Exhibit L

Environmental Evaluation, 2015

TAKOMA STATION FACILITIES WITH JOINT DEVELOPMENT

ENVIRONMENTAL EVALUATION

Washington Metropolitan Area Transit Authority

January 2015

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1.0 INTRODUCTION

In February 1978, the Washington Metropolitan Area Transit Authority (WMATA) opened a 5.7-mile extension of the Metrorail Red Line and four new stations, including Takoma Station. The Station's facilities include pedestrian walkways, bicycle racks and lockers, bus bays with loop, Kiss & Ride, short-term metered parking, taxicab stand and motorcycle spaces on 6.8 acres of WMATA property. Figure 1 is an aerial photograph depicting the existing facilities.

This document provides an overview of the existing station facilities and offers an evaluation of the potential environmental effects of the reconstruction and reconfiguration of the facilities by a proposed joint development of the WMATA property by real estate developer EYA. The joint development itself will be the subject of the developer's application for a Planned Unit Development before the District of Columbia Zoning Commission. Figures 2, 3 and 4 are a conceptual site plan, an inset focusing on the proposed parking area and a section showing the joint development and reconfigured station facilities.

Figure 1 – Existing Station Area

Figure 2 – Site Concept Plan

Figure 3 – Sections

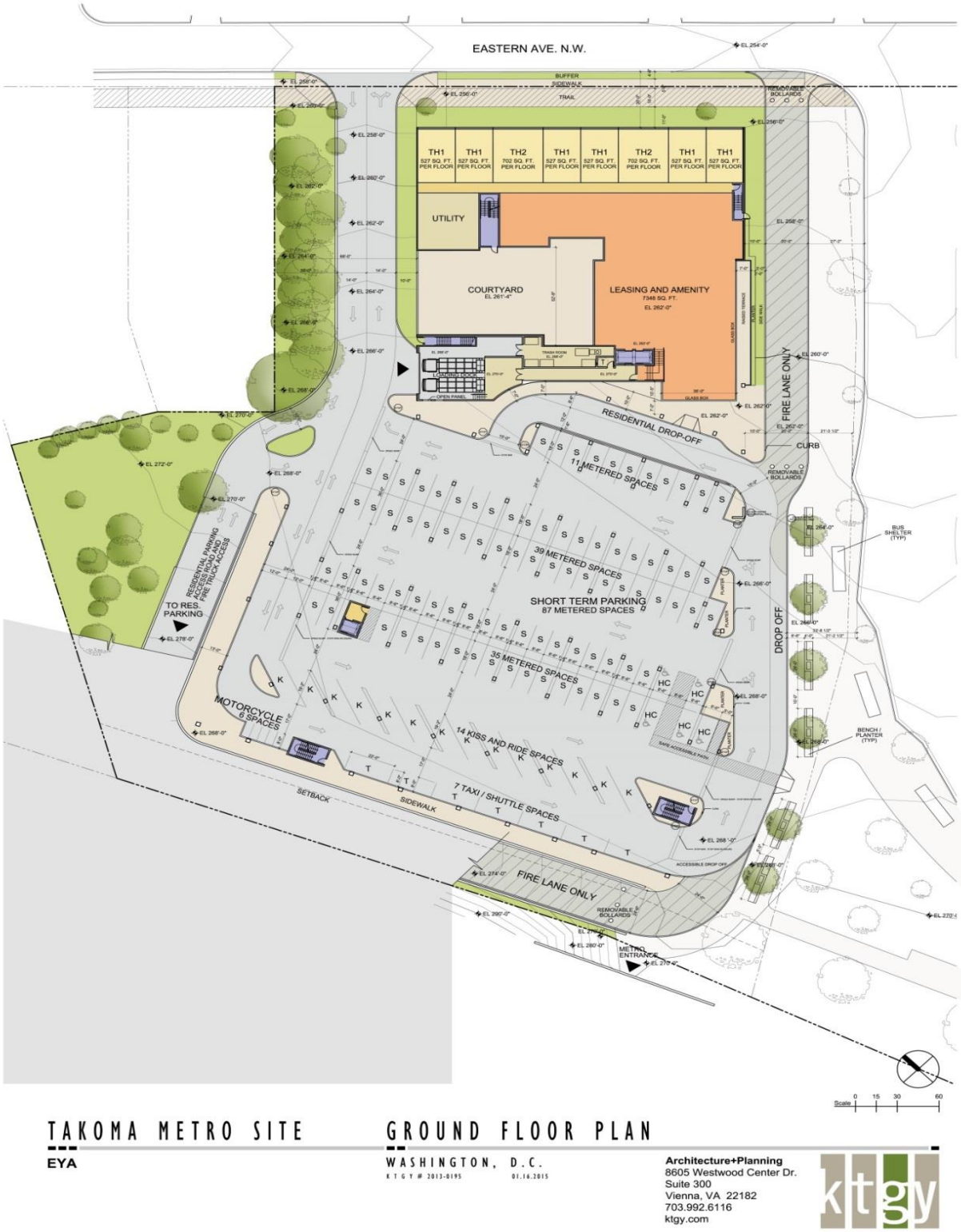

Figure 4 – Ground Floor Plan

1.1 Description of the Joint Development Project

The project consists of the following elements:

- A mid-rise apartment building developed over what is now the Kiss & Ride lot. Part of the green space on the western portion of the site would be replaced by the entry drive to the WMATA and residential parking garages
- A new Kiss & Ride facility would occupy most of the ground floor of the proposed apartment building. Takoma Station facilities and changes that would result from the implementation of the joint development project are identified in Table 1.
- The Bike & Ride facility shown on the table (an enclosed bike storage area) will likely be installed in 2016, ahead of the joint development project's construction and is incorporated in the plans for the joint development project.
- The bus loop with be modified by adding an additional bus bay and a layover area.
- A 1-acre open space or village green will occupy the eastern part of the site.

Table 1 – Takoma Station Facilities

	Existing	Joint Development
Bicycle Racks	104	104
Bicycle Lockers	60	60
Bike & Ride Facility	0	105
Bus Bays - Revenue	9	10
Bus Bays - Layover	0	1
Kiss & Ride Parking Lot/Garage Spaces		
Driver Attended	5	14*
Standard (Metered)	141	87
Persons with Disabilities	6	5
Other Spaces (Taxis, Shuttles)	5*	7
*Car Sharing Included		
Motorcycle Spaces	3	6
Automatic Fare Collection Machines	No Change	No Change

Prior to EYA's development of this concept plan, WMATA conducted a *Takoma Metrorail Station Access Analysis*, September 2013 ("Access Analysis" identifying future needs for WMATA facilities.[1] The analysis indicated a need for an additional bus bay, improved pedestrian access to the station from the northeast and east, additional spaces for shuttle buses, additional customer drop off spaces and expanded bike facilities. The analysis noted that the existing metered lot is generally used at less than 50% of capacity.

Following the study's completion, WMATA worked with EYA to produce a plan that meets WMATA's future operational needs.

2.0 BACKGROUND

This section provides a description of the Takoma neighborhood and the WMATA Red Line and Takoma Station.

2.1 Takoma

Development of the Takoma/Takoma Park community was initiated by New York venture capitalist B. F. Gilbert in 1883. Using the newly-built railroad, Takoma Park offered easy access to many desirable attributes of semi-rural living: potable fresh water springs, clean air, and a landscape that seemed truly a bit of country. Unlike other early commuter rail suburbs, Takoma Park, by reason of its dual advantages of being located on a major rail line, as well as a commuter rail stop, developed a healthy commercial district that, while it has waxed and waned over the years, substantially survives to the present day. For a time, Takoma Park was the largest city in Montgomery County, and for many years was also one of the largest cities in Maryland.

Of special interest to its present residents and to historians is the distinctive character of Takoma Park's political and social structure. From its inception, Gilbert promoted political activism, and civic involvement in solving the community's problems. The city has also become perhaps the most racially and culturally integrated town in the metropolitan Washington, DC, area.

2.2 WMATA Metrorail Red Line and the Takoma Station

WMATA opened the Takoma Metrorail station in 1978. This section of the Red Line parallels CSX tracks from the Union Station Metrorail station to the Silver Spring Metrorail station.

Weekday ridership has grown from 2,600 boardings at opening to an average 5,800 boardings per day in 2014. Trains operate on two-minute headways in the peak hour and six- to ten-minute headways at other times. The Takoma Station and Red Line are located between two CSX tracks, which carry freight and commuter rail traffic throughout the day.

3.0 HISTORY AND PURPOSE OF JOINT DEVELOPMENT

This following section provides a description of the history and purpose of WMATA Joint Development Program, the District of Columbia's policy on development of public property, and the FTA's policy on joint development.

3.1 WMATA

The Washington Metropolitan Area Transit Authority (WMATA) has an active public/private Joint Development Program. WMATA seeks partners to develop WMATA-owned or controlled property in order to achieve transit oriented development. Pursuant to WMATA's Joint Development Policies and Guidelines[2], projects are encouraged that:

1. Integrate WMATA's transit facilities;
2. Reduce automobile dependency;
3. Increase pedestrian/bicycle originated transit trips;
4. Foster safe station areas;
5. Enhance surrounding area connections to transit stations;
6. Provide mixed-use development including housing and the opportunity to obtain goods and services near transit stations;
7. Offer active public spaces;
8. Promote and enhance ridership;
9. Generate long-term revenue for WMATA; and
10. Encourage revitalization and sound growth in the communities that WMATA serves.

3.2 District of Columbia

In July 2000, the District of Columbia Office of Planning undertook a small area planning process at the request of the Takoma, District of Columbia, and Takoma Park, Maryland communities, and their political representatives to create a vision for the station area and properties in the vicinity of the station. The process included a community charrette and numerous meetings with community residents to arrive at a consensus plan. The Takoma Central District Plan was approved by the Council of the District of Columbia in June 2002. The District of Columbia and the City of Takoma Park, Maryland also funded a transportation study to assess impacts of development on traffic and transportation. This study was completed in July 2003. WMATA staff participated in the Takoma Central District Plan process and the Takoma Transportation Study process. Subsequently, WMATA completed a Takoma Metro Station Traffic Analysis Technical Memorandum (April 2014) ("Traffic Analysis").[3] The latter study was undertaken for the limited purpose of determining whether the proposed joint development would have a significant impact on area traffic facilities.

3.3 Agency Coordination and Public Involvement

The reconfiguration of WMATA facilities for the Takoma joint development project has been coordinated with Montgomery County Ride-On and the District of Columbia Office of Planning and Department of Transportation. Presentations have been made to the Takoma, District of Columbia and Takoma Park, Maryland communities and the Takoma Park Mayor and City Council. Meetings were held with then-Ward 4 Councilmember Muriel Bowser

and WMATA Board Chairman Tom Downs. WMATA conducted a public hearing on the proposed transit facility changes on June 18, 2014. On September 13, 2014, EYA held a workshop with the Takoma community to hear public comment on the plan presented at the June 18, 2014 public hearing in order to get additional community input on the development concept for the Takoma site.

4.0 ENVIRONMENTAL EXISTING CONDITIONS AND EVALUATION

The following section documents existing conditions and evaluates the impact of the development on these conditions. The forecast horizon of this evaluation is 2020, the presumed start of occupancy of the development.

4.1 Zoning and Planning

The following section discusses current zoning of the development site and the proposed development's characteristics.

4.1.1 Zoning

The project is located in the District of Columbia, within the boundaries of the existing Takoma Metrorail Station. The District boundary with the state of Maryland and the City of Takoma Park is immediately east of the station site, along Eastern Avenue. The adjacent Takoma Park neighborhood is dominated by single family, detached homes. West of the station site are several multi-story apartment buildings. Commercial uses line Carroll Street and Cedar Street south of the station. The elevated railroad tracks and station platform form the western boundary of the project site.

The WMATA parcel is zoned for commercial (C-2-A) and residential (R-5-A) uses, as shown in Figure 5. A commercial overlay district along Cedar Street requires minimum ground to ceiling heights of 14 feet for most commercial development. The overlay does not include any of the area that EYA proposes to redevelop.

C-2-A zoning permits low density development, including office, retail, and all kinds of residential uses to a maximum lot occupancy of 60% for residential use, a maximum floor-area ratio (FAR) of 2.5 for residential use and 1.5 FAR for other permitted uses, and a maximum building height of 50 feet above ground level.

R-5-A zoning permits development of single-family residential uses for detached and semi-detached dwellings, and, with the approval of the Board of Zoning Adjustment, new residential development of low density residential uses

including row houses, flats, and apartments. The zone permits a maximum FAR of 0.9, and a maximum height of three stories or 40 feet.

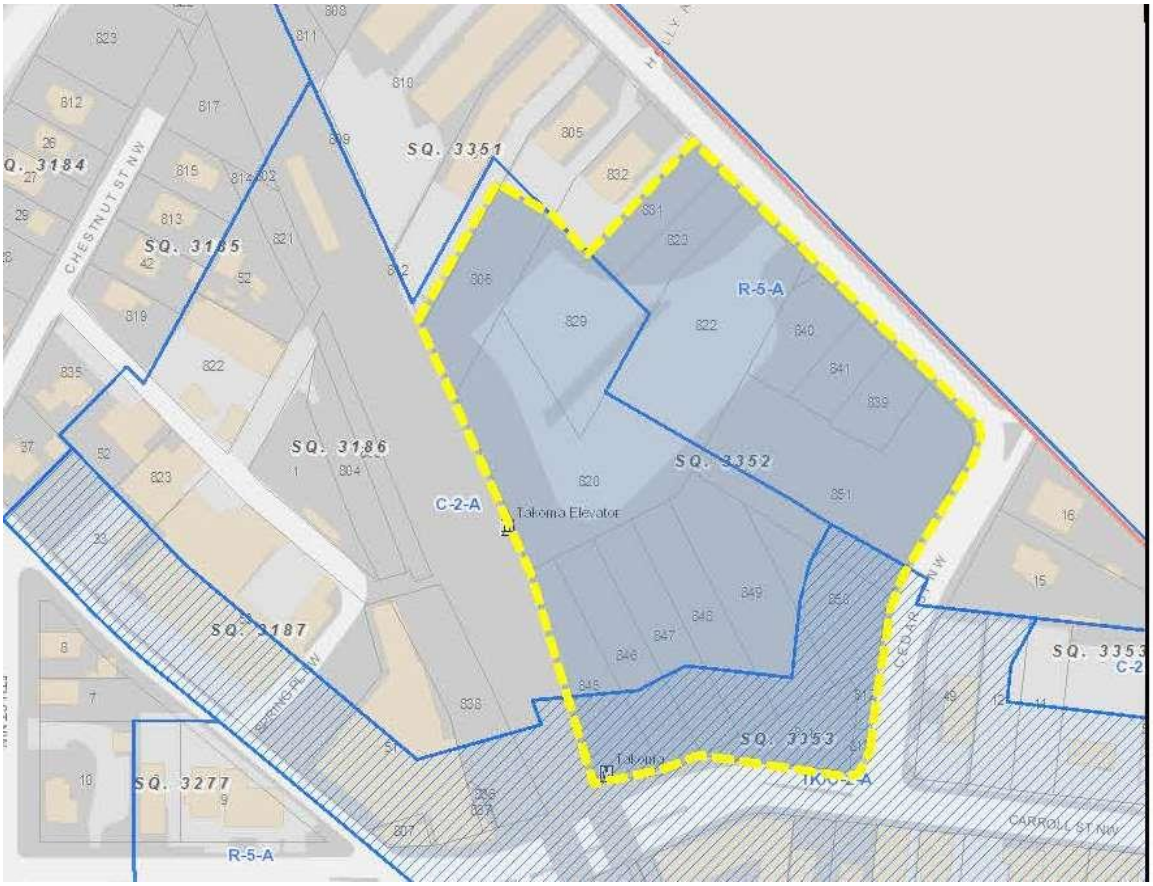

Figure 5 – Site Zoning

Zoning conditions may be altered if a developer applies to the District of Columbia Zoning Commission for a Planned Unit Development and makes the case that the subject project is of high quality and provides public benefits. A part of the Zoning Commission deliberations, District of Columbia departments dealing with planning, historic preservation, transportation and the environment must provide review and comment.

4.1.2 Planning

Two planning documents have heretofore guided planning in the Takoma neighborhood.

Takoma Central District Plan[4]. The 2002 Takoma Central District Plan defines near and mid-term strategies for revitalization and articulates broad development goals, urban design guidelines, and actions necessary to encourage and facilitate investment in the district. The plan calls for a redevelopment of the

Takoma Station site and suggests a development threshold for the Metro station site of 22-32 units/acre for townhomes. The plan also calls for 0.8 to 1.2 acre village green and a green buffer on the west side of the Metro parking lot. The plan in many ways has been superseded by changes in urban development over the past dozen years since it was adopted. For example, the plan calls for 1 parking space per residence, a standard that is now considered excessive in light of a decrease in car ownership by today's apartment owners accessible to transit.

Takoma Transportation Study[5]. The District of Columbia Department of Transportation (DDOT) and the City of Takoma Park conducted a study that evaluated transportation conditions in the Takoma area of Northwest Washington DC and adjacent Takoma Park, Maryland. This study was a continuation and an expansion of the transportation work conducted in conjunction with the development of the Takoma Central District Plan. However, this study is dated and has been updated by the Traffic Analysis.

4.1.3 Evaluation

The proposed use is consistent with zoning for the site in that it is residential, but, because it exceeds matter-of-right requirements, it will require Planned Unit Development approval by the Zoning Commission.

The proposed joint development for the 6.8 acre site is consistent with the guidelines of the Takoma Central District Plan, which recommends a threshold density of 22-32 units per acre (for townhomes) at the Metro station site. The proposed development includes a dedicated one-acre village green as recommended by the plan and a buffer between the project site and adjacent development as called for in the plan.

4.2 Neighborhoods

4.2.1 Existing Conditions

The neighborhood adjacent to this development lies in two jurisdictions: the District of Columbia and Maryland. The Takoma neighborhood is one of Washington, DC's most distinctive, and shares its history, name and character with Takoma Park, MD. Both neighborhoods are characterized by pedestrian-oriented streetscapes and low to moderate-density housing. A small community business district is centered around the Metrorail station and along Blair Road., NW.

4.2.2 Evaluation

The joint development project will incorporate new housing into the neighborhood, increasing the population density. The project is not anticipated to

have long term effects on adjacent neighborhoods. Disruption to the neighborhood as a result of construction noise, dust and traffic will be temporary. Construction activities will comply with local noise, sedimentation and erosion control, storm water management, and other applicable regulations.

Utility lines serving the site and in the surrounding neighborhood will be identified during the project's design phase. The developer will coordinate with the utility companies during the design phase and before any construction begins in order to accommodate any affected utilities on or near the development site.

4.3 Visual and Aesthetic Conditions

4.3.1 Existing Conditions

The project site is bordered on the northeast side by Eastern Ave, on the northwest side by the CSX tracks and Metro Red Line, and on the south side by Cedar St. NW and Carroll St. NW. Several single family homes are located across Eastern Avenue in Takoma Park. Mid-rise mixed-use development is located adjacent to the property across Carroll Street, on Cedar Street and across the tracks from the station site. The project site includes a landscaped berm, surface parking lot, and nine bus bays.

The styles of architecture which highlight the development of this community can be described generally as follows:

(1) The earliest houses were primarily combinations of Shingle and Stick styles and Pattern Book or Victorian cottages or variations of Queen Anne cottages. These houses are mainly of frame and shingle construction with asymmetrical massing and flowing roofs and exhibit a variety of design detail in the treatment of porch piers and balustrades, cornice detailing and trim. Examples are: 7130 Chestnut Street, 600, 535, 517, and 208 Cedar Street.

(2) Turn-of-the-century Transitional house, frequently with Colonial Revival details, was popular during this period. The facades are frequently symmetrically ordered with Colonial Revival details such as Doric or Ionic piers and period window detail. Examples can be found at 516 Cedar Street and 521 Butternut Street; and

(3) Bungalow, a style derivative of 19th-century British Colonial architecture in India, was a popular style and is characterized by a low house with veranda and broad overhanging gables. Some examples of bungalow variations can be found at 7106 Piney Branch Road, 202 Cedar Street, and 410 Aspen Street.

4.3.2 Evaluation

The proposed development will introduce mid-rise development to the existing Kiss & Ride lot. This development is of comparable density and scaling to the

surrounding area in the District of Columbia along Cedar Street and Blair Road. The highest levels of the proposed development are along the Metrorail tracks. The mid-rise development is proposed to be faced by direct-entry units comparable to townhomes on the Eastern Avenue frontage, with the apartment complex set further back from the street, so as to be more in scale with the single family homes across Eastern Avenue. The current vacant land on the site is a landscaped berm. The proposed development includes a green area which will be landscaped as open space.

4.4 Socio-Economic Conditions

4.4.1 Existing Conditions

Community Characteristics

The area surrounding the Takoma Metrorail station is racially and ethnically diverse, with around half the of residents identifying themselves as white, and half the residents identifying themselves as African-American, Asian, or other race. Approximately 10% of the residents identify as Hispanic. The poverty rate in the station area is around 7%, which is lower than the District of Columbia and higher than Montgomery County, but approximately the same as the WMATA service area. Median household income in the station area is higher than the District as a whole, but lower than Montgomery County. A summary of racial characteristics, poverty status and economic characteristics of the Takoma area, the District and Montgomery County is provided in Tables 2, 3 and 4.

Environmental Justice

A review of the demographics of the surrounding District area using 2010 Census figures shows the following:

- 53% of the residents within ½ mile of the Takoma Metrorail station reported that they are non-white
- 10% of residents within ½ mile of the station reported being of Hispanic or Latino ethnicity
- 7% of households within ½ mile of the rail station report household income below the poverty threshold.

Analysis Notes

For the purposes of this analysis, the station area was defined as a half-mile distance from Takoma station's main entrance. For race and ethnicity data, 2010 Census Blocks were used; for poverty and income data, Census Block Groups and Tracts were used, where appropriate. Therefore, the total number of persons for the poverty and income estimates differs from the total used for race and ethnicity.

