9.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	124	154	38	6	278	85	15	165	53	6	88	0
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99			0.99			1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00			1.00			1.00	
Frt	1.00	0.97		1.00	0.96			0.97			1.00	
Flt Protected	0.95	1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)	1350	1378		1344	1369			1370			1425	
Flt Permitted	0.41	1.00		0.61	1.00			0.98			0.98	
Satd. Flow (perm)	588	1378		860	1369			1351			1403	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	146	181	45	7	327	100	18	194	62	7	104	0
RTOR Reduction (vph)	0	15	0	0	19	0	0	17	0	0	0	0
Lane Group Flow (vph)	146	211	0	7	408	0	0	257	0	0	111	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	29.0	29.0		29.0	29.0			23.0			23.0	
Effective Green, g (s)	29.0	29.0		29.0	29.0			23.0			23.0	
Actuated g/C Ratio	0.48	0.48		0.48	0.48			0.38			0.38	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)	284	666		416	662			518			538	
v/s Ratio Prot		0.15			c0.30							
v/s Ratio Perm	0.25			0.01				c0.19			0.08	
v/c Ratio	0.51	0.32		0.02	0.62			0.50			0.21	
Uniform Delay, d1	10.7	9.5		8.1	11.4			14.1			12.4	
Progression Factor	0.32	0.29		1.11	0.85			1.00			0.66	
Incremental Delay, d2	5.5	1.1		0.1	4.1			3.4			0.9	
Delay (s)	9.0	3.8		9.0	13.8			17.4			9.1	
Level of Service	A	A		A	B			B			A	
Approach Delay (s)		5.8			13.7			17.4			9.1	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	213	103	22	231	35	80	72	1	120	207	2
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.95		1.00	0.98		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1347	1345		1348	1396		1345	1427		1341	1428	
Flt Permitted	0.52	1.00		0.46	1.00		0.56	1.00		0.70	1.00	
Satd. Flow (perm)	738	1345		659	1396		789	1427		990	1428	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	9	251	121	26	272	41	94	85	1	141	244	2
RTOR Reduction (vph)	0	29	0	0	9	0	0	1	0	0	1	0
Lane Group Flow (vph)	9	343	0	26	304	0	94	85	0	141	245	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	29.0	29.0		29.0	29.0		23.0	23.0		23.0	23.0	
Effective Green, g (s)	29.0	29.0		29.0	29.0		23.0	23.0		23.0	23.0	
Actuated g/C Ratio	0.48	0.48		0.48	0.48		0.38	0.38		0.38	0.38	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	357	650		319	675		302	547		380	547	
v/s Ratio Prot		c0.26			0.22			0.06			c0.17	
v/s Ratio Perm	0.01			0.04			0.12			0.14		
v/c Ratio	0.03	0.53		0.08	0.45		0.31	0.16		0.37	0.45	
Uniform Delay, d1	8.1	10.8		8.3	10.2		13.0	12.1		13.3	13.8	
Progression Factor	1.14	1.16		0.90	0.97		1.00	1.00		0.98	0.94	
Incremental Delay, d2	0.1	3.0		0.5	2.1		2.7	0.6		2.2	2.1	
Delay (s)	9.4	15.5		8.0	12.0		15.6	12.7		15.2	15.1	
Level of Service	A	B		A	B		B	B		B	B	
Approach Delay (s)		15.3			11.7			14.2			15.1	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	14.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	256	90	201	218	100	0	0	4	46	6	20
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)		4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor		1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes		0.99		1.00	0.99			0.97			0.99	
Flpb, ped/bikes		1.00		0.99	1.00			1.00			0.99	
Frt		0.97		1.00	0.95			0.86			0.96	
Flt Protected		1.00		0.95	1.00			1.00			0.97	
Satd. Flow (prot)		1367		1349	1348			1194			1308	
Flt Permitted		1.00		0.51	1.00			1.00			0.85	
Satd. Flow (perm)		1362		726	1348			1194			1142	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	6	301	106	236	256	118	0	0	5	54	7	24
RTOR Reduction (vph)	0	21	0	0	28	0	0	4	0	0	17	0
Lane Group Flow (vph)	0	392	0	236	347	0	0	1	0	0	68	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		35.0		35.0	35.0			17.0			17.0	
Effective Green, g (s)		35.0		35.0	35.0			17.0			17.0	
Actuated g/C Ratio		0.58		0.58	0.58			0.28			0.28	
Clearance Time (s)		4.0		4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)		795		424	786			338			324	
v/s Ratio Prot					0.26			0.00				
v/s Ratio Perm		0.29		c0.33							c0.06	
v/c Ratio		0.49		0.56	0.44			0.00			0.21	
Uniform Delay, d1		7.3		7.7	7.0			15.4			16.4	
Progression Factor		0.87		1.10	1.13			1.00			0.75	
Incremental Delay, d2		2.0		2.4	0.8			0.0			1.5	
Delay (s)		8.3		10.8	8.7			15.4			13.7	
Level of Service		A		B	A			B			B	
Approach Delay (s)		8.3			9.5			15.4			13.7	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	9.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	109	207	0	1	267	0	248	311	20	29	0	1
Ideal Flow (vphpl)	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710	1710
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	
Flpb, ped/bikes	0.99	1.00			1.00			0.99			1.00	
Frt	1.00	1.00			1.00			1.00			1.00	
Flt Protected	0.95	1.00			1.00			0.98			0.95	
Satd. Flow (prot)	1349	1430			1430			1384			1352	
Flt Permitted	0.39	1.00			1.00			0.85			0.65	
Satd. Flow (perm)	553	1430			1429			1195			915	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	128	244	0	1	314	0	292	366	24	34	0	1
RTOR Reduction (vph)	0	0	0	0	0	0	0	2	0	0	0	0
Lane Group Flow (vph)	128	244	0	0	315	0	0	680	0	0	35	0
Confl. Peds. (#/hr)	8		8	8		8	8		8	8		8
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.0	16.0			16.0			36.0			36.0	
Effective Green, g (s)	16.0	16.0			16.0			36.0			36.0	
Actuated g/C Ratio	0.27	0.27			0.27			0.60			0.60	
Clearance Time (s)	4.0	4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)	147	381			381			717			549	
v/s Ratio Prot		0.17										
v/s Ratio Perm	c0.23				0.22			c0.57			0.04	
v/c Ratio	0.87	0.64			0.83			0.95			0.06	
Uniform Delay, d1	21.0	19.5			20.7			11.1			5.0	
Progression Factor	0.69	0.68			1.00			1.00			1.16	
Incremental Delay, d2	43.1	7.3			18.3			23.1			0.2	
Delay (s)	57.6	20.6			39.0			34.3			6.0	
Level of Service	E	C			D			C			A	
Approach Delay (s)		33.3			39.0			34.3			6.0	
Approach LOS		C			D			C			A	