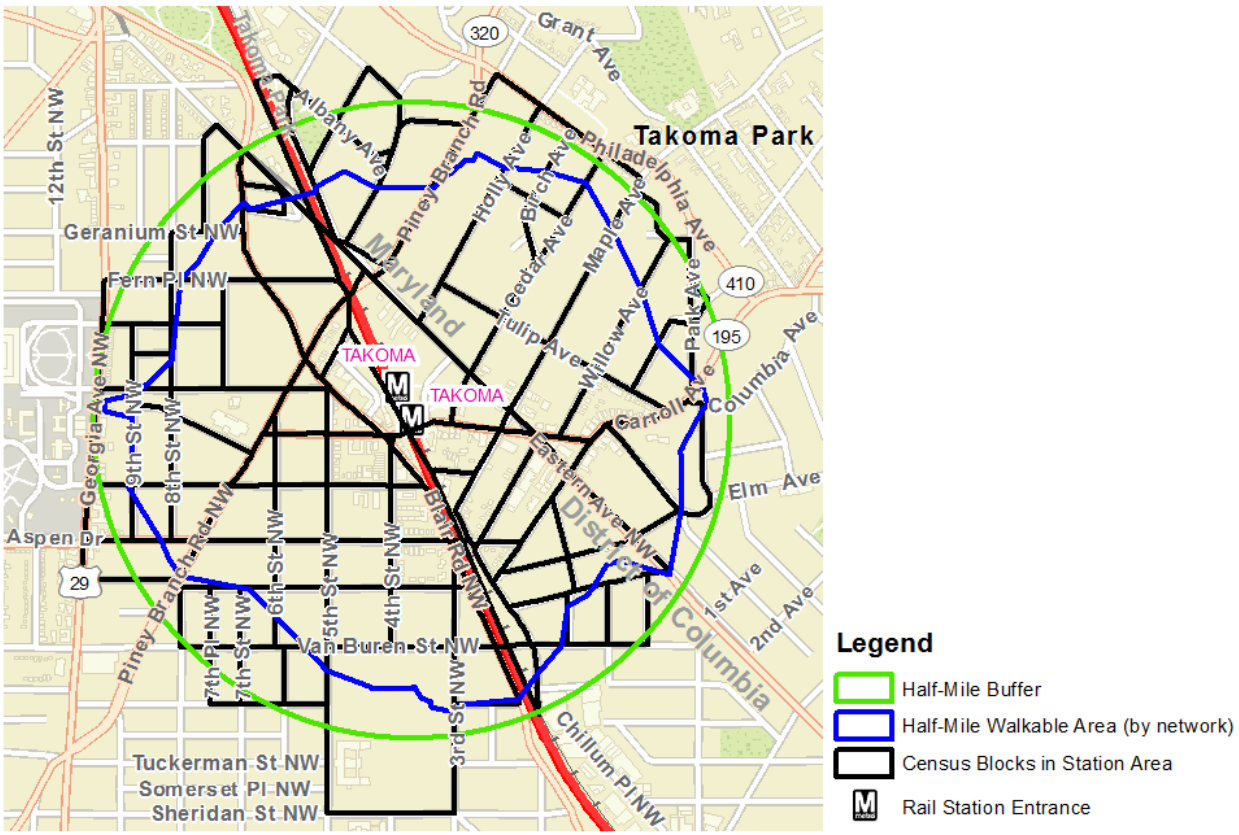

Figure 6 – Socio-Economic Conditions Analysis Area

4.4.2 Evaluation

Land Acquisition and Displacement

WMATA owns the 6.8-acre property in question, upon which a surface parking lot, bus loop and landscaped berm are currently located. No residential relocations will be required. All transit access facilities (parking, bus, bicycle, pedestrian, etc.) are being replaced in kind or above existing levels with the exception of underutilized short term metered parking.

Table 2 – Racial and Ethnic Characteristics

	Total Population	Hispanic	White	Black/ African American	American Indian/ Alaskan Native	Asian	Native Hawaiian/ Other Pacific Islander	Other Race	Two or More Races
Takoma Station Area	5,958	571	2,811	2,420	35	170	3	242	277
District of Columbia	*4,176*	*442*	*1,391*	*2,225*	*33*	*116*	*3*	*211*	*197*
Maryland	*1,782*	*129*	*1,420*	*195*	*2*	*54*	*-*	*31*	*80*
Comparisons:									
Ward 4, D.C.	75,773	14,179	18,601	44,459	334	1,218	59	8,145	2,957
District of Columbia	601,723	54,749	231,471	305,125	2,079	21,056	302	24,374	17,316
Montgomery County	971,777	165,398	558,358	167,315	3,639	135,451	522	67,847	38,645
Takoma Station Area		9.6%	47.2%	40.6%	0.6%	2.9%	0.1%	4.1%	4.6%
District of Columbia		*10.6%*	*33.3%*	*53.3%*	*0.8%*	*2.8%*	*0.1%*	*5.1%*	*4.7%*
Maryland		*7.2%*	*79.7%*	*10.9%*	*0.1%*	*3.0%*	*0.0%*	*1.7%*	*4.5%*
Comparisons:									
Ward 4, D.C.		18.7%	24.5%	58.7%	0.4%	1.6%	0.1%	10.7%	3.9%
District of Columbia		9.1%	38.5%	50.7%	0.3%	3.5%	0.1%	4.1%	2.9%
Montgomery County		17.0%	57.5%	17.2%	0.4%	13.9%	0.1%	7.0%	4.0%

Source: Census 2010, by Census Block

Table 3 – Poverty Status

	Population	Percent Below Poverty Level
Takoma Station Area	13,509	7.2%
Comparisons:		
District of Columbia	558,563	18.3%
Montgomery County	937,029	5.3%

Source: American Community Survey 5-year, 2005-2009, by Census Tract

Table 4 – Economic Characteristics

	Median Household Income	Per Capita Income
Takoma Station Area	$86,203	$49,646
District of Columbia	*$82,349*	*$47,593*
Maryland	*$93,576*	*$53,381*
Comparisons:		
District of Columbia	$65,202	$46,775
Montgomery County	$98,530	$45,773

Source: ESRI Demographics, 2014, by Census Block Group

4.5 Transportation

4.5.1 Existing Conditions

Roads

Roadways serving the Metro Station site and vicinity are located in Northwest Washington, DC and in Takoma Park, Maryland. A description of the existing transportation network can be found in the Access Analysis and the Traffic Analysis.

Transit

The Takoma Station and Red Line are located between two CSX Corporation, Inc. tracks, which carry freight and commuter rail throughout the day. Approximately 5800 riders board Metro at the station during weekdays. Metrorail service begins as early as 5:00 am and ends as late as 2:00 am. Parking for transit users at the Takoma station is provided in a surface lot accessed from Eastern Avenue with

approximately 160 spaces. Permitted parking hours and durations are limited to discourage all-day commuter use. These restrictions were a result of strong citizen action during the station's design that was intended to strengthen the station as a pedestrian and transit hub rather than an automobile-oriented commuter station.

Eight Metrobus and eight Ride On routes serve the station. Currently, most Metrobus and Ride On buses enter Takoma Station from Cedar Street, NW. The station's bus facility currently includes nine bus bays for loading/unloading passengers, with Metro and Ride-On each using four bays and one bay not assigned. Most bus layovers occur on-site near the existing bus turnaround.

Pedestrian and Bicycle Facilities

The Takoma Station site is served by sidewalks along Eastern, Cedar, and Carroll Streets. Bicycle access is via the existing vehicular roadways.

4.5.2 Evaluation

Recommended on-site vehicular, pedestrian and bicycle improvements are drawn from the Access Analysis. The recommendations discussed in the following section are limited to those affecting the Takoma Metro station site and vicinity. Some additional improvements to other roads are recommended in the Traffic Analysis to improve overall transportation operations throughout the Takoma area; the reader is referred to the study for a further discussion of those improvements.

Effects on Roads

According to the Traffic Analysis, new development on the Takoma Station site will generate an estimated 100 additional vehicle trips in morning and afternoon peak hours. The Traffic Analysis was based on a development scheme with a 212-unit apartment building and 189 parking spaces (a .9 ratio), whereas later plans lowered the number of residential parking spaces to an approximate .7 ratio. Accordingly, impacts will be smaller than those analyzed and summarized below. The full analysis is presented in Appendix A.

The Traffic Analysis study investigated the existing 2020 No-Build and 2020 Build traffic conditions at the Takoma Metro Station. In the existing traffic conditions, westbound and eastbound Blair Road experiences long delays when approaching Piney Branch Road in both the morning and evening peak hours. The congestion is caused by the insufficient signal green time provided for traffic on Blair Road. In the existing traffic conditions, westbound Carroll Street and southbound Piney Branch Road have long traffic queues in the AM peak hour. Northbound Piney Branch Road has long traffic queues during the PM peak period. However, the queues were cleared during most cycles.

Outputs from the MWCOG model indicate an annual traffic growth rate of 2%, equivalent to a total growth of 15% from 2013 to 2020 in the AM and PM peak period. This 15% growth rate was assumed for the 2020 No-Build scenario. The

Traffic Analysis showed that the existing signal operation and facilities at several intersections will operate at LOS F by 2020 which indicates they are not able to provide adequate capacity to handle the future traffic growth in the region. Proposed improvements for 2020 No-Build conditions include signal timing optimization and lane configuration improvement. Lane configuration improvements include 1) adding a 100 foot long right-turn pocket on westbound Carroll Street approaching Cedar Street intersection; and 2) converting the curb side parking lane on northbound Piney Branch Road into a travel lane between Dahlia Street and Eastern Avenue. The results indicate the traffic operation will improve with the proposed recommendations and all the intersections will operate with LOS E or better. The proposed lane configuration would also be used for the Build analysis and evaluation.

Under the 2020 Build conditions, there 44 and 54 additional vehicular trips generated during AM and PM, peak hours, respectively. The vehicles were distributed to the network by following the existing traffic pattern. The results indicate that the additional trips would slightly impact the traffic operation along Eastern Avenue, and the LOS would be reduced from C to D for the two un-signalized intersections at the joint development access drive and the existing apartment access drive. However, these intersections would still operate at an acceptable level of service.

As part of the Zoning Commission's deliberations, the District of Columbia Department of Transportation (DDOT) will review the recommendations of EYA's traffic consultant. DDOT will recommend to the Zoning Commission any roadway changes needed as a result of the Takoma station development. WMATA will incur no cost for changes.

Effects on Transit

The Takoma station is served by WMATA's Metrobus and Montgomery County's Ride On Bus service with 73 buses arriving during the AM peak hour. Metrobus and Ride On buses access patterns are anticipated to remain the same into the foreseeable future. No new Metrobus routes are anticipated at this time at the Takoma Station. At this time there are sufficient bus bays to accommodate Ride On routes. Should additional bus bays be required for either service, the proposed joint development project expands the existing number of bus bays from nine to ten. The joint development project also provides an additional bus layover bay as recommended by the Access Analysis.

Kiss & Ride and taxi parking will be relocated at the ground level of the joint development project. The new location for these facilities is closer to the Metro Station entrance than the existing facilities, which are located in the surface parking lot. The current plan provides 21 spaces for Kiss & Ride parking, taxis and shuttles. The inclusion of the shuttle spaces was recommended in the Access Analysis to accommodate potential service to and from a redeveloped Walter

Reed campus. Parking and a drop off area for people with disabilities would be closer to the station entrance than at present.

The joint development project reduces existing metered parking (from 141 spaces to 87 spaces) in recognition of the fact that the parking is less than 50% utilized at present. Parking remains limited to seven hours to discourage commuter monopolization of spaces.

Construction of the proposed development will not result in any significant adverse impacts to the CSX or Metrorail railroad lines. WMATA Adjacent Construction Guidelines will address any construction concerns related to construction activities in the vicinity of a rail station and line that may need to be taken into account during the development process.

Effects on Pedestrian and Bicycle Access

Existing bicycle and pedestrian routes to the Takoma Station will be enhanced under the joint development proposal, although access may be temporarily affected by construction activities. The Metropolitan Branch Trail, an 11 mile multi-use trail connecting Silver Spring, MD and the National Mall in the District, is proposed as a trail adjacent to the Takoma Station (Carroll Street and Eastern Avenue). The project incorporates a bike trail along the Eastern Avenue frontage of the proposed building. Further, in advance of the joint development project WMATA anticipates providing a bike station near the main station entrance in 2016 to accommodate 104 bicycles.

Two new paths also proposed to improve pedestrian access from what is currently the north entrance of the Kiss & Ride lot at Eastern Avenue and from the northeastern edge of the open space area. The first path will be a sidewalk within the new parking garage and will provide safe access to the station for pedestrians who previously cut through the parking lot. The second will traverse the current open space area from the station to the Cedar Avenue/Eastern Avenue intersection.

The proposed project is designed to enhance the safety and security of transit riders—rail and bus, and pedestrians. Bus bays, bus layover and automobile parking areas have been located in areas that will cause the least amount of conflict between pedestrians and vehicles. In addition, lighting within the proposed development as well as the increased pedestrian activity due to the added housing units will contribute to a safer environment in the area.

4.6 Air Quality

4.6.1 Existing Conditions

The Washington, DC metropolitan region has been designated by the U.S. Environmental Protection Agency (EPA) as a non-attainment area for ground-level

ozone and for particulate matter (PM2.5). Ground-level ozone is an invisible gas created when a mixture of air pollutants known as volatile organic compounds (VOCs) and nitrogen oxides (NOx) reacts in sunlight and heat. These pollutants are caused by fumes from cars, trucks, buses, lawnmowers, leaf blowers, boats and emissions from power plants and industrial facilities. Motor vehicles produce 50 percent of the region's nitrogen oxides and 30 percent of the volatile organic compounds. "Particulate matter," also known as particle pollution or PM, is a complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. Once inhaled, these particles can affect the heart and lungs and cause serious health effects.

4.6.2 Evaluation

Construction Impacts

The project's construction activities will have temporary and minimal impacts on air quality within the immediate vicinity of the project site. Air quality impacts will be caused by construction engines and dust generated from construction activities.

Joint Development Impacts

The proposed project involves the construction of a new bus bay and layover bay but does not require any modification of the existing bus routes or facilities. All existing bus routes currently enter the site from Carroll Street and most exit from that same location or onto Eastern Avenue. The current site has 9 bus bays for loading/unloading. The proposed site will have 10 bus bays for loading/unloading and one bay for layover. The addition of a bus bay for layover will help to reduce the amount of idling and subsequent emissions. The project does not create new transit operations or create additional transit capacity. Therefore, no impact to air quality is projected.

The proposed development is not anticipated to have an adverse impact on the local or regional air quality or to contribute to exceeding the NAAQS.

4.7 Noise and Vibration

4.7.1 Existing Conditions

The operation of the Metrorail station and related buses and trains are the primary sources of noise at the site. Commuter vehicles utilizing the Metrorail station parking lot are an additional noise source.

4.7.2 Evaluation

Construction Impacts
The project's construction activities and related traffic will have temporary impacts on noise and vibration within the immediate vicinity. Construction activities will comply with the District of Columbia noise regulations.

Joint Development Impacts
Existing bus routes and transit linkages will not be changed from the existing condition as a result of the project, and the impact of the proposed residential development will be minimal. Therefore, no adverse impact is anticipated.

4.8 Topography and Geology

4.8.1 Existing Conditions

The Metrorail site slopes to the north-northwest from an elevation of approximately 279 feet the intersection of Carroll and Cedar Streets to a low point of approximately 256 feet at the Metro station parking lot exit on Cedar Street. Existing topographic conditions are illustrated in Figure 7.

Geologically, the soils on the project site are classified as "Udorthents". The Udorthent association is primarily earthy fill material, mixed with other matter, deposited over poorly drained to somewhat excessively drained soils.

4.8.2 Evaluation

Construction Impacts
Some modification of the site landform will be necessary to construct the proposed joint development project. Grading activity will be undertaken in compliance with the District of Columbia Soil Erosion and Sediment Control program requirements.

Joint Development Impacts
No adverse impact to site topography or geology is anticipated as a result of the implementation of the joint development project. All exposed soil surfaces will be re-vegetated once construction is complete.

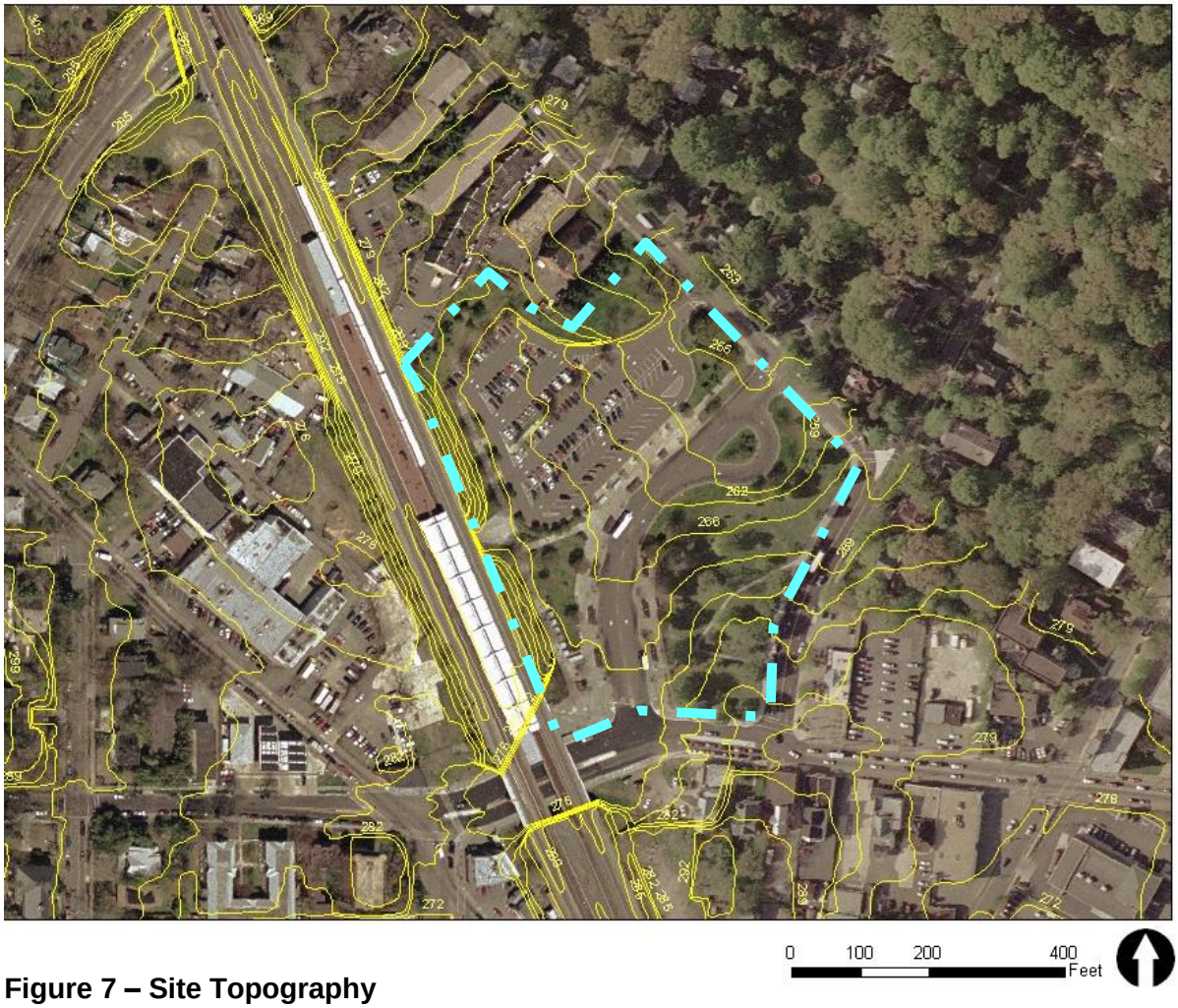

Figure 7 – Site Topography

4.9 Historic Resources

4.9.1 Existing Conditions

Takoma Park was founded and developed as a suburb by Benjamin F. Gilbert in 1883. Takoma Park was the first commuter suburb in the area and was originally located on approximately 100 acres of land around the B & O Railroad tracks. Gilbert, in planning his suburb, ignored jurisdictional lines, and the original town of Takoma Park thus was located in the District of Columbia and Prince George's and Montgomery counties, Maryland. Subsequently, Montgomery County absorbed the part of the town formerly associated with Prince George's County.

When Gilbert selected this site, few roads extended north from Washington, and during the first few years of its existence, Takoma Park depended almost entirely on the steam railroad for the movement of goods and people. The residences of Takoma Park were within walking distance of the train station.

The project site is located within the District of Columbia-designated Takoma Park Historic District (see Figure 8). The project site is located within the National Register of Historic Places Takoma Park Historic District, also.

4.9.2 Evaluation

No individual historic structure will be directly impacted by the project. However, since the project is in a Historic District, its compatibility with that district will be the evaluated by the District of Columbia's Office of Historic Preservation.

Because the area has been disturbed substantially, any archaeological resource that might have been present has likely been severely compromised or destroyed. Project design and construction must be coordinated with the Historic Preservation Office of the District of Columbia's Office of Planning.

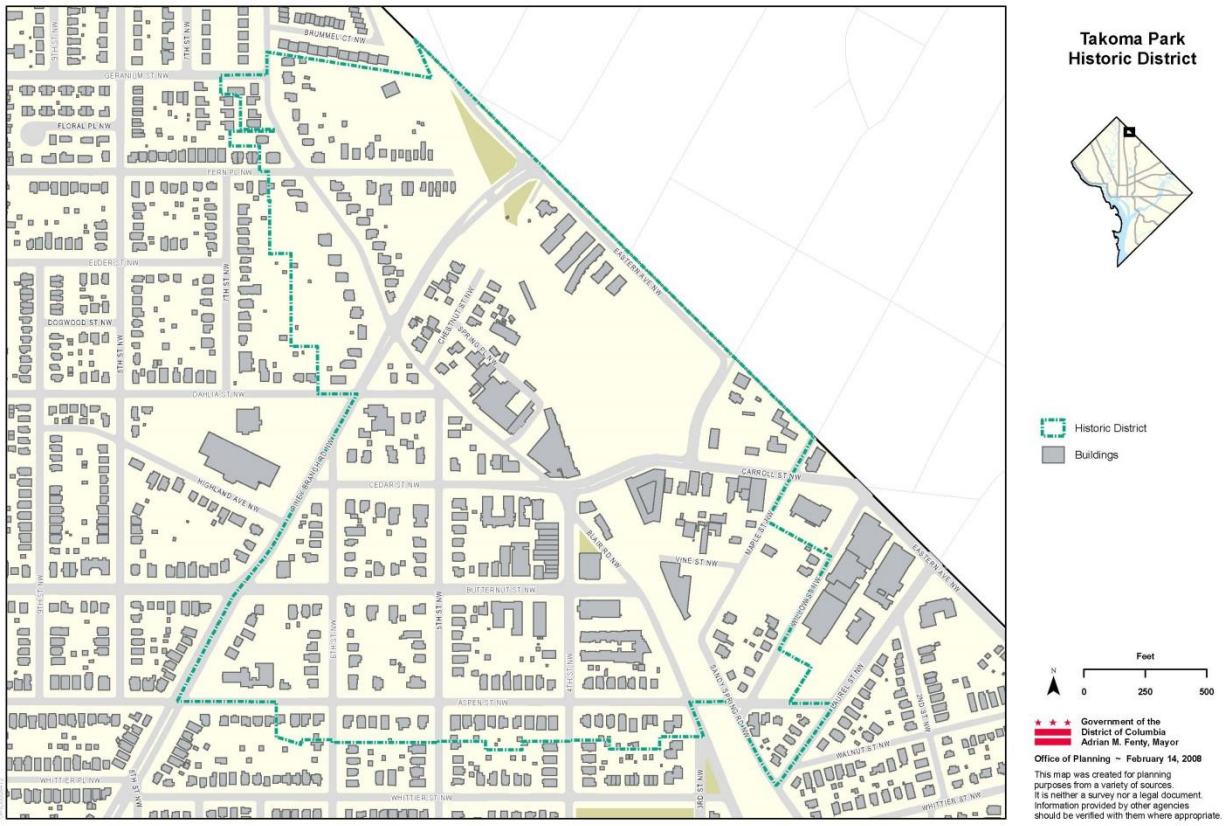

Figure 8 – Takoma Park Historic District

4.10 Parklands

No park is located on-site. No impact is projected.

A one-acre village green will be designated on the southern end of this site, along Cedar Street.

4.11 Hazardous Materials

4.11.1 Existing Conditions

According to historical records reviewed during the preparation of a Phase II Environmental Site Assessment[6] (ESA), a gasoline filling station was located on the southern edge of the site from at least 1927 until at least 1960. Additionally, historical maps indicate that another gasoline filling station was located across Cedar Street from the Metrorail station, where a row of commercial businesses is now located. The ESA identified petroleum contamination in the soil and groundwater samples taken from the southern edge of the project site, where the former gasoline filling station is believed to have been located.

4.11.2 Evaluation

Site development will include the proper management of materials and remediation of the site as needed in accordance with applicable District and/or federal regulations. Buried fuel tanks, if any, encountered during future site development activities will be handled and disposed of similarly. The Department of the Environment and the Fire Marshall will be notified of any discovered tank prior to excavation and removal. Petroleum-contaminated groundwater encountered during future site development may need to be treated prior to discharge.

5.0 REFERENCES

1 Takoma Metrorail Station Access Analysis Technical Memorandum, September 2013

2 WMATA Joint Development Policies and Guidelines, Revised: July 25, 2013

3 Takoma Metro Station Traffic Analysis Technical Memorandum, April 2014

4 Takoma Central District Plan. District of Columbia Office of Planning. January 2002.

5 Takoma Transportation Study. District of Columbia Department of Transportation and the City of Takoma Park, MD. July 2003.

6 Phase II Environmental Site Assessment, Takoma Metro Station. Engineering Consulting Services, Ltd. January 21, 2003.

Appendix A

Traffic Analysis
Technical Memorandum

TAKOMA METRO STATION

Traffic Analysis
Technical Memorandum

Station Planning in
Support of Joint Development

Job No. 13-FQ10065-LAND-02

April 2014

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
(WMATA)

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1.0 INTRODUCTION

The Takoma Metro Station is located on the Red Line in the Washington Metropolitan Area Transit System. It serves the area of Takoma Park, Maryland and the Takoma neighborhood of Washington D.C. A new residential apartment development is being proposed at the existing Kiss & Ride site to the northeast of the station. The purpose of this technical memorandum is to document the existing traffic conditions in the vicinity of the Takoma Metro Station, and assess the traffic impacts from the proposed Joint Development for its projected opening date of the year 2020. This technical memorandum is organized in the following manner:

- Study Area and Intersections
- Existing Conditions
- 2020 No-Build Conditions
- 2020 Build Conditions

1.1 Study Area and Intersections

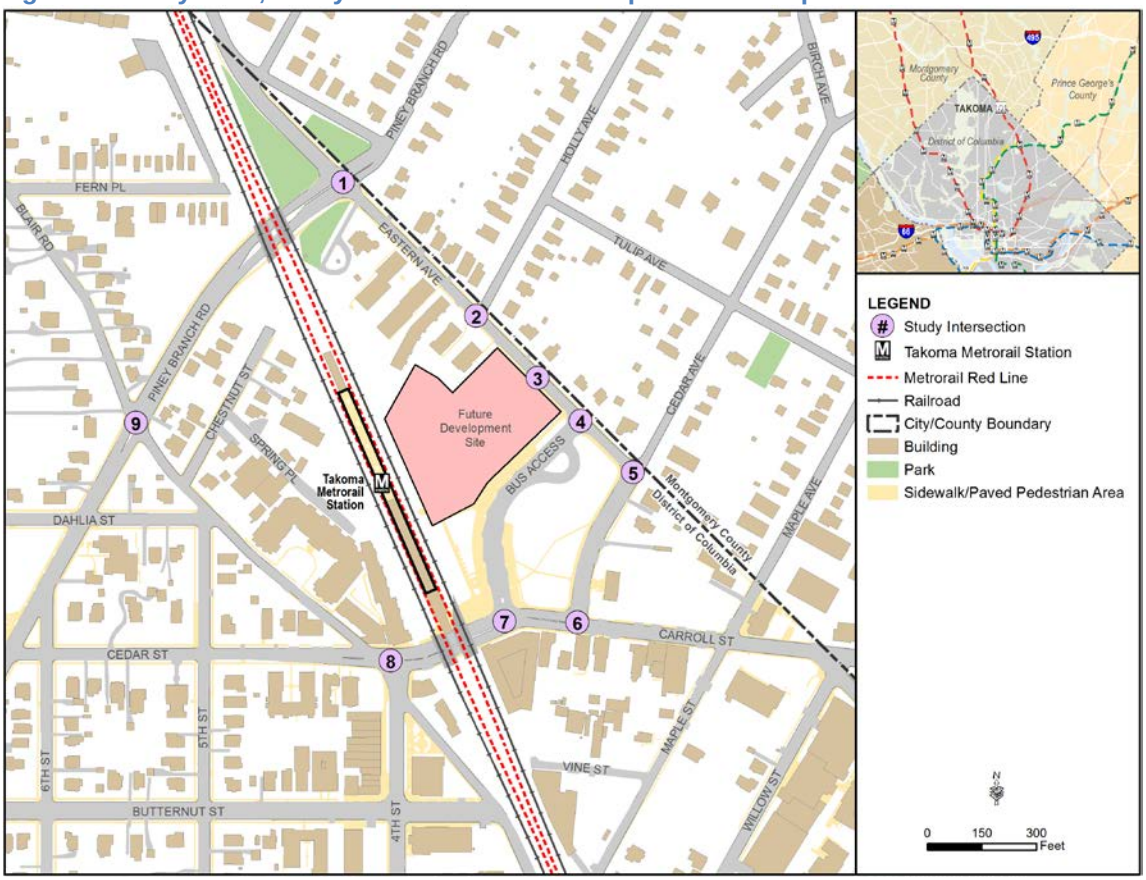
The Takoma Metro Station is located immediately south of DC-Maryland borderline. It is bounded by Cedar Street to the east, Piney Branch Road to the west, Eastern Avenue to the north, and Blair Road and Cedar Street to the south.

The studied intersections include four signalized intersections and five un-signalized intersections, listed as follows:

1. Eastern Avenue and Piney Branch Road (signalized)
2. Eastern Avenue and Holly Avenue (un-signalized)
3. Eastern Avenue and Kiss & Ride Facility (un-signalized)
4. Eastern Avenue and Bus Access (un-signalized)
5. Eastern Avenue and Cedar Street (un-signalized)
6. Carroll Street and Cedar Street (signalized)
7. Carroll Street and Bus Access (un-signalized)
8. Cedar Street and Blair Road and 4th Street (signalized)
9. Blair Road and Piney Branch Road (signalized)

Figure 1 shows the study area, study intersections, and locations of the proposed development site at the Takoma Metro Station.

Figure 1: Study Area, Study Intersections and Proposed Development Site



1.2 Existing Conditions

This section presents the existing traffic conditions on the roadways adjacent to project and the purpose of this analysis is to establish the base conditions.

1.2.1 Field Observation

Field observations were performed in the study area during the AM and PM peak periods. The purpose of these field visits was to investigate the existing roadway and geometric conditions, traffic control operations, pedestrian/bicycle activities, and transit operations. These factors could affect the traffic operations at the study intersections.

1.2.1.1 Traffic

Figure 2 shows the key field observations of the existing traffic operation in the study area. The major congestion within the study area is observed at the intersection of Blair Road and Piney Branch Road. Vehicles experience long delays along eastbound and westbound Blair Road approaching Piney Branch Road during both AM and PM peak hours. The westbound queues on Blair Road spill back to Cedar Street, and the eastbound queues extend beyond Fern Place in the AM and PM. One major cause of the congestion is the insufficient duration of the green time at Piney Branch Road and Blair Road traffic signalized operation. Since there is only one travel lane on Blair Road, left-turning or right-turning vehicles were observed blocking the though westbound traffic at Piney Branch Road intersection. It was observed

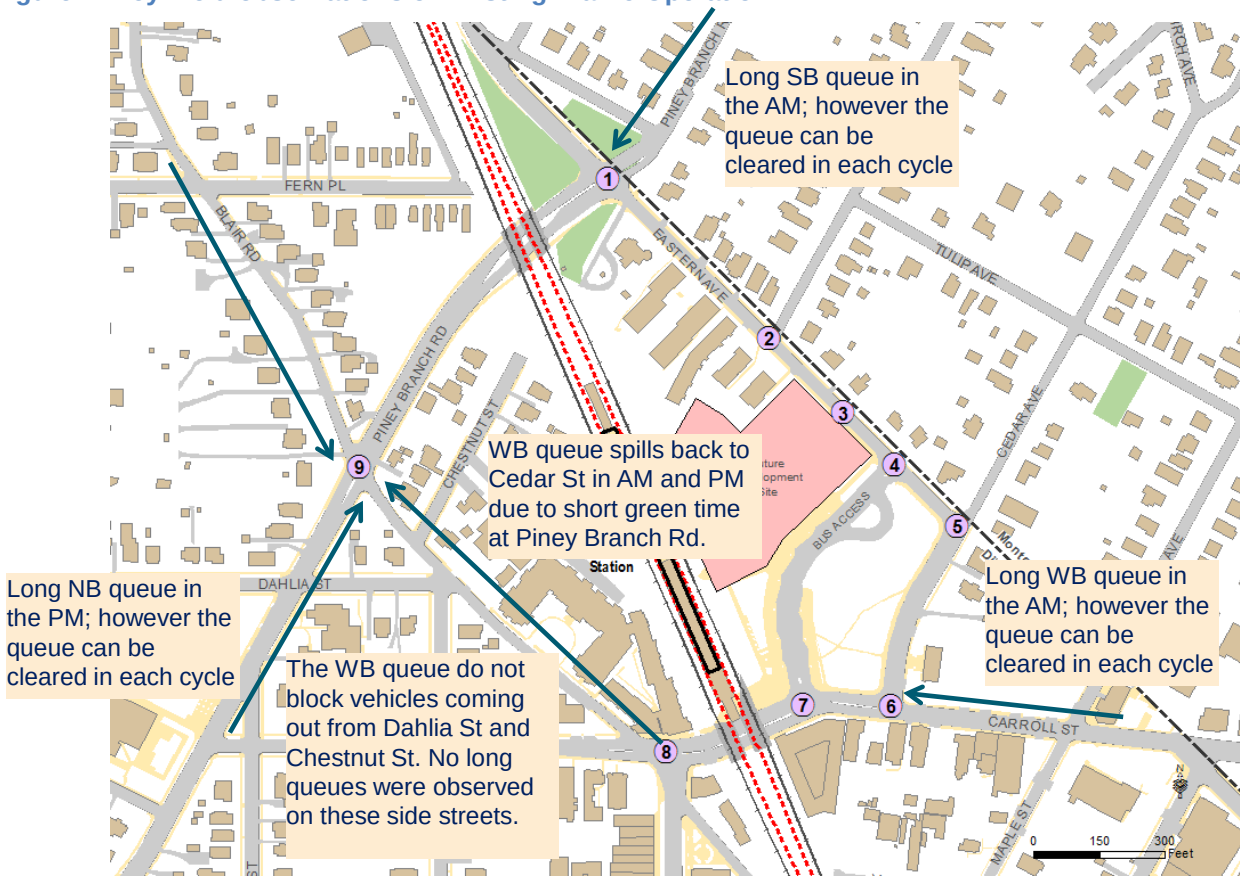
in the field that the left and right turning traffic from Chestnut and Dahlia Street are merging without being blocked from Blair Road traffic.

Long queues were also observed on the following approaches:

- Southbound Piney Branch Road approaching Eastern Avenue in the AM peak hour
- Northbound Piney Branch Road approaching Blair Road in the PM peak hour and on
- Westbound Carroll Street approaching Cedar Street in the AM peak hour.

However, these queues were cleared during most cycles. All other signalized and un-signalized intersections are operating at acceptable conditions.

Figure 2: Key Field observations of Existing Traffic Operation



1.2.1.2 Bus Operation

The Takoma Metro Station is served by WMATA's Metrobus and Montgomery County's Ride-On Bus service. There are 16 bus lines serving the station during the AM and PM peak hours. There are 9 bus bays provided at the station while 1 bay is currently not assigned to any bus route. WMATA buses including bus routes 52/53/54, F1/F2, K2 and 62/63 use 4 bus bays, and Ride On buses including Lines 3, 12, 13, 14, 16, 18, 24, 25 use the other 4 bus bays. Despite the fact that the two bus-access intersections are un-signalized, buses currently do not appear to encounter any problem in entering and exiting the station.

1.2.1.3 Park and Ride and Kiss and Ride

There are no long-term Park and Ride facilities provided at the Takoma Metro Station. The Kiss & Ride and short-term parking lots are located to the northeast of the Metro station. No congestion or overcrowding was observed at the Kiss & Ride/Short-term parking lots. Informal drop-off and pickup also

occurs on Cedar Street adjacent to the station entrance. However, these vehicles do not create traffic congestion.

1.2.1.4 Pedestrians

Sidewalk is provided on all the streets within the study area. Heavy pedestrian activity was observed on Carroll Street, Blair Road and Eastern Avenue.

1.2.1.5 Bicycle

According to the 2012 bike parking census, the Takoma Metro Station has the second-highest number of bike users in the Metro system. Many bicyclists were observed along Blair Road, Piney Branch Road, Eastern Avenue, and Carroll Street. However, no bike lanes are provided on any of these corridors. Cyclists either ride on the curb-side parking lane, or share the travel lane with cars.

1.2.2 Data Collection

Turning movement counts at study intersections were collected in mid-September, 2013 during the AM peak period (6:00 a.m. – 10:00 a.m.), and PM peak period (3:00 p.m. – 7:00 p.m.). According to the data reports, the peak hour is between 7:45 a.m. and 8:45 a.m. in the morning, and between 5:30 p.m. and 6:30 p.m. in the afternoon. The highest hourly traffic volumes were used for AM and PM peak hour traffic analysis. Appendix A includes turning movement counts collected from the field.

Signal timing at signalized study intersections was provided by District Department of Transportation (DDOT). Appendix B shows the signal timing sheets.

1.2.3 Methodology

A traffic analysis was performed for the study intersections using the micro-simulation tool VISSIM. Traffic operation was assessed using Measures of Effectiveness (MOE), including Delay (seconds per vehicle), Level of Service (LOS), and queue length (feet) at the study intersections.

Intersection LOS analysis provides a measurement of delay and service conditions for all approaches to the intersection. The HCM 2010 edition uses LOS as a qualitative measure to describe the operating conditions at signalized and un-signalized intersections based on control delay per vehicle (seconds). The LOS range of A through F represents driving conditions from best to worst. Table 1 presents the LOS thresholds for signalized and un-signalized intersections per the HCM 2010.

Table 1: LOS Thresholds for Signalized and Un-signalized Intersections

Signalized Intersections		Un-signalized Intersections	
Delay (sec/veh)	**LOS**	**Delay (sec/veh)**	**LOS**
<= 10	A	<= 10	A
> 10 – 20	B	> 10 – 15	B
> 20 – 35	C	> 15 – 25	C
> 35 – 55	D	> 25 – 35	D
> 55 – 80	E	> 35 – 50	E
> 80	F	> 50	F

Source: HCM 2010.

The VISSIM models were run 20 times, and the average output results were tabulated and analyzed to determine the overall conditions at the study intersections during the AM and PM peak hours. In order to replicate the existing peak hour traffic conditions at study intersections, the AM and PM peak hour models were calibrated based on field data and observations.

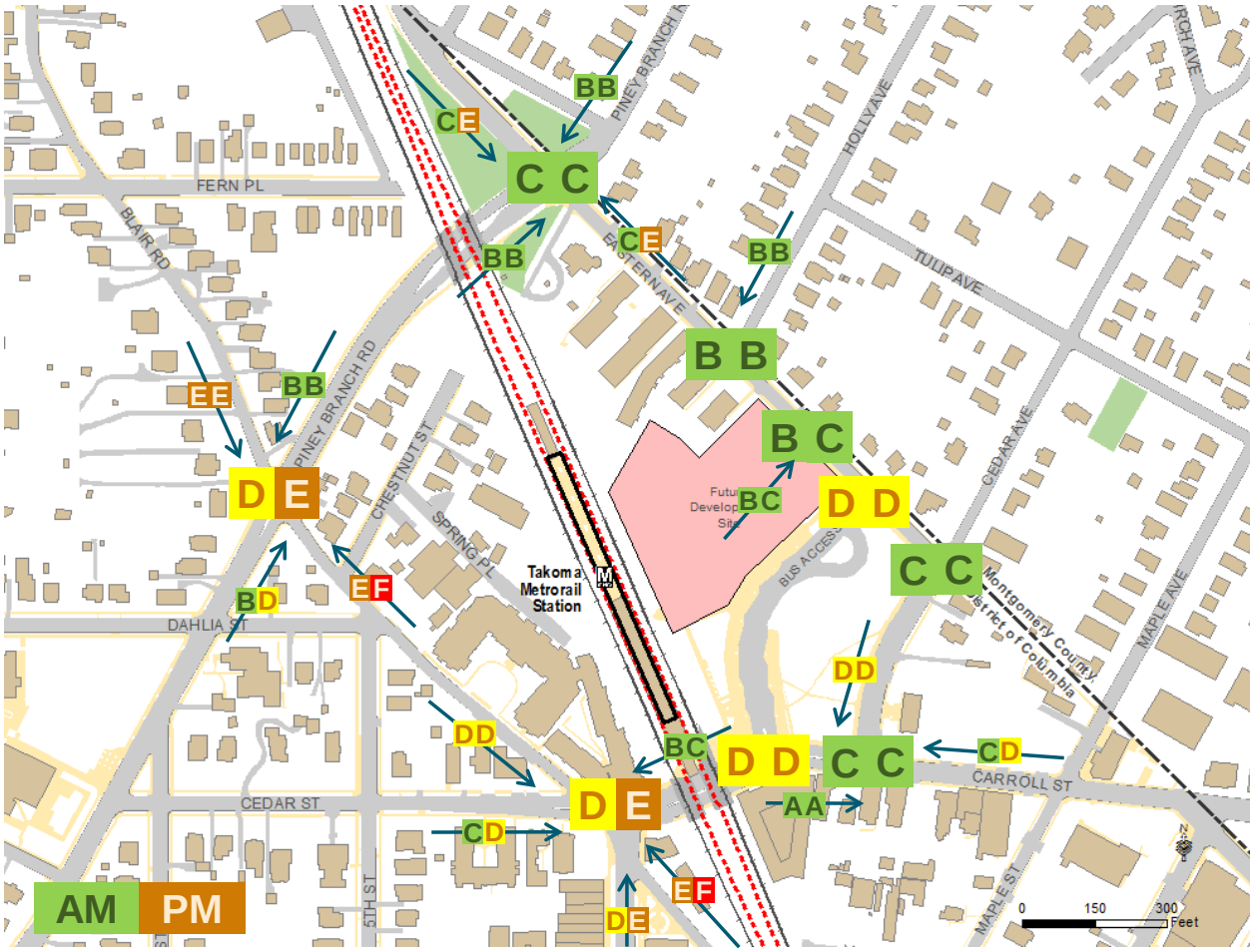
1.2.4 Analysis Results

This section summarizes the delay, LOS and queue results from VISSIM at each study intersection during AM and PM peak hours. The LOS results of the existing traffic operation are shown in Figure 3. See Appendix C for the detailed MOE summary for the existing AM and PM peak hour conditions from VISSIM analysis.

The results indicate that the VISSIM outputs are consistent with field observations. Vehicles on Blair Road approaching Piney Branch Road experience LOS E and LOS F in both AM and PM peak periods. The westbound queues on Blair Road starting at Piney Branch spill back beyond Cedar Street, which makes westbound vehicles approaching Cedar Street experience LOS E and F in the AM and PM, respectively.

Northbound Piney Branch Road has long queues in the PM peak hour approaching Blair Road intersection. The 95th-percentile queue on northbound Piney Branch Road is approximately 1,100 feet long.

Figure 3: LOS of Existing Condition



1.3 2020 No-Build Conditions

2020 No-Build represents the background traffic condition in 2020 excluding the proposed joint developments at the Takoma Metro Station. 2020 was selected as the analysis year because that is the date the development is planned to open.