Intersection Summary			
HCM Average Control Delay	34.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Appendix E

Microsimulation

Total Network Performance By Run

Run Number	100	101	102	103	104	105	106
Total Delay (hr)	16.0	15.5	17.2	17.0	15.0	17.0	16.5
Delay / Veh (s)	43.1	41.0	45.5	44.7	40.3	44.3	44.0
Stop Delay (hr)	10.8	10.5	11.5	11.7	10.1	11.4	11.1
St Del/Veh (s)	29.2	27.7	30.4	30.7	27.2	29.7	29.7
Total Stops	2499	2500	2640	2582	2375	2623	2512
Stop/Veh	1.87	1.84	1.95	1.88	1.78	1.89	1.86
Travel Dist (mi)	653.6	651.0	673.8	668.3	635.1	671.5	656.7
Travel Time (hr)	39.0	38.6	40.8	40.6	37.4	40.7	39.7
Avg Speed (mph)	17	17	17	17	17	17	17
Fuel Used (gal)	30.0	29.5	30.9	30.8	29.2	31.1	30.3
Fuel Eff. (mpg)	21.8	22.1	21.8	21.7	21.7	21.6	21.6
HC Emissions (g)	519	475	563	608	520	464	462
CO Emissions (g)	15971	15376	16714	17463	15803	15206	15114
NOx Emissions (g)	1637	1532	1763	1858	1626	1515	1490
Vehicles Entered	1355	1354	1384	1394	1346	1411	1365
Vehicles Exited	1311	1369	1330	1346	1326	1364	1333
Hourly Exit Rate	7866	8214	7980	8076	7956	8184	7998
Input Volume	48778	48778	48778	48778	48778	48778	48778
% of Volume	16	17	16	17	16	17	16
Denied Entry Before	2	4	2	2	2	3	2
Denied Entry After	4	7	5	0	3	8	4
Density (ft/veh)							
Occupancy (veh)	231	228	242	239	222	240	235

Total Network Performance By Run

Run Number	107	108	109	Avg
Total Delay (hr)	16.0	14.8	17.3	16.2
Delay / Veh (s)	42.5	39.8	44.9	43.1
Stop Delay (hr)	11.0	10.0	11.7	11.0
St Del/Veh (s)	29.2	27.1	30.5	29.2
Total Stops	2518	2337	2702	2520
Stop/Veh	1.86	1.75	1.95	1.86
Travel Dist (mi)	644.2	625.3	697.7	657.7
Travel Time (hr)	38.8	36.9	41.8	39.4
Avg Speed (mph)	17	17	17	17
Fuel Used (gal)	29.4	28.2	31.4	30.1
Fuel Eff. (mpg)	21.9	22.2	22.2	21.9
HC Emissions (g)	496	395	519	502
CO Emissions (g)	15386	13405	16538	15698
NOx Emissions (g)	1564	1312	1653	1595
Vehicles Entered	1363	1353	1405	1376
Vehicles Exited	1350	1315	1369	1343
Hourly Exit Rate	8100	7890	8214	8058
Input Volume	48778	48778	48778	48778
% of Volume	17	16	17	17
Denied Entry Before	4	2	0	1
Denied Entry After	4	4	5	4
Density (ft/veh)				364
Occupancy (veh)	230	219	249	234

Total Network Performance By Run

Run Number	1	10	2	3	4	5	6
Total Delay (hr)	19.7	19.0	17.3	19.4	17.7	17.9	18.9
Delay / Veh (s)	50.0	47.1	44.1	48.9	45.6	45.6	48.3
Total Stops	2956	2788	2609	2931	2690	2618	2774
Stop/Veh	2.09	1.92	1.85	2.05	1.93	1.85	1.97
Travel Dist (mi)	740.2	743.3	720.2	750.9	713.0	727.9	746.1
Travel Time (hr)	46.2	45.4	43.1	46.4	43.3	43.7	45.6
Avg Speed (mph)	16	17	17	16	17	17	17
Fuel Used (gal)	33.7	33.9	32.3	33.9	32.2	32.5	33.7
Fuel Eff. (mpg)	22.0	21.9	22.3	22.1	22.2	22.4	22.1
HC Emissions (g)	560	482	556	492	508	471	660
CO Emissions (g)	17054	15790	16621	15805	15732	15280	18468
NOx Emissions (g)	1754	1578	1736	1602	1622	1531	1994
Vehicles Entered	1442	1474	1432	1444	1427	1428	1402
Vehicles Exited	1393	1437	1395	1416	1362	1400	1417
Hourly Exit Rate	8358	8622	8370	8496	8172	8400	8502
Input Volume	49467	49467	49467	49467	49467	49467	49467
% of Volume	17	17	17	17	17	17	17
Denied Entry Before	4	4	2	5	0	3	2
Denied Entry After	2	7	2	3	3	2	2

Total Network Performance By Run

Run Number	7	8	9	Avg
Total Delay (hr)	18.9	16.2	19.5	18.4
Delay / Veh (s)	46.9	42.2	49.0	46.7
Total Stops	2834	2529	2870	2749
Stop/Veh	1.96	1.84	2.00	1.93
Travel Dist (mi)	741.3	693.2	726.6	730.3
Travel Time (hr)	45.3	40.9	45.5	44.5
Avg Speed (mph)	17	17	16	17
Fuel Used (gal)	33.5	30.6	33.3	32.9
Fuel Eff. (mpg)	22.1	22.7	21.8	22.2
HC Emissions (g)	508	600	555	539
CO Emissions (g)	15790	17213	16467	16422
NOx Emissions (g)	1638	1815	1751	1702
Vehicles Entered	1456	1389	1439	1420
Vehicles Exited	1443	1366	1428	1405
Hourly Exit Rate	8658	8196	8568	8430
Input Volume	49467	49467	49467	49467
% of Volume	18	17	17	17
Denied Entry Before	4	3	2	2
Denied Entry After	6	3	6	3

Total Network Performance By Run

Run Number	1	10	2	3	4	5	6
Total Delay (hr)	23.3	22.6	23.4	25.7	26.0	25.5	22.5
Delay / Veh (s)	61.0	58.4	59.5	66.9	69.4	66.2	60.1
Stop Delay (hr)	16.4	15.9	16.4	18.8	19.7	18.6	16.0
St Del/Veh (s)	42.9	41.0	41.6	48.9	52.5	48.3	42.8
Total Stops	3203	3110	3203	3263	2969	3104	2959
Stop/Veh	2.33	2.23	2.26	2.36	2.20	2.24	2.20
Travel Dist (mi)	670.2	675.0	680.1	669.4	642.2	672.9	656.2
Travel Time (hr)	47.7	47.0	48.2	50.1	49.1	49.8	46.1
Avg Speed (mph)	14	15	14	13	13	14	14
Fuel Used (gal)	32.7	32.8	33.1	33.2	31.8	33.2	31.8
Fuel Eff. (mpg)	20.5	20.6	20.5	20.2	20.2	20.2	20.6
HC Emissions (g)	498	506	541	565	574	487	492
CO Emissions (g)	15795	16064	16470	16650	16643	15697	15647
NOx Emissions (g)	1602	1627	1719	1768	1741	1573	1571
Vehicles Entered	1383	1421	1470	1428	1413	1438	1377
Vehicles Exited	1363	1367	1367	1341	1283	1335	1316
Hourly Exit Rate	8178	8202	8202	8046	7698	8010	7896
Input Volume	49607	49607	49607	49607	49607	49607	49607
% of Volume	16	17	17	16	16	16	16
Denied Entry Before	0	5	7	2	1	2	2
Denied Entry After	1	4	2	2	16	6	2
Density (ft/veh)							
Occupancy (veh)	284	279	286	298	286	295	274