1.3.1 No-Build Volume Projections

MWCOG 2.3 model was used to project the traffic growth from 2013 to 2020 (excluding the development at the Takoma Metro Station). The MWCOG model, which accounts for approved development projects, indicates that three of the local jurisdictions including Washington D,C., Prince George's County, and Montgomery County are showing more than 10% total increase in households and employment from 2010 to 2020. Silver Spring, which is located to the northeast of the Takoma Metro Station, expects significant growth in both jobs and number of residents. This study, assumed a total growth of 15% from 2013 to 2030 in the AM and PM peak period that is equivalent to an annual traffic growth rate of 2%.

1.3.2 No-Build Analysis Results

Due to the traffic growth through 2020, the existing signal timing or roadway alignment may potentially fail to support the future traffic volumes. Note that this would be the case even if the proposed WMATA joint development project is not implemented. Several scenarios were tested to assess the future traffic conditions and to potentially improve the traffic operations for 2020 No-Build, including:

1) Keeping the existing signal timing and lane configurations;
2) Adjusting the signal timing while keeping the existing lane configurations; and
3) Adjusting the signal timing and lane configurations.

1.3.2.1 No-Build Scenario 1: Kept existing signal timing and existing lane configurations

In Scenario 1, the signal timing and roadway lane configurations assumed for 2020 models would be the same as the existing conditions. Figure 4 shows the LOS and key findings of No-Build Scenario 1. See Appendix C for the detailed MOE results for the 2020 No-Build Scenario 1 from VISSIM analysis.

As shown in the results, several signalized and un-signalized intersections experience level-of-service downgrades in 2020 No-Build when they are compared with the existing conditions. During the AM peak hour, the level of service for the intersection of Carroll Street and Cedar Street downgrades from C to E. The westbound approach experiences LOS F with more than 1,500 feet length of queue. The intersection of Piney Branch Road and Blair Road downgrades from LOS D to F. Both westbound and eastbound approaches on Blair Road experience significant delays where the westbound Blair Road approach is 423 seconds delay per vehicle in the AM peak hour. The westbound queue on Blair Road extends to the upstream intersection of Cedar Street, Blair Road and 4th Street, resulting in significant delays and queues at that intersection. The intersection of Cedar Street, Blair Road and 4th Street also operates with LOS F.

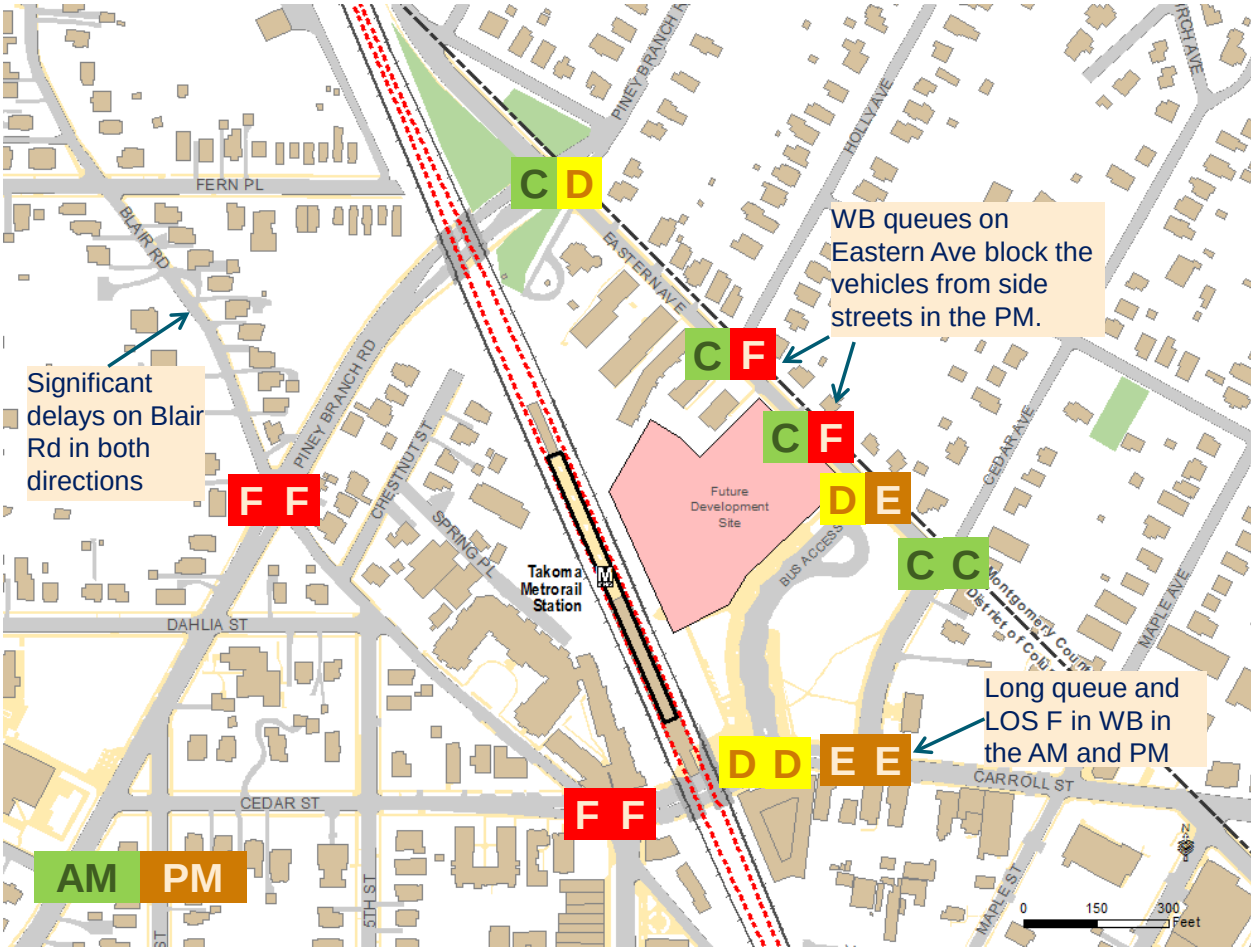
The PM traffic conditions are similar to the AM with the exception of the following intersections:

1. Eastern Avenue at Holly Avenue,
2. Eastern Avenue at Kiss & Ride and
3. Eastern Avenue at Bus Access intersections.

The level of service at the intersection 1 and 2 is downgraded to LOS F and intersection 3 is downgraded to LOS E. The major cause of this level of service downgrade is due to the long queues on the westbound Eastern Avenue not yielding to the side street traffic.

In summary, the existing signal operation and facilities are not able to provide adequate capacity for future traffic growth in the region. A potential remedy would be adjusting signal timing and improving lane configurations.

Figure 4: Key Findings and LOS of 2020 No-Build Scenario 1



1.3.2.2 No-Build Scenario 2: Adjusted signal timing and kept existing lane configurations

In Scenario 2, the split time (green time) at four signalized study intersections were optimized while keeping the cycle length at 100 seconds, which is the same as the existing conditions. The green signal time provided for Blair Road is extended in the AM peak hour to reduce the approach delay and the green signal time provided for Piney Branch Road is reduced to keep the overall cycle length to 100 seconds. The signal timing changes would keep the LOS for Piney Branch Road at an acceptable level. As is shown in Appendix C, in the existing condition, the LOS at Piney Branch Road approaches is B. Figure 5 shows the key findings and LOS of No-Build Scenario 2.See Appendix C for the detailed MOE summary for the 2020 No-Build Scenario 2 from VISSIM analysis.

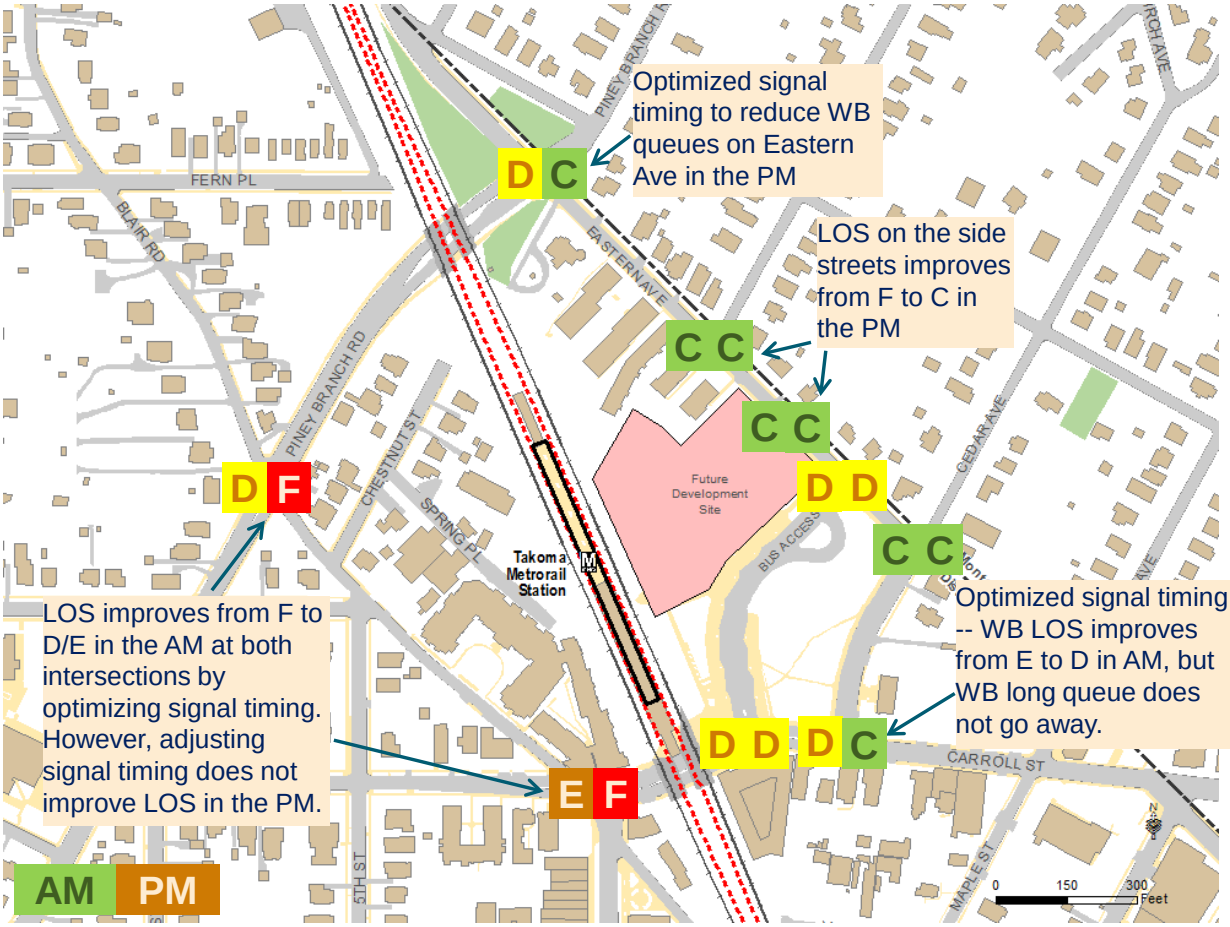
As compared to the results in Scenario 1, Scenario 2 shows an improvement in traffic operation in the AM peak hour. During the AM peak hour, the intersection of Carroll Street and Cedar Street improves from LOS E in Scenario 1 to LOS D in Scenario 2, but westbound Carroll Street still has 1,500 feet-long queues. Similar improvements were observed at the intersection of Blair Road and Piney Branch Road where the LOS improves from F to E. Due to this improvement, the intersection of Cedar Street, Blair Road and 4th Street also improves from LOS F to D.

During the PM peak hour, the LOS for un-signalized intersections along Eastern Avenue improves from LOS F to D or better by adjusting signal timing at the intersection of Piney Branch Road and Eastern

Avenue. The signalized intersection of Carroll Street and Cedar Street also improves from LOS E to C. However, the intersection of Cedar Street, Blair Road and 4th Street, and the intersection of Piney Branch road and Blair Road continue to operate with LOS F in Scenario 2. This indicates that adjusting the signal timing at these intersections does not essentially address the congestion problems along Piney Branch Road and Blair Road.

In summary, traffic operation in the AM is greatly improved by adjusting signal timing at four signalized intersections. However, optimizing signal timing does not improve the traffic operation at two signalized intersections in the PM.

Figure 5: Key Findings and LOS of 2020 No-Build Scenario 2



1.3.2.3 No-Build Scenario 3: Adjusted signal timing and improved lane configurations

In Scenario 2, the major operational problem in the AM peak hour is the excessive queue on westbound Carroll Street and the two signalized intersections operating at LOS F in the PM peak hour. The proposed lane configuration improvement to solve the AM operational problem is to provide additional 100 foot long westbound right-turn lane (pocket) on Carroll Street approaching Cedar Street intersection. For the PM peak hour, the proposed improvements are to restrict parking during peak hours and convert the curb-side parking lane into a travel lane on northbound Piney Branch Road between Dahlia Street and Eastern Avenue. The proposed Piney Branch Road improvements will increase capacity to Piney Branch Road approach. This improvement in turn creates an opportunity to reallocate green time from Piney Branch

Road to Blair Road traffic signal phase/movement. Figure 6 shows the existing and proposed lane configurations for the year 2020 on Piney Branch Road.

Figure 7 shows the assumptions of improvements, key findings and LOS of No-Build Scenario 3.See Appendix C for the detailed MOE VISSIM analysis summary result for the 2020 No-Build Scenario 3. As shown in the results, the westbound right-turn pocket at the intersection of Carroll Street and Cedar Street helps reduce the westbound queues and improves the overall intersection level of service from D to B during the AM peak hour. The westbound queue length also decreases from 1,500 feet to approximately 400 feet. The proposed lane configurations along Piney Branch Road help alleviate traffic delays along Blair Road and improve the operation at the intersection of Piney Branch Road and Blair Road from LOS F to D, and at the intersection of Blair Road, 4th Street and Cedar Street from LOS F to E.

Figure 6: Existing and Proposed Lane Configurations on Piney Branch Road
(Note: Diagrams not to scale)

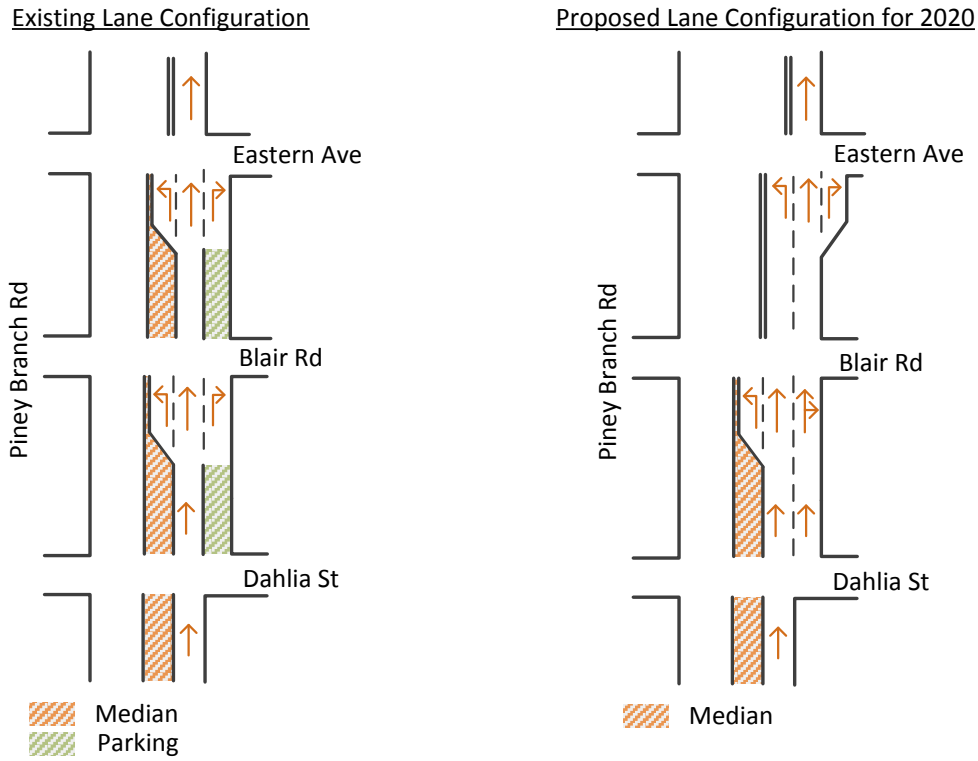
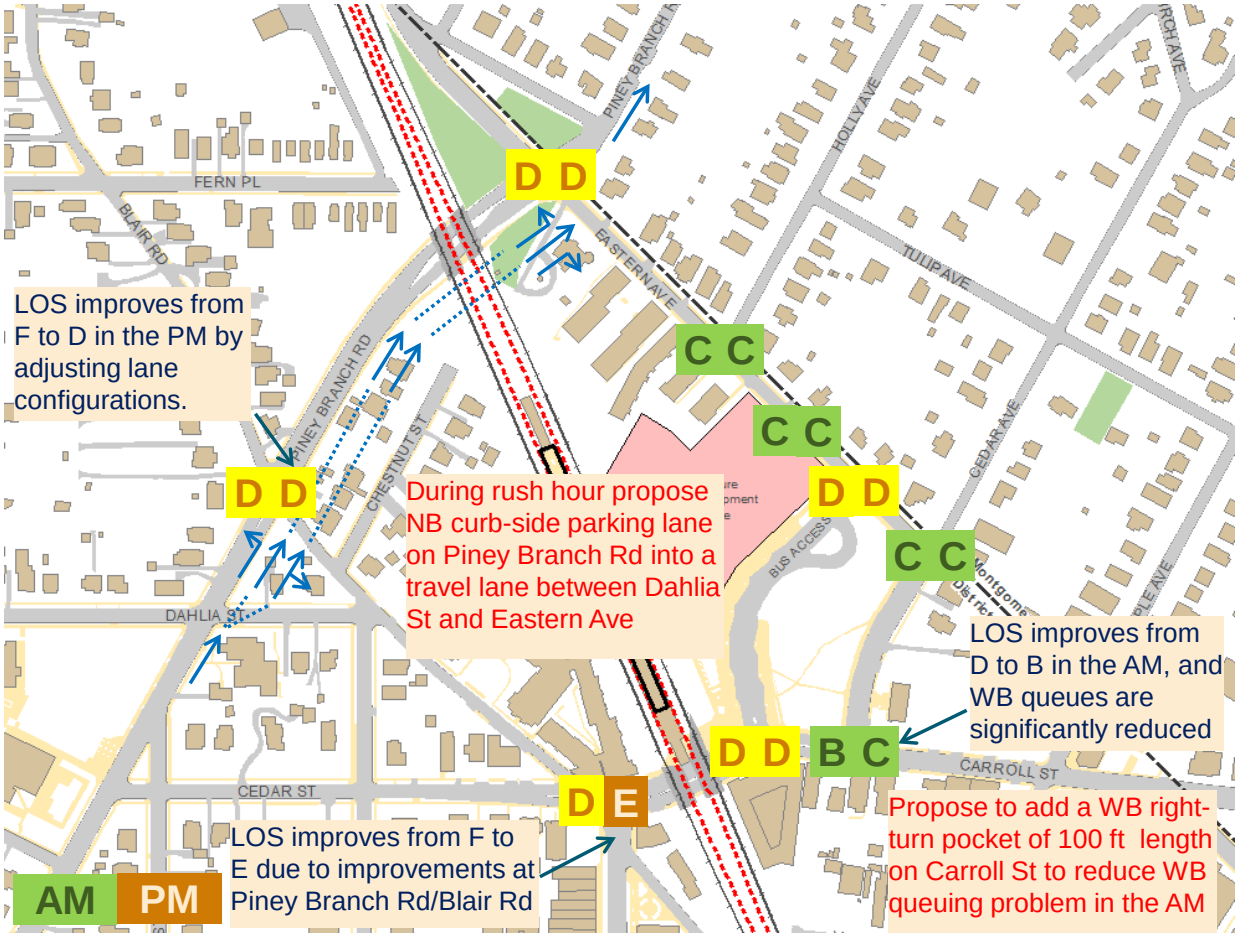


Figure 7: Assumptions, Key Findings and LOS of 2020 No-Build Scenario 3



1.4 2020 Build Volume Projections

1.4.1 Development Plan

A new residential building on a site shared with a Metro Kiss & Ride and short-term parking facility is proposed at the Takoma Metro Station. The new residential building would include 212 apartment units and 190 parking spaces (excluding Kiss & Ride and short-term parking for the Metro). The conceptual site plan is shown in Figure 8.

Figure 8: Conceptual Site Plan

1.4.2 Trip Generation

The ITE Trip Generation Manual 9th Edition was used to estimate the generated trips from the proposed development at the Takoma Metro Station. Table 2 shows the land use type and trip generation rates/equations used to estimate total generated trips. Table 3 shows the calculated site-generated trips including transit, walk/bike and vehicular trips.

Table 2: Land Use Type and Trip Generation Rates/Equations

Use	Land Use Type	Feature	Rate/ Equations (AM)	In/Out Rate (AM) (%)	Rate/ Equations (PM)	In/Out Rate (PM) (%)
Residential	Apartments	212 Units	$0.49 \times Unit + 3.73$	20/80	$0.55 \times Unit + 17.65$	65/35

Table 3: Site-Generated Trips

Land Use	AM			PM		
	Total Trips	In	Out	Total Trips	In	Out
Residential	108	22	86	134	87	47

1.4.3 Mode Share

Transit and walk/bike trips were not considered for purposes of trip generation calculation, although they are accounted for in the final Build analysis and evaluation. The *2005 Development-Related Ridership Survey* conducted by the Washington Metropolitan Area Transit Authority (WMATA) studies the travel behavior of persons traveling to and from office, residential, hotel and retail sites near Metrorail stations in the Washington D.C. metropolitan area.

For residential trips, the 2005 Survey investigates the mode share for residential sites within ¼ mile walking distance at a variety of Metro stations. The average mode share at these Metro stations is listed as follows:

- 11% walk/bike trips
- 48% transit trips
- 41% vehicle trips

This study assumes the same mode share to estimate the vehicular trips at the Takoma Metro Station. Table 4 presents the total vehicular trips entering and exiting the development sites during the AM and PM peak hour.