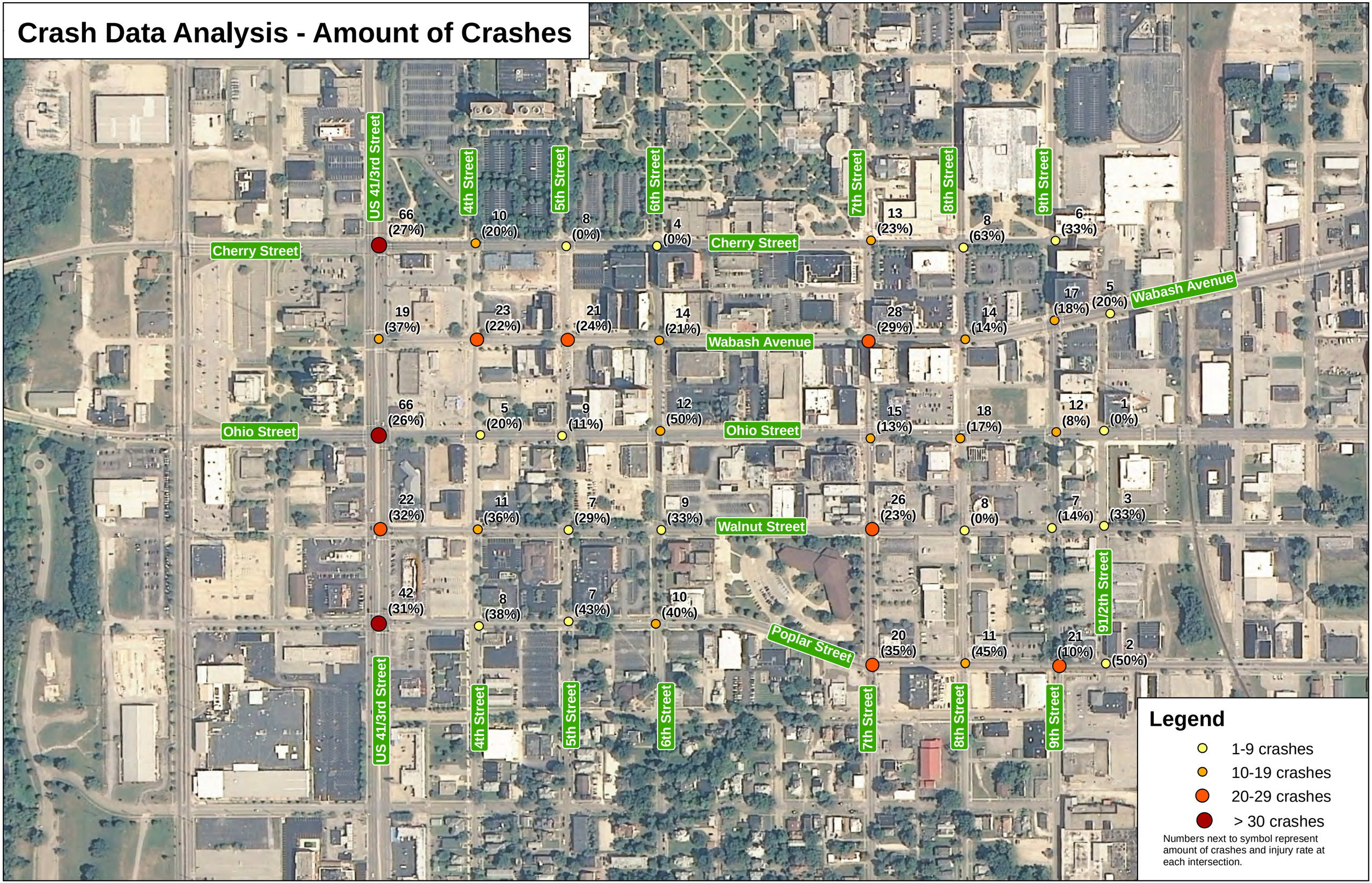
Total Network Performance By Run

Run Number	7	8	9	Avg
Total Delay (hr)	28.6	23.1	22.5	24.3
Delay / Veh (s)	74.5	61.0	58.2	63.4
Stop Delay (hr)	21.3	16.5	16.0	17.5
St Del/Veh (s)	55.5	43.5	41.3	45.8
Total Stops	3289	3142	3008	3113
Stop/Veh	2.38	2.30	2.16	2.26
Travel Dist (mi)	674.9	667.4	671.1	667.9
Travel Time (hr)	52.9	47.4	46.8	48.5
Avg Speed (mph)	13	14	14	14
Fuel Used (gal)	34.1	32.2	32.4	32.7
Fuel Eff. (mpg)	19.8	20.7	20.7	20.4
HC Emissions (g)	546	485	522	522
CO Emissions (g)	16421	15415	16006	16081
NOx Emissions (g)	1723	1552	1661	1654
Vehicles Entered	1440	1406	1424	1412
Vehicles Exited	1320	1329	1365	1338
Hourly Exit Rate	7920	7974	8190	8028
Input Volume	49607	49607	49607	49607
% of Volume	16	16	17	16
Denied Entry Before	1	2	1	0
Denied Entry After	5	6	2	2
Density (ft/veh)				314
Occupancy (veh)	313	281	278	288

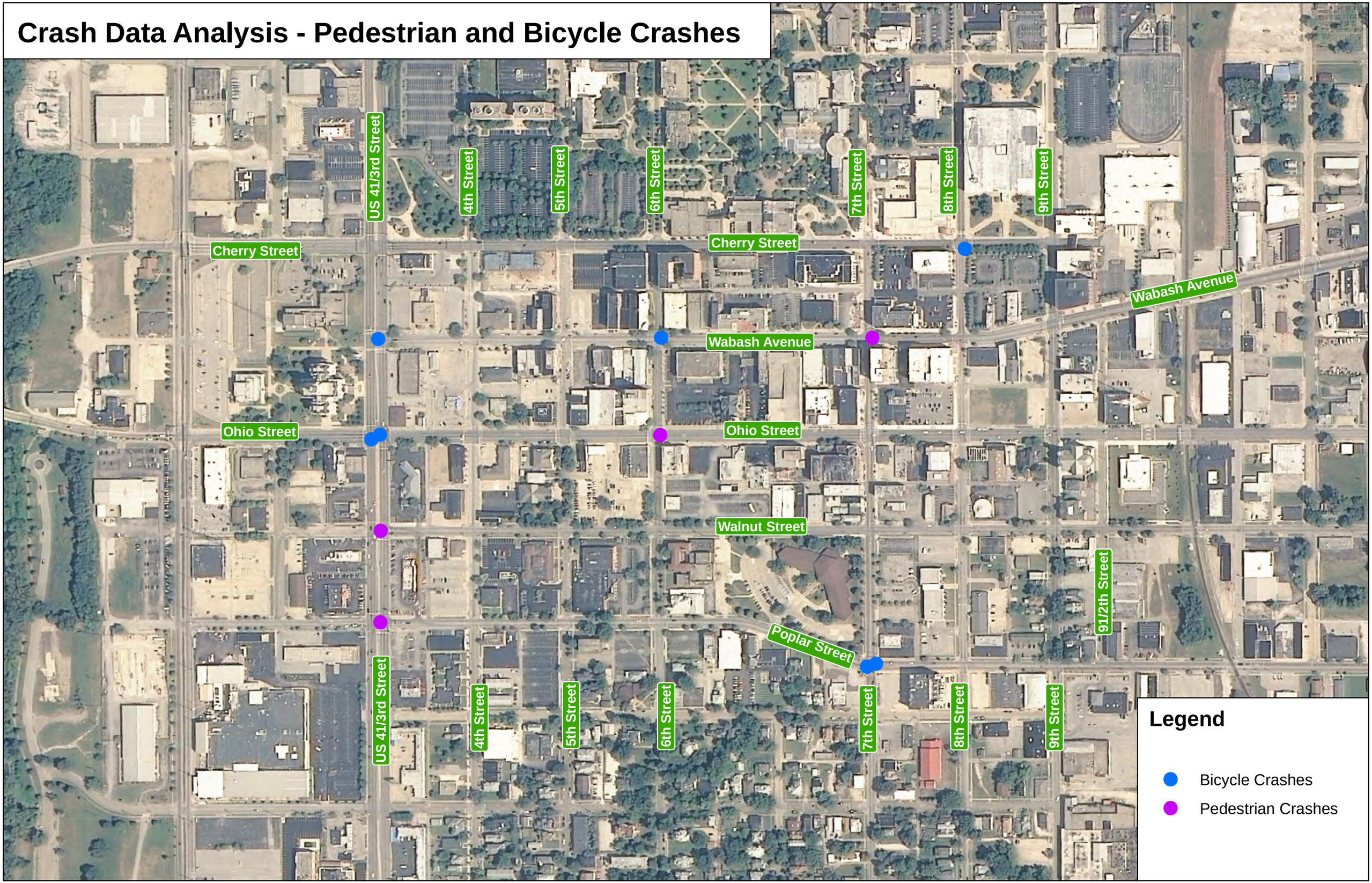
Appendix F

Crash Data Analysis

Crash Data Analysis - Amount of Crashes



Crash Data Analysis - Pedestrian and Bicycle Crashes



Crash Data Analysis

	Crash Severity							Type of Crash																								Year of Crash					
	Total Crashes	Property Damage		Injury		Fatality		Backing Crash		Head On		Left Turn		Left Turn/Right Turn		Non-Collision		Opposite Direction Sideswipe		Road Off Road		Rear End		Rear-to-Rear		Right Angle		Right Turn		Same Direction Sideswipe		Other		2008		2009		2010	
Cherry Street & US 41	66	48	73%	18	27%	0	--	1	2%	0	--	13	20%	0	--	0	--	1	2%	1	2%	16	24%	0	--	27	41%	1	2%	6	9%	0	--	23	35%	12	18%	31	47%
Cherry Street & 4th Street	10	8	80%	2	20%	0	--	0	--	1	10%	3	30%	1	10%	0	--	0	--	0	--	0	--	0	--	3	30%	0	--	2	20%	0	--	6	60%	1	10%	3	30%
Cherry Street & 5th Street	8	8	100%	0	--	0	--	1	13%	0	--	3	38%	0	--	0	--	0	--	0	--	0	--	0	--	1	13%	1	13%	1	13%	1	13%	2	25%	3	38%	3	38%
Cherry Street & 6th Street	4	4	100%	0	--	0	--	1	25%	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	1	25%	0	--	2	50%	0	--	0	--	2	50%	2	50%
Cherry Street & 7th Street	13	10	77%	3	23%	0	--	0	--	0	--	1	8%	0	--	0	--	0	--	0	--	7	54%	0	--	4	31%	0	--	1	8%	0	--	4	31%	6	46%	3	23%
Cherry Street & 8th Street	8	3	38%	5	63%	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	1	13%	0	--	4	50%	0	--	2	25%	1	13%	1	13%	2	25%	5	63%
Cherry Street & 9th Street	6	3	50%	2	33%	1	17%	0	--	1	17%	0	--	0	--	1	17%	0	--	1	17%	0	--	0	--	0	--	0	--	3	50%	0	--	1	17%	3	50%	2	33%
Ohio Street & US 41	66	49	74%	17	26%	0	--	0	--	1	2%	6	9%	0	--	0	--	1	2%	1	2%	17	26%	0	--	29	44%	1	2%	9	14%	1	2%	17	26%	23	35%	26	39%
Ohio Street & 4th Street	5	4	80%	1	20%	0	--	0	--	0	--	1	20%	0	--	1	20%	0	--	0	--	1	20%	0	--	1	20%	0	--	1	20%	0	--	2	40%	2	40%	1	20%
Ohio Street & 5th Street	9	8	89%	1	11%	0	--	1	11%	0	--	3	33%	0	--	1	11%	0	--	0	--	1	11%	0	--	2	22%	0	--	1	11%	0	--	2	22%	4	44%	3	33%
Ohio Street & 6th Street	12	6	50%	6	50%	0	--	0	--	0	--	2	17%	0	--	0	--	0	--	0	--	1	8%	0	--	6	50%	1	8%	2	17%	0	--	3	25%	5	42%	4	33%
Ohio Street & 7th Street	15	13	87%	2	13%	0	--	1	7%	1	7%	6	40%	0	--	0	--	0	--	0	--	1	7%	0	--	2	13%	1	7%	3	20%	0	--	3	20%	5	33%	7	47%
Ohio Street & 8th Street	18	15	83%	3	17%	0	--	1	6%	1	6%	1	6%	1	6%	0	--	1	6%	1	6%	1	6%	0	--	9	50%	0	--	1	6%	1	6%	1	6%	6	33%	11	61%
Ohio Street & 9th Street	12	11	92%	1	8%	0	--	0	--	0	--	5	42%	0	--	0	--	0	--	0	--	1	8%	0	--	2	17%	0	--	4	33%	0	--	3	25%	3	25%	6	50%
Ohio Street & 91/2th Street	1	1	100%	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	1	100%	0	--	0	--	0	--	0	--	1	100%	0	--
Poplar Street & US 41	42	29	69%	13	31%	0	--	1	2%	0	--	7	17%	0	--	0	--	0	--	0	--	11	26%	0	--	15	36%	0	--	7	17%	1	2%	19	45%	10	24%	13	31%
Poplar Street & 4th Street	8	5	63%	3	38%	0	--	0	--	0	--	0	--	0	--	0	--	1	13%	0	--	3	38%	0	--	4	50%	0	--	0	--	0	--	3	38%	4	50%	1	13%
Poplar Street & 5th Street	7	4	57%	3	43%	0	--	0	--	0	--	0	--	0	--	0	--	0	--	1	14%	4	57%	0	--	2	29%	0	--	0	--	0	--	2	29%	4	57%	1	14%