Table 4: Generated Vehicular Trips

	AM		PM	
Land Use	**In**	**Out**	**In**	**Out**
Residential	9	35	35	19

1.4.4 Trip Distribution

The future new development site would share the same access intersection/driveway with the Metro Kiss & Ride and short-term parking trips. The distribution of the generated vehicular trips at the access intersection is assumed to follow the same traffic pattern as the vehicles coming from Holly Avenue. The distribution is comparable because the trips from Holly Avenue are also residential trips. The existing traffic distribution was used as a guide for determining the trip distribution at other intersections. Figures 9 and 10 show the trip distribution for the new generated trips in the AM and PM peak hours, respectively.

Figure 9: Trip Distribution in the AM

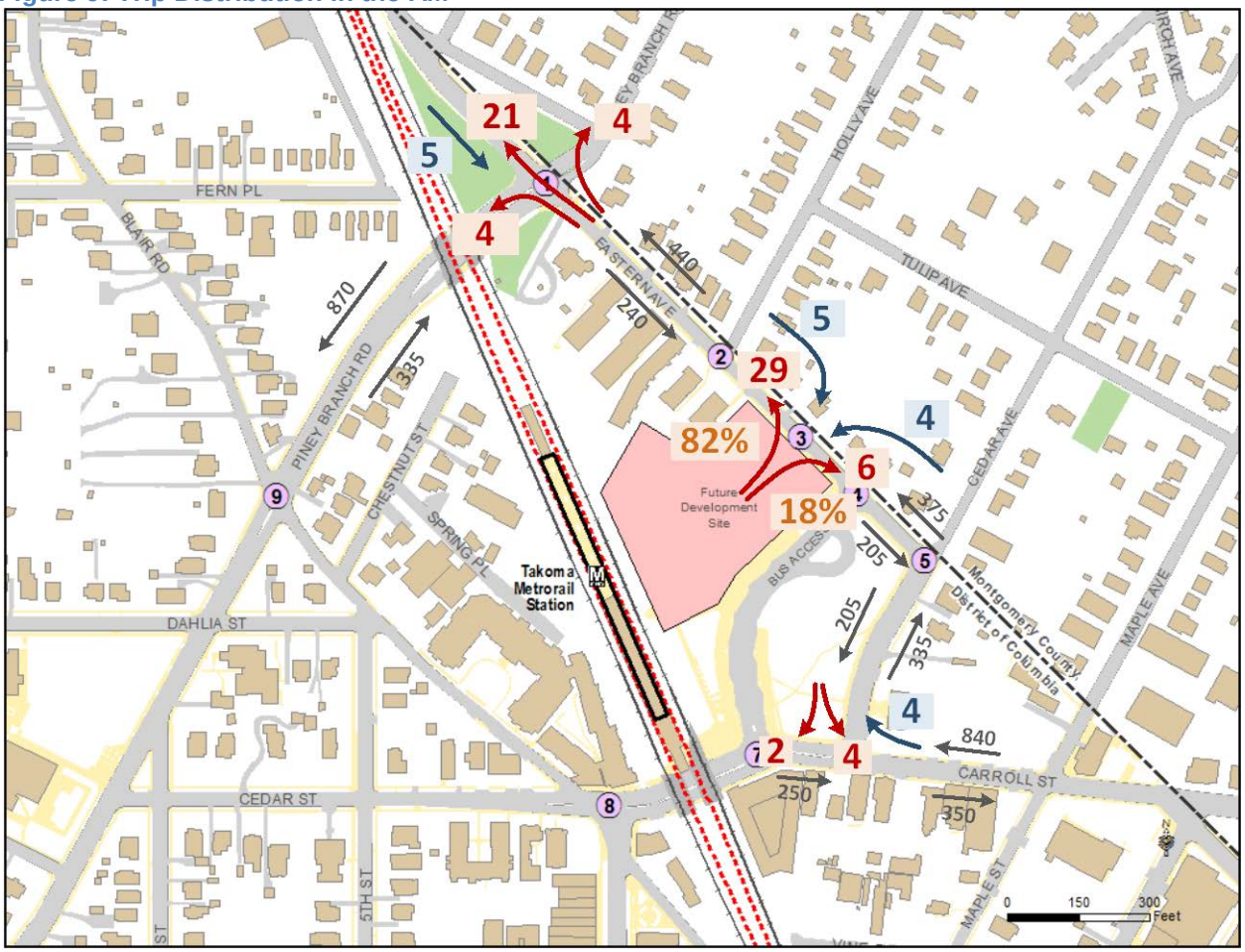
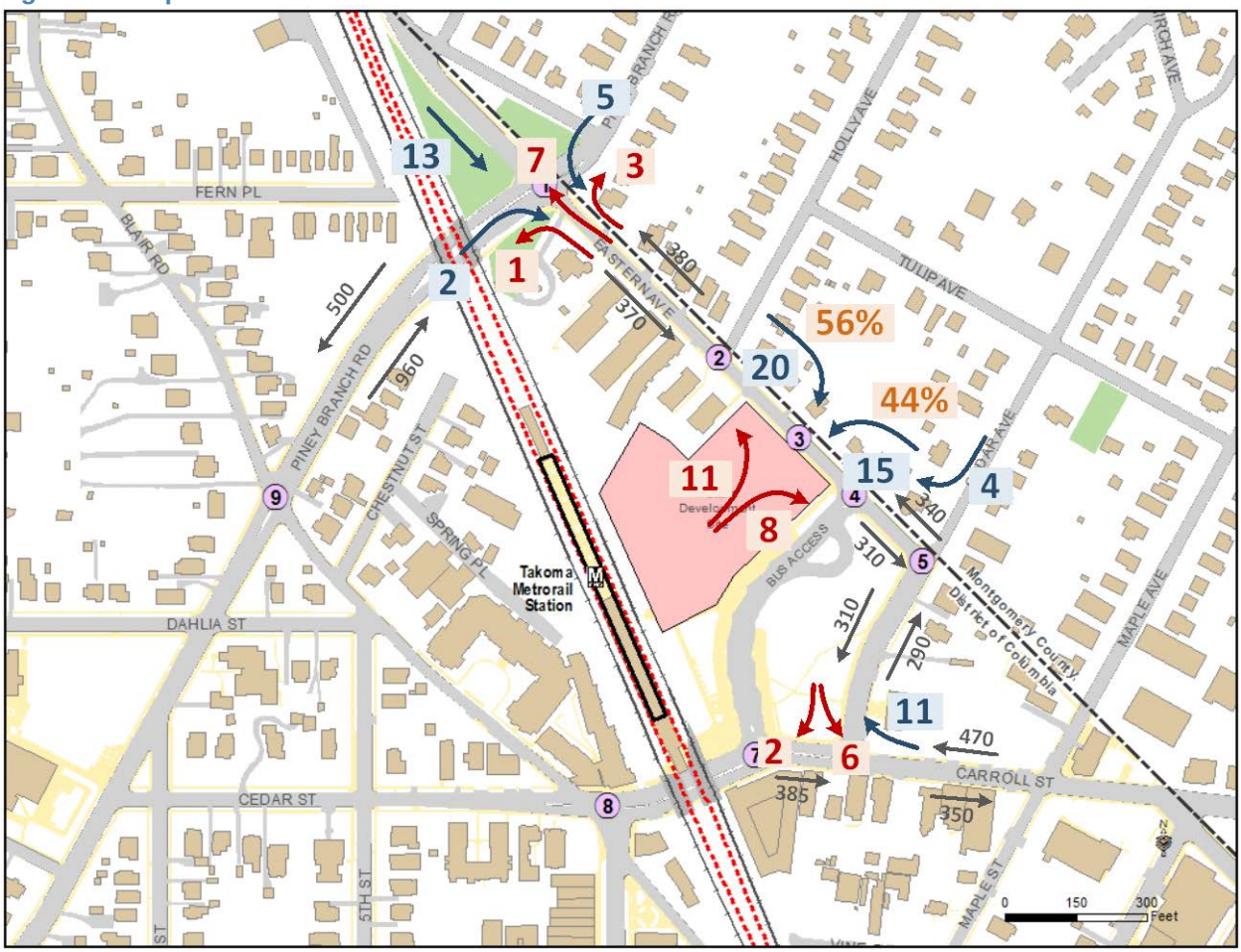


Figure 10: Trip Distribution in the PM



1.4.5 Analysis Results

2020 Build models assume the same lane configurations as 2020 No-Build Scenario 3. Signal timings were adjusted to accommodate the site generated trips. Figure 11 shows the assumptions of improvements, key findings and LOS of Build Condition. See Appendix C for the detailed delay and LOS results for 2020 Build scenarios. All intersections are operating at the acceptable level of service.
Table 5 shows a summary of LOS at the study intersections in each scenario. The detailed results are included in Appendix C.

Figure 11: Assumptions, Key Findings and LOS of 2020 Build Condition

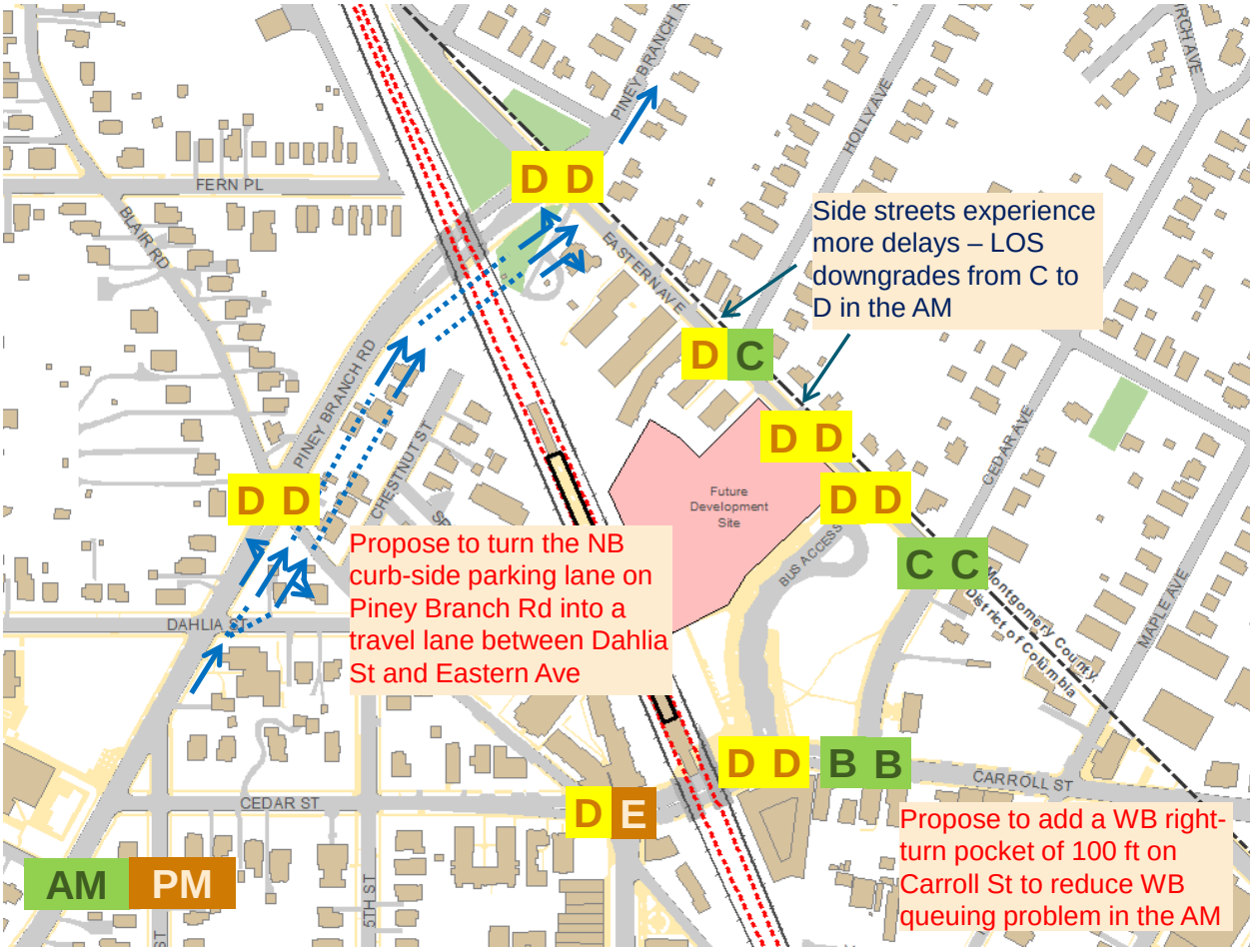


Table 5: Summary of LOS

LOS		AM					PM				
			No-Build					No-Build			
No.	Intersections	Ex	S1	S2	S3	Build	Ex	S1	S2	S3	Build
1	Eastern Ave and Piney Branch	C	C	D	D	D	C	D	C	D	D
2	Eastern Ave and Holly Ave	B	C	C	C	D	B	F	C	C	C
3	Eastern Ave and Kiss & Ride	B	C	C	C	D	C	F	C	C	D
4	Eastern Ave and Bus Access	D	D	D	D	D	D	E	D	D	D
5	Eastern Ave and Cedar Ave	C	C	C	C	C	C	C	C	C	C
6	Carroll St and Cedar Ave	C	E	D	B	B	C	E	C	C	B
7	Carroll St and Bus Access	D	D	D	D	D	D	D	D	D	D
8	Cedar St, Blair Rd and 4th St	D	F	D	D	D	E	F	F	E	E
9	Piney Branch Rd and Blair Rd	D	F	E	D	D	E	F	F	D	D

Notes: Ex denotes Existing; S1 denotes Scenario 1; S2 denotes Scenario 2; S3 denotes Scenario 3.

1.5 Summary

The study investigates the existing 2020 No-Build and 2020 Build traffic conditions at the Takoma Metro Station. In the existing conditions, westbound and eastbound Blair Road experience long delays when approaching Piney Branch Road in both AM and PM. The congestion is caused by the insufficient signal green time provided for traffic on Blair Road. In the existing condition, westbound Carroll Street and southbound Piney Branch Road have long traffic queues in the AM peak hour. The northbound Piney Branch Road have long traffic queues during the PM peak period. However, the queues were cleared during most cycles.

2020 No-Build assumes an annual traffic growth rate of 2% to a total growth of 15% from the year 2013 to 2020. However, the existing signal operation and facilities are not able to provide adequate capacity to handle the future traffic growth in the region. Several intersections show LOS F in the AM and PM peak hours. Proposed improvements for 2020 No-Build conditions include signal timing optimization and lane configuration improvement. Lane configuration improvements include 1) adding a 100 foot long right-turn pocket on westbound Carroll Street approaching Cedar Street intersection; and 2) converting the curb side parking lane on northbound Piney Branch Road into a travel lane between Dahlia Street and Eastern Avenue. The results indicate the traffic operation will improve with the proposed recommendations and all the intersections will operate with LOS E or better. The proposed lane configuration would be used for the Build analysis and evaluation.

In 2020 Build conditions, the additional vehicular trips from the development sites are 44 and 54 vehicles in the AM and PM, respectively. The vehicles were distributed to the network by following the existing traffic pattern. The results indicate that the additional trips would slightly impact the traffic operation along Eastern Avenue, whereas at two un-signalized intersections, LOS downgrades from C to D. However, these intersections would still operate at an acceptable level of service condition.

Appendix A – Traffic Counts

Type of peak hour being reported: Intersection Peak

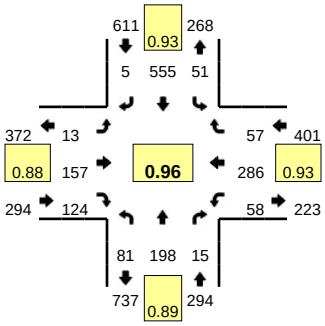
Method for determining peak hour: Total Entering Volume

LOCATION: Piney Branch Rd NW -- Eastern Ave NW

QC JOB #: 11097501

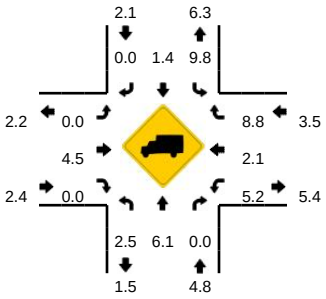
CITY/STATE: Washington, DC

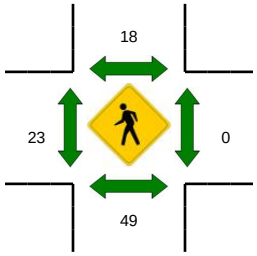
DATE: Wed, Sep 11 2013

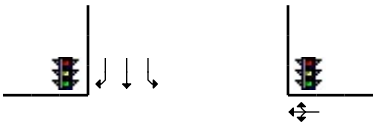


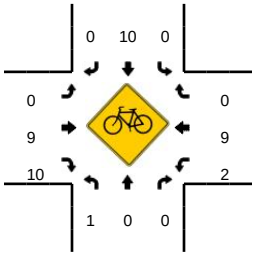
Peak-Hour: 7:45 AM -- 8:45 AM

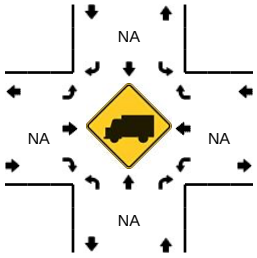
Peak 15-Min: 8:00 AM -- 8:15 AM

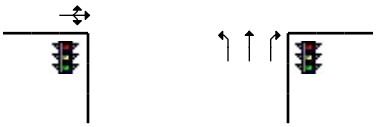


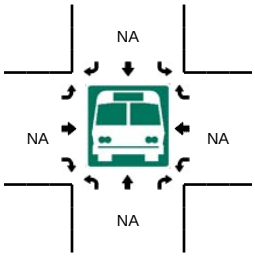












15-Min Count Period Beginning At	Piney Branch Rd NW (Northbound)				Piney Branch Rd NW (Southbound)				Eastern Ave NW (Eastbound)				Eastern Ave NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	2	20	0	0	2	87	0	0	0	6	5	0	1	13	3	0	139	
6:15 AM	3	24	0	0	5	89	0	0	1	13	8	0	2	20	5	0	170	
6:30 AM	6	33	2	0	7	134	2	0	1	19	6	0	3	23	1	0	237	
6:45 AM	5	36	1	0	8	119	0	0	1	17	11	0	2	33	6	0	239	785
7:00 AM	8	39	3	0	13	160	3	1	1	23	25	0	11	36	15	0	338	984
7:15 AM	17	36	4	0	12	171	2	0	2	27	30	0	7	34	11	0	353	1167
7:30 AM	14	51	3	0	12	140	0	0	1	37	32	0	14	56	14	0	374	1304
7:45 AM	19	38	4	0	11	164	0	0	0	41	27	0	23	59	11	0	397	1462
8:00 AM	24	44	2	0	16	146	2	0	3	36	34	0	12	79	17	0	415	1539
8:15 AM	22	56	5	0	11	126	1	0	3	45	36	0	9	80	15	0	409	1595
8:30 AM	16	60	4	0	13	119	2	0	7	35	27	0	14	68	14	0	379	1600
8:45 AM	21	33	2	0	10	113	0	0	2	36	29	0	9	71	11	0	337	1540
9:00 AM	26	35	1	0	13	112	2	0	2	34	33	0	9	58	13	0	338	1463
9:15 AM	20	44	0	0	16	104	0	1	0	30	25	0	3	48	9	0	300	1354
9:30 AM	21	48	6	1	12	110	4	1	2	30	21	0	2	30	6	0	294	1269
9:45 AM	21	31	2	0	13	82	0	0	1	18	16	0	2	20	5	0	211	1143

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	96	176	8	0	64	584	8	0	12	144	136	0	48	316	68	0	1660
Heavy Trucks	0	20	0		8	16	0		0	8	0		0	0	8		60
Pedestrians		48				16				16				0			80
Bicycles	0	0	0		0	2	0		0	1	3		0	2	0		8
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/20/2013 10:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

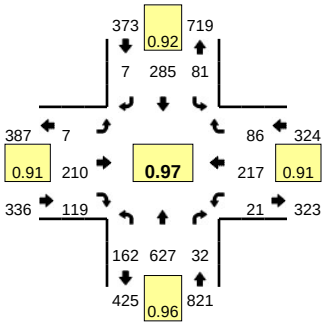
Method for determining peak hour: Total Entering Volume

LOCATION: Piney Branch Rd NW -- Eastern Ave NW

QC JOB #: 11097502

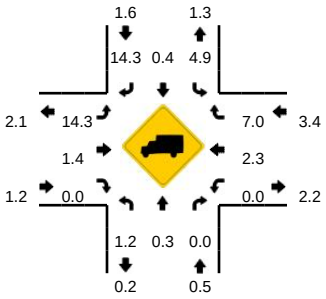
CITY/STATE: Washington, DC

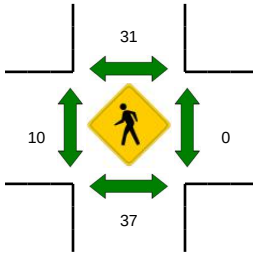
DATE: Wed, Sep 11 2013

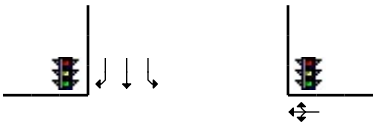


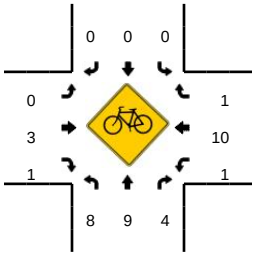
Peak-Hour: 5:30 PM -- 6:30 PM

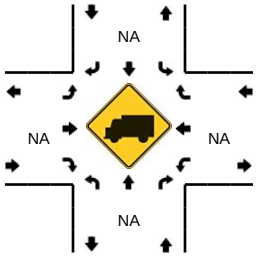
Peak 15-Min: 5:45 PM -- 6:00 PM

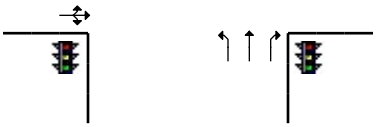


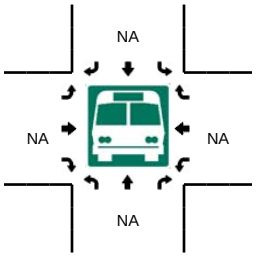












15-Min Count Period Beginning At	Piney Branch Rd NW (Northbound)				Piney Branch Rd NW (Southbound)				Eastern Ave NW (Eastbound)				Eastern Ave NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	22	112	1	0	10	70	0	0	0	33	28	0	6	25	10	0	317	
3:15 PM	17	119	3	0	10	44	0	0	1	34	28	0	5	33	10	0	304	
3:30 PM	26	121	2	0	14	67	0	0	2	32	22	0	0	36	7	0	329	
3:45 PM	15	136	5	0	5	55	1	0	0	43	18	0	5	36	12	0	331	1281
4:00 PM	22	140	7	0	16	57	0	0	3	46	41	0	4	33	15	0	384	1348
4:15 PM	24	144	3	0	12	49	0	0	3	26	20	0	2	38	16	0	337	1381
4:30 PM	36	136	6	0	9	53	3	0	0	35	36	0	4	34	16	0	368	1420
4:45 PM	28	155	7	0	16	68	1	0	1	54	39	0	5	35	18	0	427	1516
5:00 PM	27	163	6	0	12	70	0	0	1	51	36	0	6	44	25	0	441	1573
5:15 PM	37	156	10	0	12	82	0	0	3	50	31	0	5	32	17	0	435	1671
5:30 PM	40	167	6	0	22	65	1	0	0	41	31	0	4	56	18	0	451	1754
5:45 PM	37	159	8	0	15	84	3	0	1	55	24	1	4	56	29	0	476	1803
6:00 PM	44	145	12	0	21	69	1	0	2	61	33	0	7	62	11	0	468	1830
6:15 PM	41	156	6	0	23	67	2	0	3	53	31	0	6	43	28	0	459	1854
6:30 PM	31	139	9	0	14	71	0	0	2	50	32	0	5	45	27	0	425	1828
6:45 PM	32	128	9	0	11	54	2	0	3	48	18	0	9	36	28	0	378	1730