Poplar Street & 6th Street	10	6	60%	4	40%	0	--	1	10%	1	10%	2	20%	0	--	0	--	0	--	0	--	2	20%	0	--	4	40%	0	--	0	--	0	--	3	30%	6	60%	1	10%
Poplar Street & 7th Street	20	13	65%	7	35%	0	--	0	--	1	5%	0	--	0	--	0	--	0	--	0	--	8	40%	1	5%	7	35%	0	--	2	10%	1	5%	8	40%	6	30%	6	30%
Poplar Street & 8th Street	11	6	55%	5	45%	0	--	1	9%	1	9%	0	--	0	--	0	--	0	--	0	--	2	18%	0	--	7	64%	0	--	0	--	0	--	2	18%	3	27%	6	55%
Poplar Street & 9th Street	21	19	90%	2	10%	0	--	0	--	0	--	6	29%	1	5%	0	--	0	--	0	--	6	29%	0	--	5	24%	1	5%	2	10%	0	--	8	38%	7	33%	6	29%
Poplar Street & 91/2th Street	2	1	50%	1	50%	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	1	50%	0	--	1	50%	0	--	0	--	0	--	0	--	2	100%	0	--
Wabash Avenue & US 41	19	12	63%	7	37%	0	--	0	--	0	--	1	5%	0	--	0	--	1	5%	0	--	8	42%	0	--	6	32%	1	5%	2	11%	0	--	5	26%	7	37%	7	37%
Wabash Avenue & 4th Street	23	18	78%	5	22%	0	--	1	4%	2	9%	0	--	0	--	0	--	0	--	0	--	2	9%	0	--	17	74%	0	--	1	4%	0	--	12	52%	6	26%	5	22%
Wabash Avenue & 5th Street	21	16	76%	5	24%	0	--	4	19%	0	--	0	--	0	--	0	--	0	--	0	--	5	24%	0	--	9	43%	0	--	1	5%	2	10%	8	38%	5	24%	8	38%
Wabash Avenue & 6th Street	14	11	79%	3	21%	0	--	1	7%	0	--	0	--	0	--	0	--	0	--	0	--	8	57%	0	--	3	21%	0	--	2	14%	0	--	3	21%	4	29%	7	50%
Wabash Avenue & 7th Street	28	20	71%	8	29%	0	--	3	11%	1	4%	1	4%	1	4%	1	4%	0	--	1	4%	4	14%	0	--	14	50%	1	4%	1	4%	0	--	5	18%	14	50%	9	32%
Wabash Avenue & 8th Street	14	12	86%	2	14%	0	--	0	--	0	--	1	7%	0	--	0	--	0	--	0	--	3	21%	0	--	9	64%	0	--	1	7%	0	--	3	21%	5	36%	6	43%
Wabash Avenue & 9th Street	17	14	82%	3	18%	0	--	0	--	1	6%	3	18%	0	--	0	--	0	--	1	6%	1	6%	0	--	5	29%	0	--	6	35%	0	--	9	53%	5	29%	3	18%
Wabash Avenue & 91/2th Street	5	4	80%	1	20%	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	3	60%	0	--	1	20%	0	--	1	20%	0	--	2	40%	1	20%	2	40%
Walnut Street & US 41	22	15	68%	7	32%	0	--	0	--	1	5%	2	9%	1	5%	0	--	0	--	0	--	5	23%	0	--	11	50%	0	--	1	5%	1	5%	9	41%	9	41%	4	18%
Walnut Street & 4th Street	11	7	64%	4	36%	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	1	9%	0	--	7	64%	0	--	2	18%	1	9%	2	18%	6	55%	3	27%
Walnut Street & 5th Street	7	5	71%	2	29%	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	6	86%	0	--	1	14%	0	--	2	29%	2	29%	3	43%
Walnut Street & 6th Street	9	6	67%	3	33%	0	--	0	--	0	--	2	22%	1	11%	0	--	0	--	0	--	0	--	0	--	3	33%	0	--	3	33%	0	--	4	44%	3	33%	2	22%
Walnut Street & 7th Street	26	20	77%	6	23%	0	--	1	4%	2	8%	1	4%	0	--	0	--	0	--	0	--	3	12%	0	--	13	50%	0	--	6	23%	0	--	10	38%	4	15%	12	46%
Walnut Street & 8th Street	8	8	100%	0	--	0	--	0	--	0	--	2	25%	0	--	0	--	0	--	0	--	0	--	0	--	3	38%	0	--	2	25%	1	13%	5	63%	1	13%	2	25%
Walnut Street & 9th Street	7	6	86%	1	14%	0	--	0	--	0	--	1	14%	0	--	0	--	0	--	0	--	0	--	0	--	4	57%	0	--	2	29%	0	--	2	29%	2	29%	3	43%
Walnut Street & 91/2th Street	3	2	67%	1	33%	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	0	--	2	67%	0	--	1	33%	0	--	1	33%	0	--	2	67%

Appendix G

Preliminary Cost Estimate

TERRE HAUTE DOWNTOWN TRAFFIC STUDY
ALTERNATE #2 COST ESTIMATE

ITEM #	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
	Begin Roadway Items				
R1	1 1/2" Surface milling	9000	SYS	$ 4	$ 36,000
R2	1 1/2" Hot Mix Asphalt Surface	780	Tons	$ 65	$ 50,700
R3	US 41 SB Left Turn Lane (150' long + 100' taper)	200	LFT	$ 100	$ 20,000
R4	Center Curb Island Removal	2800	SYS	$ 10	$ 28,000
R5	Common Excavation	120	CY	$ 18	$ 2,160
R6	Center Curb, Type A	250	LFT	$ 50	$ 12,500
R7	Asphalt Paving (14" full depth 280 SY)	1	LS	$ 15,000	$ 15,000
R8	Compacted #53 Stone	150	Tons	$ 20	$ 3,000
R9	Pavement markings / Signage	1	LSUM	$ 5,000	$ 5,000
R10	ADA Compliance Upgrade at US 41 and Cherry Street	4	EA	$ 2,500	$ 10,000
Roadway Items Subtotal					**$ 182,360**
	Begin Traffic Signal Items				
	Traffic Signal and Equipment Improvements				
S1A	Cherry Street @ US 41 (3rd Street)	1	LS	$ 10,000	$ 10,000
S1B	Cherry Street @ 4th Street	1	LS	$ 15,000	$ 15,000
S1C	Cherry Street @ 5th Street	1	LS	$ 25,000	$ 25,000
S1D	Cherry Street @ 6th Street	1	LS	$ 15,000	$ 15,000
S1E	Cherry Street @ 7th Street	1	LS	$ 15,000	$ 15,000
S1F	Cherry Street @ 8th Street	1	LS	$ 25,000	$ 25,000
S2	Radio Interconnect along all routes in study area (per signal) [1]	6	EA	$ 2,000	$ 12,000
S3	Transportation of Salvageable Signal Equipment	1	LS	$ 5,000	$ 5,000
S4	Temporary Traffic Signal, Installation and Maintenance	1	LS	$ 10,000	$ 10,000
Traffic Signal Items Subtotal					**$ 132,000**
	Begin Miscellaneous Items				
M1	Maintenance of Traffic	1	LS	$ 10,000	$ 10,000
M2	Construction Engineering	1	LS	$ 5,000	$ 5,000
M3	Mobilization and Demobilization	1	LS	$ 15,000	$ 15,000
M4	Utility Relocations	6	EA	$ 2,000	$ 12,000
Miscellaneous Items Subtotal					**$ 42,000**
ALT 2 SUBTOTAL					**$ 356,360**
	Contingency		25%		$ 89,090
	PLANNING LEVEL ESTIMATE OF PROBABLE CONSTRUCTION COSTS				**$ 445,450**
	Preliminary Engineering for Design		10%		$ 44,545
	Construction Engineering		15%		$ 66,818
	PLANNING LEVEL ESTIMATE FOR ALTERNATE #2				**$ 556,813**

Notes: 1) Unit cost assumes existing traffic controllers can accommodate interconnect.