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	148	636	32	0	60	336	12	0	4	220	96	4	16	224	116	0	1904
Heavy Trucks	0	0	0		0	4	0		0	4	0		0	8	12		28
Pedestrians		40				48				0				0			88
Bicycles	2	4	2		0	0	0		0	1	0		0	1	0		10
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/20/2013 10:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

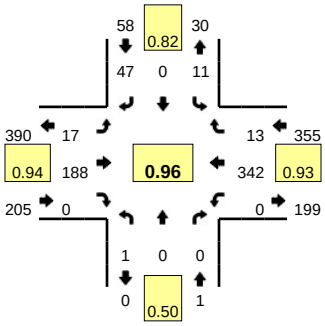
Method for determining peak hour: Total Entering Volume

LOCATION: Holly Ave NW -- Eastern Ave NW

QC JOB #: 11097503

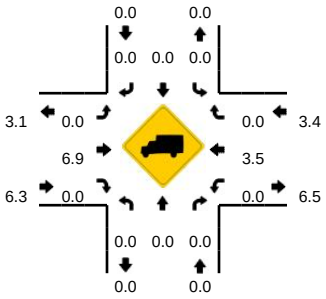
CITY/STATE: Takoma Park, DC

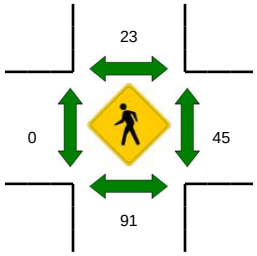
DATE: Wed, Sep 11 2013

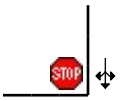


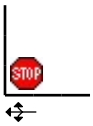
Peak-Hour: 7:45 AM -- 8:45 AM

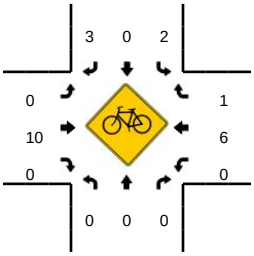
Peak 15-Min: 8:00 AM -- 8:15 AM

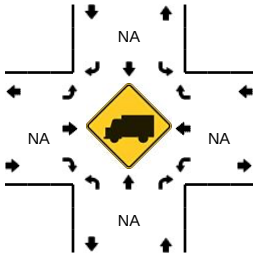


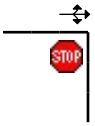


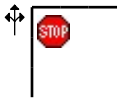


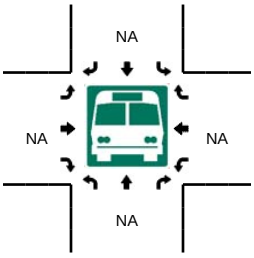












15-Min Count Period Beginning At	Holly Ave NW (Northbound)				Holly Ave NW (Southbound)				Eastern Ave NW (Eastbound)				Eastern Ave NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	0	0	0	1	0	1	0	0	9	0	0	0	16	1	0	28	
6:15 AM	0	0	0	0	1	0	2	0	0	19	0	0	0	25	0	0	47	
6:30 AM	0	0	0	0	1	0	1	0	0	28	0	0	0	28	0	0	58	
6:45 AM	1	0	0	0	0	0	2	0	0	30	0	0	0	36	0	0	69	202
7:00 AM	0	0	0	0	0	0	6	0	1	36	0	0	0	55	2	0	100	274
7:15 AM	0	0	0	0	0	0	4	0	2	41	0	0	0	49	3	0	99	326
7:30 AM	0	0	0	0	0	0	19	0	3	51	0	0	0	70	0	0	143	411
7:45 AM	1	0	0	0	4	0	11	0	4	51	0	0	0	73	3	0	147	489
8:00 AM	0	0	0	0	2	0	12	0	3	45	0	0	0	97	3	0	162	551
8:15 AM	0	0	0	0	2	0	12	0	5	45	0	0	0	90	3	0	157	609
8:30 AM	0	0	0	0	3	0	12	0	5	47	0	0	0	82	4	0	153	619
8:45 AM	0	0	0	0	3	0	6	0	1	44	0	0	0	89	1	1	145	617
9:00 AM	0	0	0	1	5	0	5	0	4	40	0	0	1	74	0	1	131	586
9:15 AM	0	0	0	0	3	0	1	0	2	42	0	0	0	59	3	0	110	539
9:30 AM	0	0	0	0	1	0	2	0	0	40	1	0	0	37	0	0	81	467
9:45 AM	0	0	1	0	2	0	6	0	1	31	0	0	0	20	0	0	61	383

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	8	0	48	0	12	180	0	0	0	388	12	0	648
Heavy Trucks	0	0	0		0	0	0		0	16	0		0	8	0		24
Pedestrians		112				24				0				48			184
Bicycles	0	0	0		1	0	0		0	1	0		0	1	0		3
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/20/2013 10:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

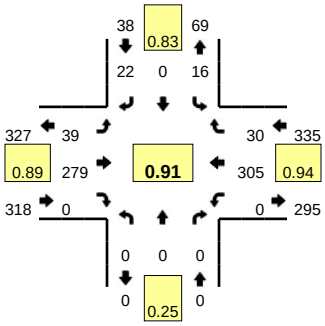
Method for determining peak hour: Total Entering Volume

LOCATION: Holly Ave NW -- Eastern Ave NW

QC JOB #: 11097504

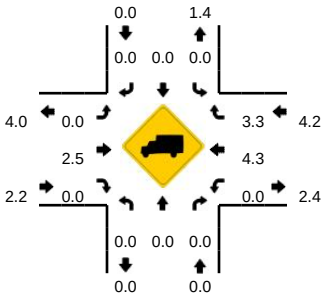
CITY/STATE: Takoma Park, DC

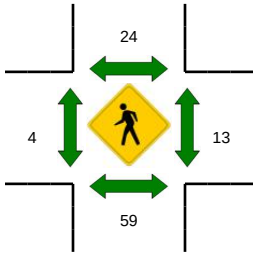
DATE: Wed, Sep 11 2013

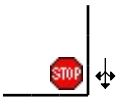


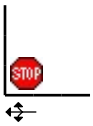
Peak-Hour: 5:30 PM -- 6:30 PM

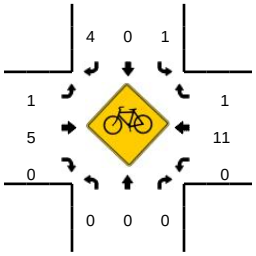
Peak 15-Min: 6:00 PM -- 6:15 PM

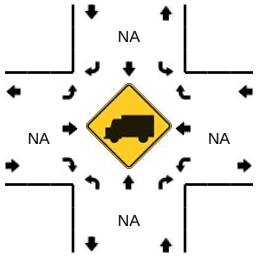


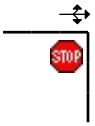


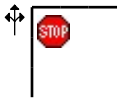


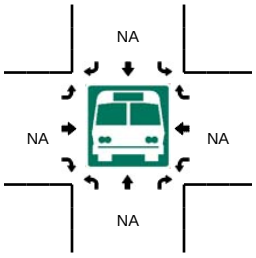












15-Min Count Period Beginning At	Holly Ave NW (Northbound)				Holly Ave NW (Southbound)				Eastern Ave NW (Eastbound)				Eastern Ave NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	0	0	0	1	0	3	0	1	42	0	0	0	38	1	0	86	
3:15 PM	0	0	0	0	1	0	6	0	3	43	0	0	0	43	5	0	101	
3:30 PM	0	0	0	0	2	0	4	0	3	44	1	0	0	43	1	0	98	
3:45 PM	0	0	0	0	4	0	4	0	5	47	0	0	0	47	3	0	110	395
4:00 PM	0	0	0	0	1	0	2	0	5	62	1	0	0	53	2	0	126	435
4:15 PM	0	0	0	0	2	0	1	0	4	41	0	0	0	51	1	0	100	434
4:30 PM	0	0	0	0	1	0	7	0	7	43	0	0	0	55	1	0	114	450
4:45 PM	0	0	0	0	0	0	3	0	7	69	0	0	0	55	0	0	134	474
5:00 PM	1	0	0	0	3	0	4	0	7	62	0	0	0	73	4	0	154	502
5:15 PM	0	0	0	0	0	0	7	0	8	63	0	0	1	46	5	0	130	532
5:30 PM	0	0	0	0	2	0	3	0	13	55	0	0	0	85	4	0	162	580
5:45 PM	0	0	0	0	4	0	7	0	8	63	0	0	0	76	8	0	166	612
6:00 PM	0	0	0	0	6	0	6	0	9	80	0	0	0	80	9	0	190	648
6:15 PM	0	0	0	0	4	0	6	0	9	81	0	0	0	64	9	0	173	691
6:30 PM	0	0	0	0	2	0	5	0	10	61	0	0	0	65	6	0	149	678
6:45 PM	0	0	1	0	3	0	5	0	5	59	0	0	1	69	3	0	146	658

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	24	0	24	0	36	320	0	0	0	320	36	0	760
Heavy Trucks	0	0	0		0	0	0		0	16	0		0	16	0		32
Pedestrians		48				20				0				8			76
Bicycles	0	0	0		1	0	0		0	0	0		0	6	0		7
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/20/2013 10:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Cedar St NW -- Eastern Ave NW

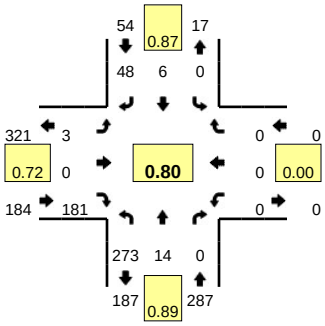
CITY/STATE: Washington, DC

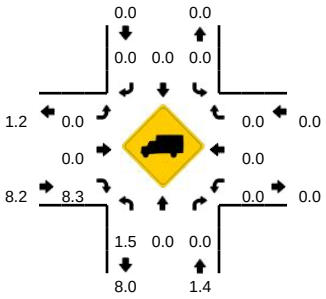
QC JOB #: 11097505

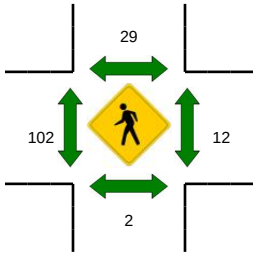
DATE: Tue, Sep 17 2013

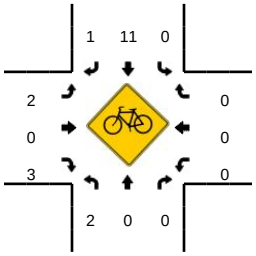
Peak-Hour: 7:30 AM -- 8:30 AM

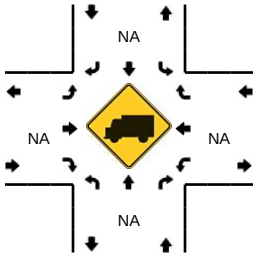
Peak 15-Min: 7:45 AM -- 8:00 AM

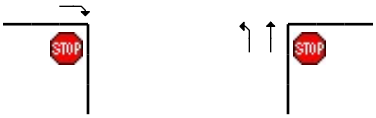


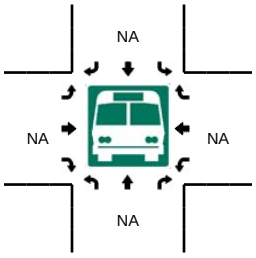












15-Min Count Period Beginning At	Cedar St NW (Northbound)				Cedar St NW (Southbound)				Eastern Ave NW (Eastbound)				Eastern Ave NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	20	1	0	0	0	2	0	0	0	0	13	0	0	0	0	0	36	
6:15 AM	22	1	0	0	0	0	3	0	0	0	17	0	0	0	0	0	43	
6:30 AM	32	1	0	0	0	1	3	0	0	0	25	0	0	0	0	0	62	
6:45 AM	32	1	0	0	0	0	5	0	0	0	32	0	0	0	0	0	70	211
7:00 AM	45	2	0	0	0	2	7	0	1	0	34	0	0	0	0	0	91	266
7:15 AM	51	1	0	0	0	2	9	0	0	0	41	0	0	0	0	0	104	327
7:30 AM	59	4	0	0	0	0	10	0	0	0	47	0	0	0	0	0	120	385
7:45 AM	77	5	0	0	0	1	13	0	1	0	68	0	0	0	0	0	165	480
8:00 AM	70	2	0	0	0	1	16	0	0	0	41	0	0	0	0	0	130	519
8:15 AM	67	3	0	0	0	4	9	0	2	0	25	0	0	0	0	0	110	525
8:30 AM	62	6	0	0	0	0	14	0	1	0	37	0	0	0	0	0	120	525
8:45 AM	65	3	0	0	0	2	13	0	1	0	39	0	0	0	0	0	123	483
9:00 AM	67	3	0	0	0	1	16	0	0	0	45	0	0	0	0	0	132	485
9:15 AM	54	0	0	0	0	2	3	0	0	0	37	0	0	0	0	0	96	471
9:30 AM	43	0	0	1	0	1	0	0	1	0	35	0	0	0	0	0	81	432
9:45 AM	29	1	0	0	0	0	3	0	0	0	33	0	0	0	0	0	66	375

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	308	20	0	0	0	4	52	0	4	0	272	0	0	0	0	0	660
Heavy Trucks	8	0	0		0	0	0		0	0	16		0	0	0		24
Pedestrians		0				28				108				16			152
Bicycles	1	0	0		0	2	0		0	0	1		0	0	0		4
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/20/2013 10:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Cedar St NW -- Eastern Ave NW

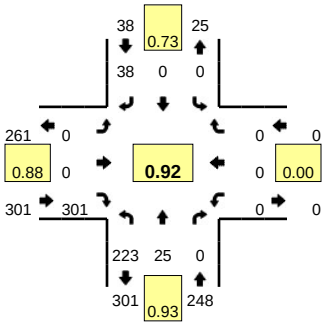
CITY/STATE: Washington, DC

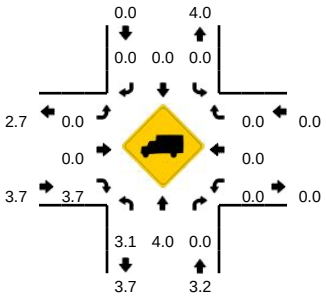
QC JOB #: 11097506

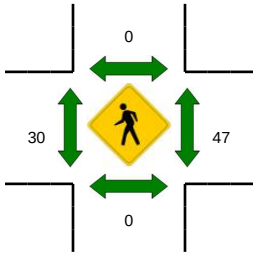
DATE: Tue, Sep 17 2013

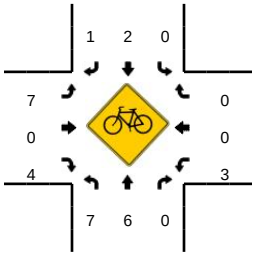
Peak-Hour: 5:30 PM -- 6:30 PM

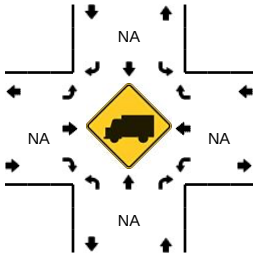
Peak 15-Min: 5:45 PM -- 6:00 PM

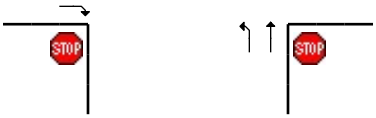


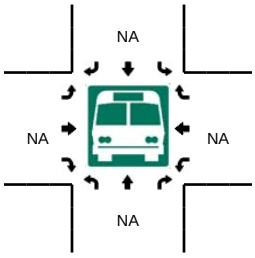












15-Min Count Period Beginning At	Cedar St NW (Northbound)				Cedar St NW (Southbound)				Eastern Ave NW (Eastbound)				Eastern Ave NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	38	4	0	0	0	0	4	0	0	0	47	0	0	0	0	0	93	
3:15 PM	32	2	0	0	0	0	6	0	0	0	52	0	0	0	0	0	92	
3:30 PM	35	1	0	0	0	0	5	0	0	0	43	0	0	0	0	0	84	
3:45 PM	38	4	0	0	0	0	3	0	0	0	50	0	0	0	0	0	95	364
4:00 PM	43	5	0	0	0	0	5	1	1	0	39	0	0	0	0	0	94	365
4:15 PM	45	5	0	0	0	0	3	0	0	0	66	0	0	0	0	0	119	392
4:30 PM	41	2	0	0	0	0	7	0	0	0	53	0	0	0	0	0	103	411
4:45 PM	55	5	0	0	0	0	8	0	2	0	62	0	0	0	0	0	132	448
5:00 PM	51	10	0	0	0	0	6	0	0	0	63	0	0	0	0	0	130	484
5:15 PM	57	8	0	0	0	0	4	0	0	0	67	0	0	0	0	0	136	501
5:30 PM	50	8	0	0	0	0	8	0	0	0	64	0	0	0	0	0	130	528
5:45 PM	61	6	0	0	0	0	9	0	0	0	84	0	0	0	0	0	160	556
6:00 PM	66	4	0	0	0	0	14	0	0	0	67	0	0	0	0	0	151	577
6:15 PM	46	7	0	0	0	0	7	0	0	0	86	0	0	0	0	0	146	587
6:30 PM	46	3	0	0	0	0	11	0	0	0	54	0	0	0	0	0	114	571
6:45 PM	53	11	0	0	0	0	4	0	0	0	74	0	0	0	0	0	142	553

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	244	24	0	0	0	0	36	0	0	0	336	0	0	0	0	0	640
Heavy Trucks	8	0	0		0	0	0		0	0	8		0	0	0		16
Pedestrians		0				0				36				48			84
Bicycles	1	2	0		0	0	0		2	0	2		0	0	0		7
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/20/2013 10:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

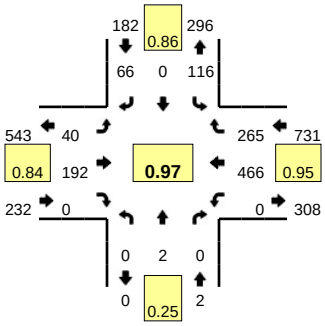
Method for determining peak hour: Total Entering Volume

LOCATION: Cedar St NW -- Carroll St NW

CITY/STATE: Washington, DC

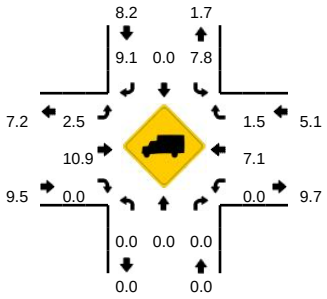
QC JOB #: 11097507

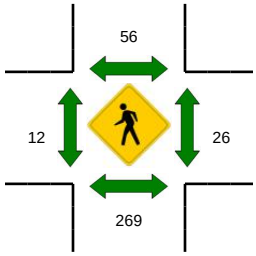
DATE: Wed, Sep 11 2013

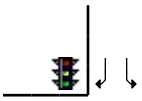


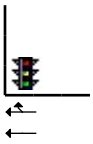
Peak-Hour: 8:00 AM -- 9:00 AM

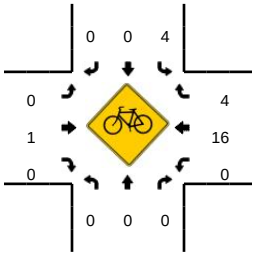
Peak 15-Min: 8:30 AM -- 8:45 AM

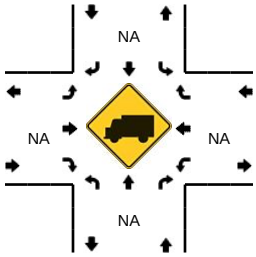


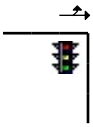


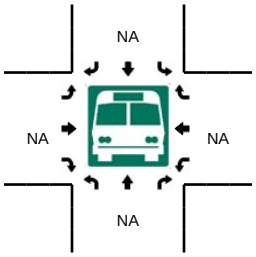












15-Min Count Period Beginning At	Cedar St NW (Northbound)				Cedar St NW (Southbound)				Carroll St NW (Eastbound)				Carroll St NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	0	0	0	7	0	5	0	3	13	0	0	0	20	13	0	61	
6:15 AM	0	0	0	0	9	0	6	0	3	12	0	2	0	40	20	0	92	
6:30 AM	0	0	0	0	21	0	10	0	3	17	0	0	0	59	27	0	137	
6:45 AM	0	0	0	0	17	0	11	0	3	34	0	1	0	58	25	0	149	439
7:00 AM	0	0	0	0	26	0	17	0	4	23	0	0	0	80	39	0	189	567
7:15 AM	0	0	0	0	32	0	10	0	2	35	0	0	0	94	43	0	216	691
7:30 AM	0	0	0	0	40	0	19	0	6	33	0	2	0	94	54	0	248	802
7:45 AM	0	0	0	0	35	0	18	0	6	39	0	2	0	115	53	0	268	921
8:00 AM	0	0	0	0	29	0	15	0	4	40	0	3	0	118	66	0	275	1007
8:15 AM	0	0	0	0	27	0	19	0	10	40	0	2	0	126	67	0	291	1082
8:30 AM	0	0	0	0	28	0	17	0	8	61	0	3	0	120	60	0	297	1131
8:45 AM	0	2	0	0	32	0	15	0	7	51	0	3	0	102	72	0	284	1147
9:00 AM	0	0	0	0	31	0	13	0	12	44	0	0	0	95	51	0	246	1118
9:15 AM	0	0	0	0	25	0	14	0	8	37	0	0	0	66	49	0	199	1026
9:30 AM	0	0	0	0	31	0	12	0	8	36	0	0	0	54	30	0	171	900
9:45 AM	0	0	0	0	27	0	7	0	4	41	0	1	0	50	17	0	147	763