TERRE HAUTE DOWNTOWN TRAFFIC STUDY
ALTERNATE #3 COST ESTIMATE

ITEM #	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
	Begin Roadway Items				
R1	1 1/2" Surface milling	47200	SYS	$ 4	$ 188,800
R2	1 1/2" Hot Mix Asphalt Surface	3990	Tons	$ 65	$ 259,350
R3	(2) US 41 SB Left Turn Lane (150' long + 100' taper @ Cherry, Walnut)	400	LFT	$ 100	$ 40,000
R4	Center Curb Island Removal	2800	SYS	$ 10	$ 28,000
R5	Common Excavation	120	CY	$ 18	$ 2,160
R6	Center Curb, Type A	250	LFT	$ 50	$ 12,500
R7	Asphalt Paving (14" full depth 280 SY)	1	LS	$ 15,000	$ 15,000
R8	Compacted #53 Stone	150	Tons	$ 20	$ 3,000
R9	Pavement markings / Signage	1	LSUM	$ 25,000	$ 25,000
R10	ADA Compliance Upgrade at US 41 and Cherry Street	4	EA	$ 2,500	$ 10,000
Roadway Items Subtotal					**$ 583,810**
	Begin Traffic Signal Items				
	Traffic Signal and Equipment Improvements				
S1A	Cherry Street @ US 41 (3rd Street)	1	LS	$ 10,000	$ 10,000
S1B	Cherry Street @ 4th Street	1	LS	$ 15,000	$ 15,000
S1C	Cherry Street @ 5th Street	1	LS	$ 25,000	$ 25,000
S1D	Cherry Street @ 6th Street	1	LS	$ 15,000	$ 15,000
S1E	Cherry Street @ 7th Street	1	LS	$ 15,000	$ 15,000
S1F	Cherry Street @ 8th Street	1	LS	$ 25,000	$ 25,000
S2A	Ohio Street @ US 41 (3rd Street)	1	LS	$ 15,000	$ 15,000
S2B	Ohio Street @ 4th Street	1	LS	$ 20,000	$ 20,000
S2C	Ohio Street @ 5th Street	1	LS	$ 15,000	$ 15,000
S2D	Ohio Street @ 6th Street	1	LS	$ 15,000	$ 15,000
S2E	Ohio Street @ 7th Street	1	LS	$ 15,000	$ 15,000
S2F	Ohio Street @ 8th Street	1	LS	$ 15,000	$ 15,000
S2G	Ohio Street @ 9th Street	1	LS	$ 20,000	$ 20,000
S3A	Walnut Street @ US 41 (3rd Street)	1	LS	$ 5,000	$ 5,000
S3B	Walnut Street @ 4th Street	1	LS	$ 10,000	$ 10,000
S3C	Walnut Street @ 5th Street	1	LS	$ 15,000	$ 15,000
S3D	Walnut Street @ 6th Street	1	LS	$ 20,000	$ 20,000
S3E	Walnut Street @ 7th Street	1	LS	$ 20,000	$ 20,000
S3F	Walnut Street @ 8th Street	1	LS	$ 25,000	$ 25,000
S3G	Walnut Street @ 9th Street	1	LS	$ 35,000	$ 35,000
S4A	Popular Street @ 8th Street	1	LS	$ 20,000	$ 20,000
S4B	Popular Street @ 9th Street	1	LS	$ 15,000	$ 15,000
S5A	Wabash Street @ 8th Street	1	LS	$ 15,000	$ 15,000
S5B	Wabash Street @ 9th Street	1	LS	$ 20,000	$ 20,000
S6	Radio Interconnect along all routes in study area (per signal) [1]	34	EA	$ 2,000	$ 68,000
S7	Transportation of Salvageable Signal Equipment	1	LS	$ 20,000	$ 20,000
S8	Temporary Traffic Signal, Installation and Maintenance	1	LS	$ 30,000	$ 30,000
Traffic Signal Items Subtotal					**$ 538,000**
	Begin Miscellaneous Items				
M1	Maintenance of Traffic	1	LS	$ 40,000	$ 40,000
M2	Construction Engineering	1	LS	$ 15,000	$ 15,000
M3	Mobilization and Demobilization	1	LS	$ 30,000	$ 30,000
M4	Utility Relocations	21	EA	$ 2,000	$ 42,000
Miscellaneous Items Subtotal					**$ 127,000**
ALT 3 SUBTOTAL					**$ 1,248,810**
	Contingency		25%		$ 312,203
	PLANNING LEVEL ESTIMATE OF PROBABLE CONSTRUCTION COSTS				**$ 1,561,013**
	Preliminary Engineering for Design		10%		$ 156,101
	Construction Engineering		15%		$ 234,152
	PLANNING LEVEL ESTIMATE FOR ALTERNATE #3				**$ 1,951,266**

Notes: 1) Unit cost assumes existing traffic controllers can accommodate interconnect.