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	112	0	68	0	32	244	0	12	0	480	240	0	1188
Heavy Trucks	0	0	0		12	0	8		4	28	0		0	40	0		92
Pedestrians		304				28				0				12			344
Bicycles	0	0	0		2	0	0		0	0	0		0	0	1		3
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/20/2013 10:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

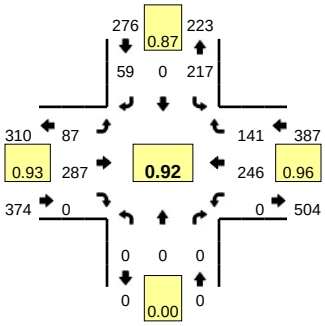
Method for determining peak hour: Total Entering Volume

LOCATION: Cedar St NW -- Carroll St NW

QC JOB #: 11097508

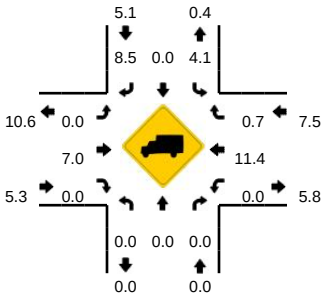
CITY/STATE: Washington, DC

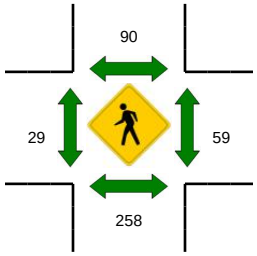
DATE: Wed, Sep 11 2013

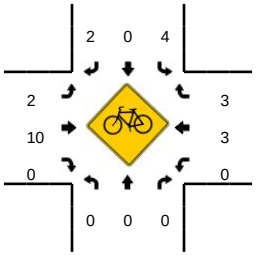


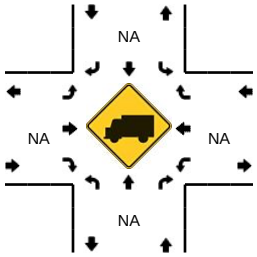
Peak-Hour: 6:00 PM -- 7:00 PM

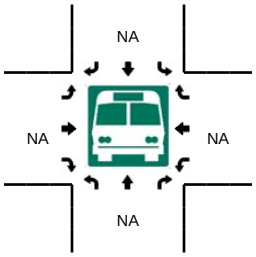
Peak 15-Min: 6:00 PM -- 6:15 PM











15-Min Count Period Beginning At	Cedar St NW (Northbound)				Cedar St NW (Southbound)				Carroll St NW (Eastbound)				Carroll St NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	0	0	0	36	0	9	0	11	54	0	1	0	62	35	0	208	
3:15 PM	0	0	0	0	41	0	5	0	7	70	0	0	0	56	30	0	209	
3:30 PM	0	0	0	0	44	0	10	0	9	71	0	0	0	57	33	0	224	
3:45 PM	0	0	0	0	47	0	9	0	11	56	0	0	0	58	40	1	222	863
4:00 PM	0	0	0	0	56	0	15	0	15	67	0	1	0	56	37	0	247	902
4:15 PM	0	0	0	0	31	0	13	0	11	57	0	1	0	48	38	0	199	892
4:30 PM	0	0	0	0	30	0	9	0	11	74	0	2	0	48	39	0	213	881
4:45 PM	0	0	0	0	45	0	19	0	11	55	0	0	0	70	30	0	230	889
5:00 PM	0	0	0	0	53	0	15	0	21	82	0	1	0	53	48	0	273	915
5:15 PM	0	0	0	0	52	0	7	0	2	81	0	0	0	67	37	0	246	962
5:30 PM	0	0	0	0	44	0	10	0	10	70	0	1	0	44	58	0	237	986
5:45 PM	0	0	0	0	49	0	14	0	15	59	0	1	0	65	45	0	248	1004
6:00 PM	0	0	0	0	54	0	19	0	23	76	0	2	0	71	37	0	282	1013
6:15 PM	0	0	0	0	63	0	16	0	24	68	0	2	0	64	29	0	266	1033
6:30 PM	0	0	0	0	46	0	14	0	18	70	0	0	0	54	34	0	236	1032
6:45 PM	0	0	0	0	54	0	10	0	17	73	0	1	0	57	41	0	253	1037

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	216	0	76	0	92	304	0	8	0	284	148	0	1128
Heavy Trucks	0	0	0		16	0	4		0	28	0		0	40	0		88
Pedestrians		272				116				40				112			540
Bicycles	0	0	0		0	0	0		0	0	0		0	0	3		3
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/20/2013 10:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

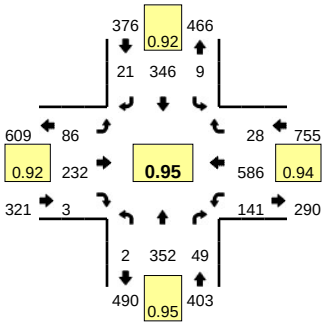
Method for determining peak hour: Total Entering Volume

LOCATION: Blair Rd NW -- Piney Branch Rd NW

QC JOB #: 11097511

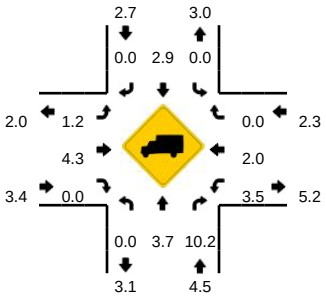
CITY/STATE: Washington, DC

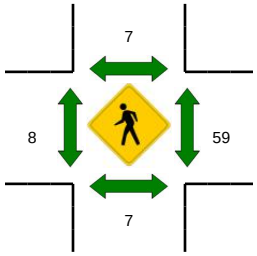
DATE: Wed, Sep 11 2013

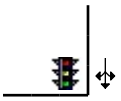


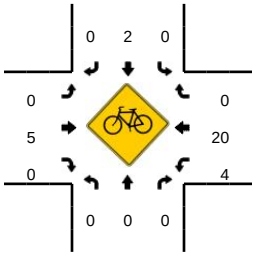
Peak-Hour: 7:45 AM -- 8:45 AM

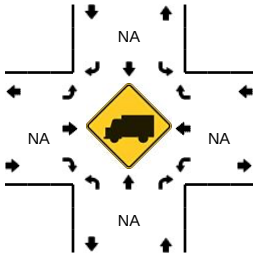
Peak 15-Min: 8:00 AM -- 8:15 AM

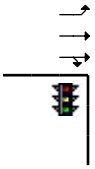


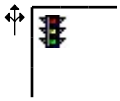


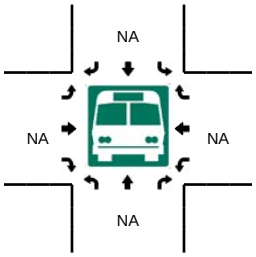












15-Min Count Period Beginning At	Blair Rd NW (Northbound)				Blair Rd NW (Southbound)				Piney Branch Rd NW (Eastbound)				Piney Branch Rd NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	41	4	0	3	47	1	0	5	14	0	0	19	72	1	0	207	
6:15 AM	0	60	4	0	0	70	1	0	6	23	0	0	22	80	1	0	267	
6:30 AM	0	77	11	0	1	81	1	0	9	28	0	0	29	114	0	0	351	
6:45 AM	0	57	9	0	3	95	1	0	10	29	1	0	22	115	3	0	345	1170
7:00 AM	0	84	7	0	2	83	1	0	8	40	1	0	30	157	2	0	415	1378
7:15 AM	5	67	20	0	2	81	3	0	11	31	0	0	36	161	3	1	421	1532
7:30 AM	0	89	16	0	1	90	8	0	15	48	1	0	33	148	6	0	455	1636
7:45 AM	2	85	8	0	1	85	4	0	19	47	1	0	36	171	5	0	464	1755
8:00 AM	0	90	15	0	2	87	6	0	26	60	0	0	29	162	10	0	487	1827
8:15 AM	0	84	13	0	3	75	5	0	25	61	1	0	39	135	4	0	445	1851
8:30 AM	0	93	13	0	3	99	6	0	16	64	1	0	37	118	9	0	459	1855
8:45 AM	0	94	18	0	4	90	6	0	22	42	0	0	35	115	4	0	430	1821
9:00 AM	1	88	13	0	4	81	5	0	16	42	2	0	36	106	14	0	408	1742
9:15 AM	0	94	12	0	0	90	8	0	14	53	1	0	23	105	5	0	405	1702
9:30 AM	0	79	20	0	3	76	4	0	14	48	1	0	25	99	7	0	376	1619
9:45 AM	1	85	18	0	2	84	4	0	9	35	3	0	25	81	5	0	352	1541

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	360	60	0	8	348	24	0	104	240	0	0	116	648	40	0	1948
Heavy Trucks	0	4	12		0	12	0		4	16	0		0	20	0		68
Pedestrians		16				4				0				68			88
Bicycles	0	0	0		0	1	0		0	1	0		1	5	0		8
Railroad Stopped Buses																	

Comments:

Report generated on 9/20/2013 10:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

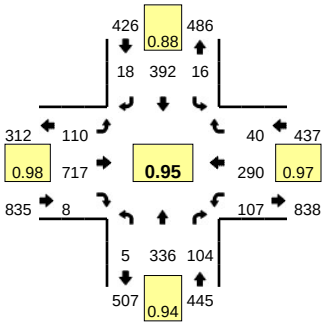
Method for determining peak hour: Total Entering Volume

LOCATION: Blair Rd NW -- Piney Branch Rd NW

CITY/STATE: Washington, DC

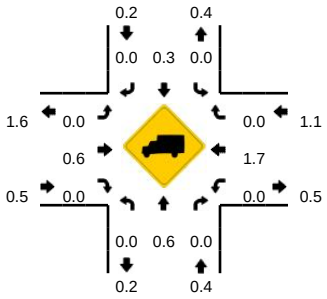
QC JOB #: 11097512

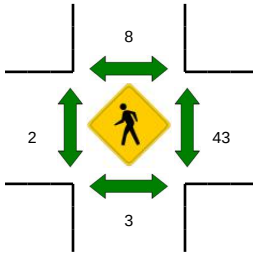
DATE: Wed, Sep 11 2013

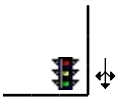


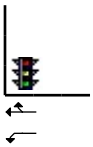
Peak-Hour: 5:15 PM -- 6:15 PM

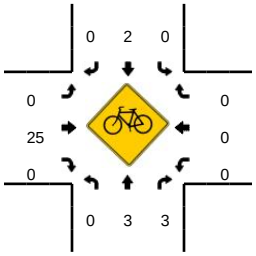
Peak 15-Min: 6:00 PM -- 6:15 PM

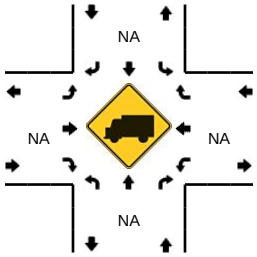


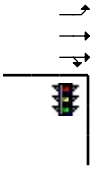


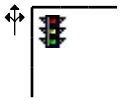


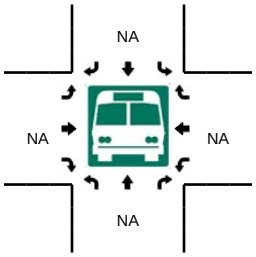












15-Min Count Period Beginning At	Blair Rd NW (Northbound)				Blair Rd NW (Southbound)				Piney Branch Rd NW (Eastbound)				Piney Branch Rd NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	2	69	18	0	5	76	2	0	13	114	0	0	19	69	12	0	399	
3:15 PM	3	76	26	0	2	90	8	0	20	108	0	0	19	53	6	0	411	
3:30 PM	0	85	25	0	7	83	5	0	20	114	0	0	23	59	2	1	424	
3:45 PM	0	88	21	0	5	80	1	0	10	129	1	0	17	53	5	0	410	1644
4:00 PM	1	88	19	0	7	82	7	0	16	143	2	0	28	59	7	2	461	1706
4:15 PM	1	73	31	0	10	85	2	1	12	131	2	0	16	57	1	0	422	1717
4:30 PM	4	81	22	0	6	91	3	0	19	148	2	0	17	65	9	0	467	1760
4:45 PM	0	84	29	0	5	85	1	0	18	157	4	1	29	70	8	0	491	1841
5:00 PM	0	79	31	0	9	85	6	0	20	152	2	0	27	77	7	0	495	1875
5:15 PM	2	85	22	0	6	92	2	0	26	174	0	0	26	73	12	0	520	1973
5:30 PM	1	76	29	1	7	88	5	0	27	181	5	0	29	65	3	1	518	2024
5:45 PM	1	84	26	0	1	101	3	0	31	175	2	0	23	77	16	0	540	2073
6:00 PM	0	91	27	0	2	111	8	0	26	187	1	0	28	75	9	0	565	2143
6:15 PM	1	83	15	0	4	89	8	0	21	176	1	0	25	79	5	0	507	2130
6:30 PM	0	94	16	0	7	87	3	0	23	164	3	0	37	68	6	0	508	2120
6:45 PM	0	89	15	0	6	88	7	0	18	144	3	0	18	61	4	0	453	2033

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	364	108	0	8	444	32	0	104	748	4	0	112	300	36	0	2260
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	4	0		4
Pedestrians		4				8				4				68			84
Bicycles	0	2	2		0	1	0		0	6	0		0	0	0		11
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/20/2013 10:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Bus Entry -- Eastern Ave NW

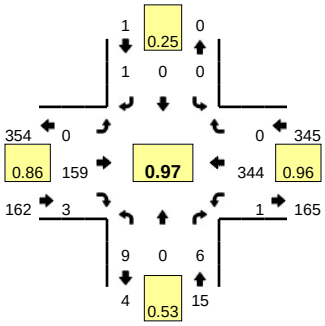
CITY/STATE: Washinton, DC

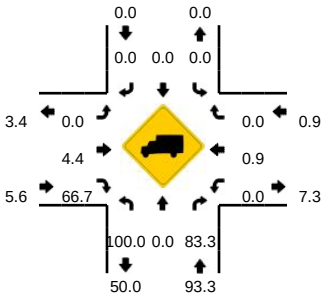
QC JOB #: 11097513

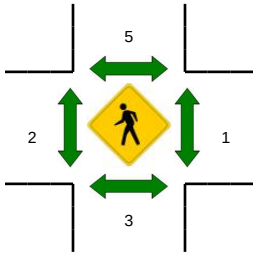
DATE: Wed, Sep 11 2013

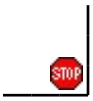
Peak-Hour: 8:00 AM -- 9:00 AM

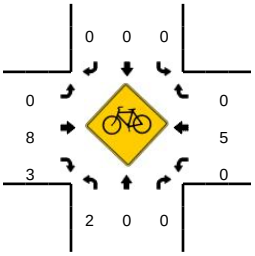
Peak 15-Min: 8:45 AM -- 9:00 AM

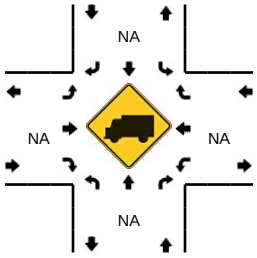


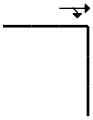


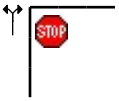


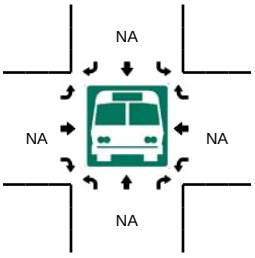












15-Min Count Period Beginning At	Bus Entry (Northbound)				Bus Entry (Southbound)				Eastern Ave NW (Eastbound)				Eastern Ave NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	1	0	1	0	0	0	0	0	0	11	0	0	0	16	0	0	29	
6:15 AM	0	0	2	0	0	0	0	0	0	15	0	0	1	25	0	0	43	
6:30 AM	0	0	2	0	0	0	0	0	0	27	0	0	0	28	0	0	57	
6:45 AM	1	0	2	0	0	0	0	0	0	21	1	0	0	31	0	0	56	185
7:00 AM	4	0	5	0	0	0	0	0	0	37	0	0	1	52	0	0	99	255
7:15 AM	1	0	1	0	0	0	1	0	0	34	3	0	1	46	0	0	87	299
7:30 AM	2	0	3	0	0	0	0	0	0	53	0	0	0	70	0	0	128	370
7:45 AM	1	0	0	0	0	0	0	0	1	46	1	0	0	75	0	0	124	438
8:00 AM	2	0	0	0	0	0	0	0	0	41	1	0	0	90	0	0	134	473
8:15 AM	4	0	2	0	0	0	1	0	0	38	1	0	0	82	0	0	128	514
8:30 AM	1	0	1	0	0	0	0	0	0	40	0	0	0	84	0	0	126	512
8:45 AM	2	0	3	0	0	0	0	0	0	40	1	0	1	88	0	0	135	523
9:00 AM	3	0	3	0	0	0	0	0	0	38	0	0	0	73	0	0	117	506
9:15 AM	1	0	0	0	0	0	0	0	0	35	2	0	0	62	0	0	100	478
9:30 AM	4	0	3	0	0	0	0	0	0	41	0	0	0	36	0	0	84	436
9:45 AM	1	0	0	0	0	0	0	0	0	30	1	0	1	20	0	0	53	354

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	0	12	0	0	0	0	0	0	160	4	0	4	352	0	0	540
Heavy Trucks	8	0	8		0	0	0		0	0	4		0	8	0		28
Pedestrians		0				0				0				0			0
Bicycles	1	0	0		0	0	0		0	1	0		0	2	0		4
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/20/2013 10:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Bus Entry -- Eastern Ave NW

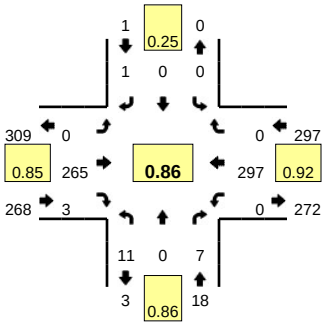
CITY/STATE: Washinton, DC

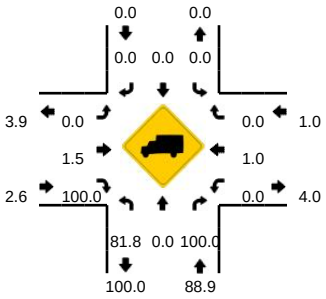
QC JOB #: 11097514

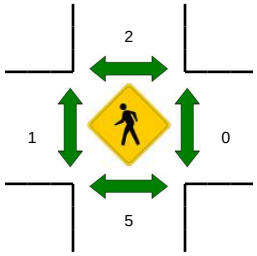
DATE: Wed, Sep 11 2013

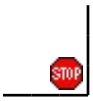
Peak-Hour: 5:30 PM -- 6:30 PM

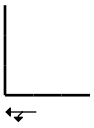
Peak 15-Min: 6:00 PM -- 6:15 PM

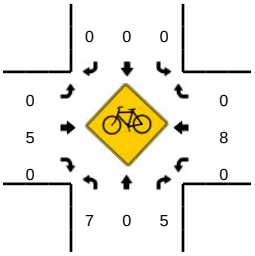


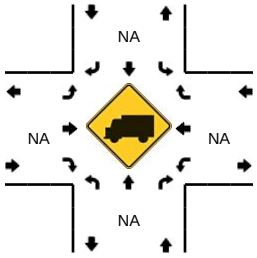


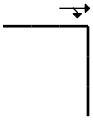


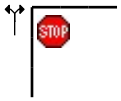


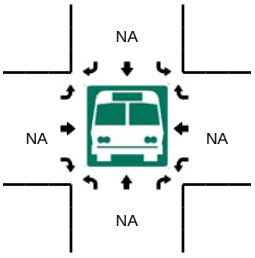












15-Min Count Period Beginning At	Bus Entry (Northbound)				Bus Entry (Southbound)				Eastern Ave NW (Eastbound)				Eastern Ave NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	2	0	2	0	0	0	0	0	0	38	1	0	0	37	0	0	80	
3:15 PM	1	0	1	0	0	0	0	0	0	42	1	0	1	45	0	0	91	
3:30 PM	2	0	5	0	0	0	0	0	0	48	1	0	0	48	0	0	104	
3:45 PM	2	0	0	0	0	0	0	0	0	50	1	0	0	51	0	0	104	379
4:00 PM	1	0	5	0	0	0	0	0	0	63	0	0	0	49	0	0	118	417
4:15 PM	3	0	4	0	0	0	0	0	0	40	0	0	1	51	0	0	99	425
4:30 PM	1	0	4	0	0	0	0	0	0	41	2	0	0	52	0	0	100	421
4:45 PM	2	0	4	0	0	0	0	0	0	61	1	0	0	44	0	0	112	429
5:00 PM	2	0	4	0	0	0	0	0	0	61	0	0	1	69	0	0	137	448
5:15 PM	2	0	2	0	0	0	0	0	0	60	1	0	0	47	0	0	112	461
5:30 PM	2	0	1	0	0	0	1	0	0	50	1	0	0	80	0	0	135	496
5:45 PM	3	0	0	0	0	0	0	0	0	66	1	0	0	77	0	0	147	531
6:00 PM	2	0	4	0	0	0	0	0	0	81	1	0	0	81	0	0	169	563
6:15 PM	4	0	2	0	0	0	0	0	0	68	0	0	0	59	0	0	133	584
6:30 PM	5	0	1	0	0	0	0	0	1	60	1	0	0	57	0	0	125	574
6:45 PM	3	0	1	0	0	0	0	0	0	64	3	0	0	65	0	0	136	563

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	0	16	0	0	0	0	0	0	324	4	0	0	324	0	0	676
Heavy Trucks	8	0	16		0	0	0		0	12	4		0	0	0		40
Pedestrians		8				4				0				0			12
Bicycles	1	0	3		0	0	0		0	0	0		0	4	0		8
Railroad Stopped Buses																	

Comments:

Report generated on 9/20/2013 10:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

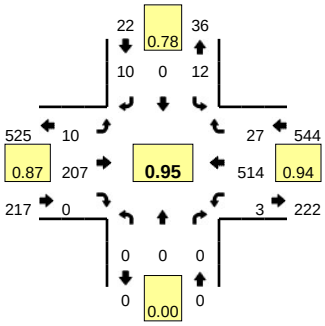
Method for determining peak hour: Total Entering Volume

LOCATION: Bus Exit -- Carroll St NW

CITY/STATE: Washington , DC

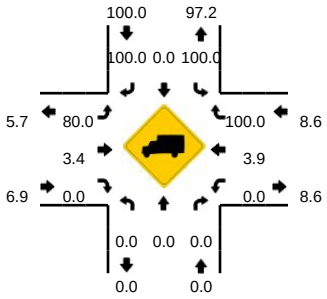
QC JOB #: 11097515

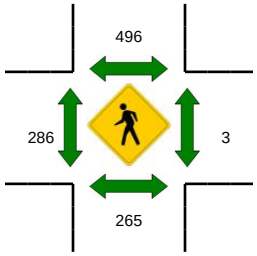
DATE: Wed, Sep 11 2013

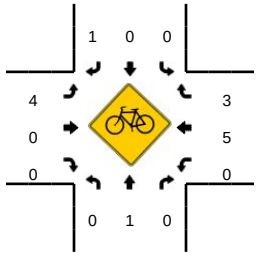


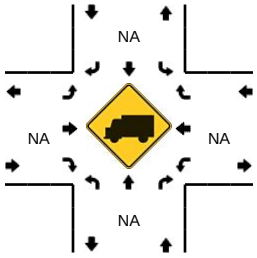
Peak-Hour: 7:45 AM -- 8:45 AM

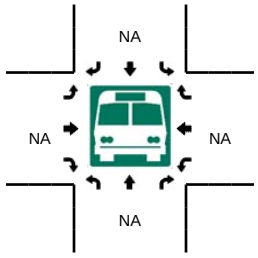
Peak 15-Min: 8:30 AM -- 8:45 AM











15-Min Count Period Beginning At	Bus Exit (Northbound)				Bus Exit (Southbound)				Carroll St NW (Eastbound)				Carroll St NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	0	0	0	4	0	1	0	3	12	0	1	0	22	4	1	48	
6:15 AM	0	0	0	0	3	0	2	0	1	13	0	1	0	40	6	0	66	
6:30 AM	0	0	0	0	3	0	3	0	3	15	0	4	0	60	5	1	94	
6:45 AM	0	0	0	0	5	0	3	0	3	33	0	2	0	61	8	0	115	323
7:00 AM	0	0	0	0	3	0	2	0	3	24	0	0	0	85	11	0	128	403
7:15 AM	0	0	0	0	4	0	5	0	4	32	0	1	0	94	4	1	145	482
7:30 AM	0	0	0	0	4	0	2	0	3	38	0	2	0	114	7	1	171	559
7:45 AM	0	0	0	0	2	0	3	0	3	47	0	0	0	122	5	0	182	626
8:00 AM	0	0	0	0	6	0	2	0	2	44	0	0	0	133	7	0	194	692
8:15 AM	0	0	0	0	1	0	3	0	3	49	0	1	0	136	8	1	202	749
8:30 AM	0	0	0	0	3	0	2	0	1	67	0	0	0	123	7	2	205	783
8:45 AM	0	0	0	0	3	0	2	0	1	59	0	0	0	109	3	2	179	780
9:00 AM	0	0	0	0	4	0	3	0	3	51	0	1	0	106	9	0	177	763
9:15 AM	0	0	0	0	4	0	1	0	1	43	0	0	0	65	4	1	119	680
9:30 AM	0	0	0	0	2	1	1	0	2	39	0	0	0	60	9	1	115	590
9:45 AM	0	0	0	0	4	0	2	0	2	42	0	0	0	55	2	0	107	518

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	12	0	8	0	4	268	0	0	0	492	28	8	820
Heavy Trucks	0	0	0		12	0	8		4	24	0		0	20	28		96
Pedestrians		352				324				372				0			1048
Bicycles	0	0	0		0	0	0		1	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/20/2013 10:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Bus Exit -- Carroll St NW

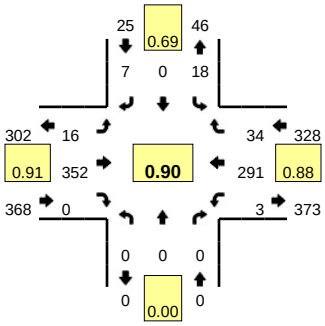
QC JOB #: 11097516

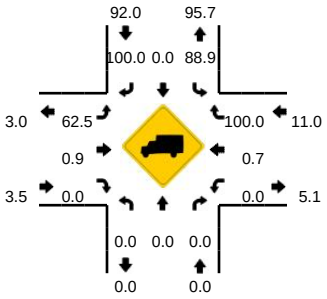
CITY/STATE: Washington , DC

DATE: Wed, Sep 11 2013

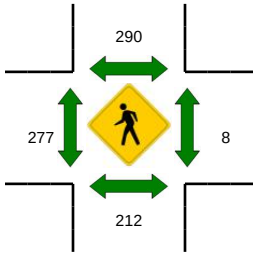
Peak-Hour: 5:45 PM -- 6:45 PM

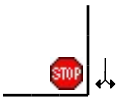
Peak 15-Min: 6:00 PM -- 6:15 PM

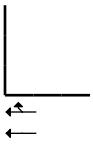


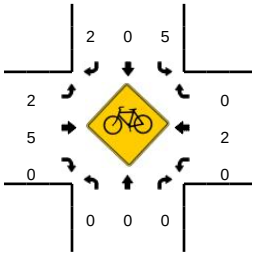


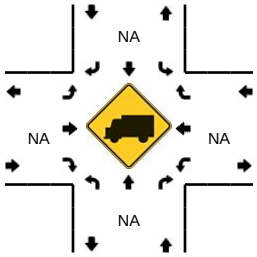
Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES

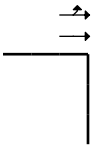


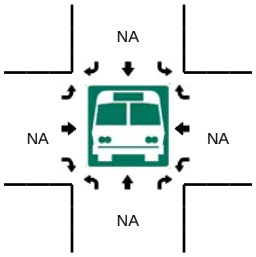












15-Min Count Period Beginning At	Bus Exit (Northbound)				Bus Exit (Southbound)				Carroll St NW (Eastbound)				Carroll St NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	0	0	0	1	0	1	1	2	62	0	1	0	66	4	0	138	
3:15 PM	0	0	0	0	3	0	2	1	3	74	0	1	0	60	5	1	150	
3:30 PM	0	0	0	0	5	0	2	0	1	73	0	2	0	58	10	0	151	
3:45 PM	0	0	0	0	3	0	2	0	1	64	0	2	0	61	6	0	139	578
4:00 PM	0	0	0	0	3	0	4	0	4	78	0	0	0	58	6	0	153	593
4:15 PM	0	0	0	0	2	0	1	0	2	66	0	1	0	49	9	3	133	576
4:30 PM	0	0	0	0	5	0	2	0	4	76	0	0	0	49	8	1	145	570
4:45 PM	0	0	0	0	1	0	3	0	3	67	0	0	0	79	8	0	161	592
5:00 PM	0	0	0	0	4	0	2	0	3	100	0	0	0	73	5	1	188	627
5:15 PM	0	0	0	0	6	0	5	1	2	78	0	0	0	65	7	2	166	660
5:30 PM	0	0	0	0	4	0	3	0	4	74	0	0	0	50	5	0	140	655
5:45 PM	0	0	0	0	7	0	1	0	2	83	0	0	0	70	6	1	170	664
6:00 PM	0	0	0	0	5	0	1	0	3	98	0	1	0	81	11	1	201	677
6:15 PM	0	0	0	0	3	0	3	0	4	86	0	1	0	81	11	0	189	700
6:30 PM	0	0	0	0	3	0	2	0	3	85	0	2	0	59	6	1	161	721
6:45 PM	0	0	0	0	5	0	3	0	4	85	0	0	0	59	8	0	164	715

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	20	0	4	0	12	392	0	4	0	324	44	4	804
Heavy Trucks	0	0	0		20	0	4		8	0	0		0	4	44		80
Pedestrians		260				268				280				0			808
Bicycles	0	0	0		1	0	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/20/2013 10:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

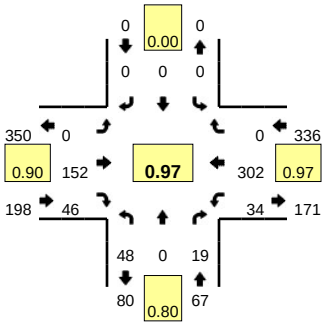
Method for determining peak hour: Total Entering Volume

LOCATION: Kiss & Ride Dwy -- Eastern Ave NW

CITY/STATE: Washington , DC

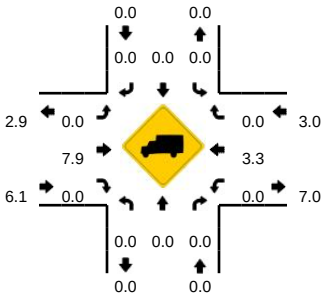
QC JOB #: 11097517

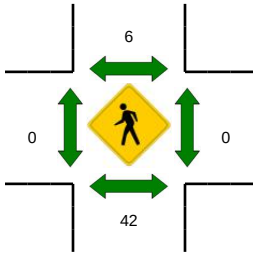
DATE: Wed, Sep 11 2013

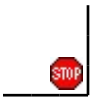


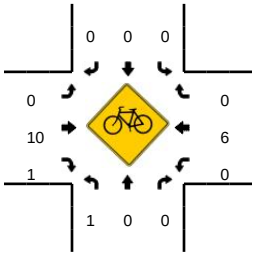
Peak-Hour: 7:45 AM -- 8:45 AM

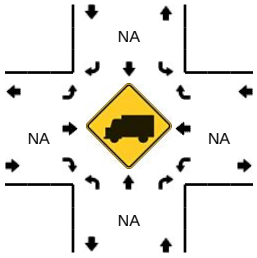
Peak 15-Min: 8:00 AM -- 8:15 AM

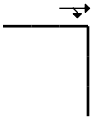


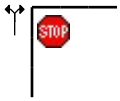


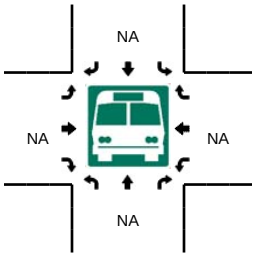












15-Min Count Period Beginning At	Kiss & Ride Dwy (Northbound)				Kiss & Ride Dwy (Southbound)				Eastern Ave NW (Eastbound)				Eastern Ave NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	2	0	0	0	0	0	0	0	0	10	0	0	3	14	0	0	29	
6:15 AM	4	0	0	0	0	0	0	0	0	15	4	0	2	21	0	0	46	
6:30 AM	1	0	1	0	0	0	0	0	0	25	3	0	0	28	0	0	58	
6:45 AM	5	0	1	0	0	0	0	0	0	23	9	0	6	29	0	0	73	206
7:00 AM	8	0	6	0	0	0	0	0	0	32	5	0	7	49	0	0	107	284
7:15 AM	8	0	3	0	0	0	0	0	0	32	8	0	5	43	0	0	99	337
7:30 AM	6	0	5	0	0	0	0	0	0	47	5	0	7	70	0	0	140	419
7:45 AM	14	0	7	0	0	0	0	0	0	44	11	0	12	61	0	0	149	495
8:00 AM	14	0	5	0	0	0	0	0	0	35	10	0	8	83	0	0	155	543
8:15 AM	12	0	4	0	0	0	0	0	0	35	12	0	7	79	0	0	149	593
8:30 AM	8	0	3	0	0	0	0	0	0	38	13	0	7	79	0	0	148	601
8:45 AM	7	0	4	0	0	0	0	0	0	37	9	0	8	83	0	0	148	600
9:00 AM	5	0	3	0	0	0	0	0	0	35	8	0	6	67	0	0	124	569
9:15 AM	5	0	2	0	0	0	0	0	0	35	9	0	11	55	0	0	117	537
9:30 AM	2	0	2	0	0	0	0	0	0	41	3	0	7	35	0	0	90	479
9:45 AM	1	0	2	0	0	0	0	0	0	28	4	0	1	20	0	0	56	387

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	56	0	20	0	0	0	0	0	0	140	40	0	32	332	0	0	620
Heavy Trucks	0	0	0		0	0	0		0	16	0		0	8	0		24
Pedestrians		28				8				0				0			36
Bicycles	0	0	0		0	0	0		0	3	0		0	1	0		4
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/20/2013 10:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

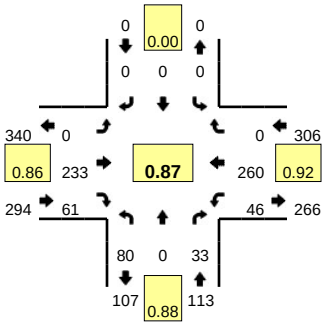
Method for determining peak hour: Total Entering Volume

LOCATION: Kiss & Ride Dwy -- Eastern Ave NW

CITY/STATE: Washington , DC

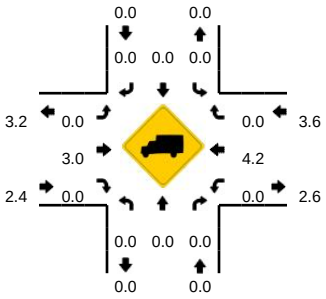
QC JOB #: 11097518

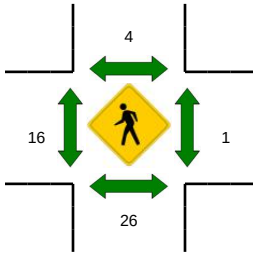
DATE: Wed, Sep 11 2013

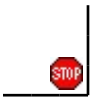


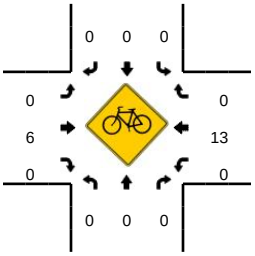
Peak-Hour: 5:30 PM -- 6:30 PM

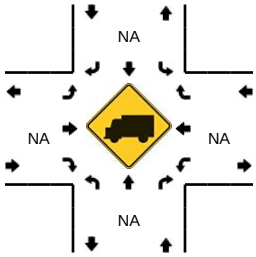
Peak 15-Min: 6:00 PM -- 6:15 PM

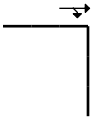


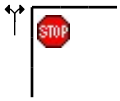


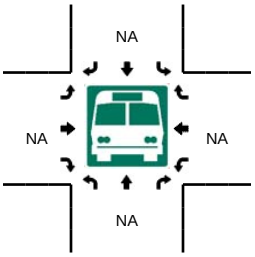












15-Min Count Period Beginning At	Kiss & Ride Dwy (Northbound)				Kiss & Ride Dwy (Southbound)				Eastern Ave NW (Eastbound)				Eastern Ave NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	3	0	1	0	0	0	0	0	0	38	4	0	4	37	0	0	87	
3:15 PM	4	0	2	0	0	0	0	0	0	41	3	0	2	43	0	0	95	
3:30 PM	3	0	5	0	0	0	0	0	0	46	1	0	6	43	0	0	104	
3:45 PM	6	0	2	0	0	0	0	0	0	50	3	0	6	44	0	0	111	397
4:00 PM	10	0	3	0	0	0	0	0	0	57	6	0	7	42	0	0	125	435
4:15 PM	7	0	4	0	0	0	0	0	0	36	7	0	6	44	0	0	104	444
4:30 PM	8	0	4	0	0	0	0	0	0	39	4	0	4	49	0	0	108	448
4:45 PM	14	0	7	0	0	0	0	0	0	54	15	0	3	44	0	0	137	474
5:00 PM	20	0	4	0	0	0	0	0	0	55	6	0	10	60	0	0	155	504
5:15 PM	9	0	6	0	0	0	0	0	0	54	9	0	8	42	0	0	128	528
5:30 PM	15	0	4	0	0	0	0	0	0	46	11	0	8	75	0	0	159	579
5:45 PM	17	0	9	0	0	0	0	0	0	58	11	0	12	67	0	0	174	616
6:00 PM	22	0	14	0	0	0	0	0	0	69	19	0	13	69	0	0	206	667
6:15 PM	26	0	6	0	0	0	0	0	0	60	20	0	13	49	0	0	174	713
6:30 PM	24	0	8	0	0	0	0	0	0	53	11	0	14	47	0	0	157	711
6:45 PM	12	0	10	0	0	0	0	0	0	57	6	0	7	61	0	0	153	690

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	88	0	56	0	0	0	0	0	0	276	76	0	52	276	0	0	824
Heavy Trucks	0	0	0		0	0	0		0	16	0		0	8	0		24
Pedestrians		8				4				12				0			24
Bicycles	0	0	0		0	0	0		0	0	0		0	6	0		6
Railroad Stopped Buses																	

Comments:

Report generated on 9/20/2013 10:59 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES

7409 SW Tech Center Dr, Ste B150
Tigard, OR 97223
503-620-4242
www.qualitycounts.net

Counts: All Vehicle Counts
Location: Blair Rd NW & Cedar St NW
Date: 9/24/2013

Peak Hour: Highlighted In Blue
Peak 15-minutes: Highlighted In Orange
Peak Hour Factor (AM): 0.911
Peak Hour Factor (PM): 0.920

	Blair Rd NW (Southbound)					Cedar St NW (Westbound)					Blair Rd NW (Northbound)					4th St NW (Northbound)					Cedar St NW (Eastbound)				
	U-Turns	Right	Thru to 4th St NW	Thru	Left	U-Turns	Right	Thru	Left to 4th St NW	Left	U-Turns	Right	Thru	Left	Left to 4th St NW	U-Turns	Right to Blair Rd NW	Right to Cedar St NW	Thru to Blair Rd NW	Left to Cedar St NW	U-Turns	Right to 4th St NW	Right	Thru	Left
6:00 AM	0	0	0	55	3	2	11	7	3	5	0	1	21	0	0	0	0	6	2	1	0	0	14	3	0
6:15 AM	0	0	2	59	8	0	22	12	5	3	0	3	26	0	0	0	0	5	10	0	0	1	15	4	0
6:30 AM	0	1	0	77	7	0	26	15	5	4	0	2	48	0	0	0	0	2	10	1	0	0	15	3	0
6:45 AM	0	1	0	67	7	0	33	22	4	7	0	4	46	0	0	0	0	2	9	0	0	0	13	10	0
7:00 AM	0	0	0	74	6	0	28	34	7	8	0	4	50	0	0	0	0	9	8	0	0	1	14	8	0
7:15 AM	0	0	0	74	13	2	40	49	13	5	0	0	61	1	0	0	0	8	17	1	0	3	17	12	0
7:30 AM	0	0	0	80	13	3	36	67	13	8	0	3	66	0	0	0	0	19	14	0	0	1	12	19	0
7:45 AM	0	1	0	82	6	0	34	56	15	6	0	3	62	2	0	0	0	10	8	1	0	2	7	12	0
8:00 AM	0	0	0	73	14	2	31	56	10	15	0	1	62	0	0	0	0	8	14	0	0	2	8	16	1
8:15 AM	0	0	3	69	16	1	45	51	8	11	0	10	56	1	0	0	0	5	5	1	0	1	10	14	0
8:30 AM	0	0	2	66	17	3	29	33	13	13	0	1	48	0	1	0	0	15	36	1	0	0	23	19	1
8:45 AM	0	1	1	59	16	1	42	52	11	5	0	11	57	1	0	0	0	8	12	2	0	2	17	20	0
9:00 AM	0	0	0	66	13	1	24	32	9	6	0	6	62	1	0	0	0	10	19	0	0	4	13	16	1
9:15 AM	0	0	3	56	19	2	26	28	7	8	0	5	43	0	0	0	0	8	22	0	0	1	24	10	0
9:30 AM	0	0	1	58	20	0	26	19	9	2	0	4	53	0	0	0	1	7	15	0	0	2	11	10	0
9:45 AM	0	0	2	63	12	3	23	17	6	10	0	1	63	1	0	0	0	10	13	0	0	1	15	14	0
Totals	0	4	14	1078	190	20	476	550	138	116	0	59	824	7	1	0	1	132	214	8	0	21	228	190	3

	Blair Rd NW (Southbound)					Cedar St NW (Westbound)					Blair Rd NW (Northbound)					4th St NW (Northbound)					Cedar St NW (Eastbound)				
	U-Turns	Right	Thru to 4th St NW	Thru	Left	U-Turns	Right	Thru	Left to 4th St NW	Left	U-Turns	Right	Thru	Left	Left to 4th St NW	U-Turns	Right to Blair Rd NW	Right to Cedar St NW	Thru to Blair Rd NW	Left to Cedar St NW	U-Turns	Right to 4th St NW	Right	Thru	Left
3:00 PM	0	2	3	60	25	1	29	32	5	5	0	10	60	1	0	0	2	10	12	0	0	4	10	13	0
3:15 PM	0	0	3	69	22	0	21	26	3	6	0	8	77	4	2	0	0	10	7	0	0	3	9	20	0
3:30 PM	0	0	3	64	29	2	31	24	6	4	0	5	69	1	0	1	1	13	8	2	0	5	15	28	0
3:45 PM	0	1	2	78	23	3	26	30	8	3	0	4	79	5	0	0	0	15	15	2	0	3	5	19	0
4:00 PM	0	0	3	65	25	0	21	16	9	1	0	7	79	3	2	0	2	9	4	1	0	3	9	21	0
4:15 PM	0	0	3	70	30	0	13	21	8	5	0	6	94	2	0	0	0	14	6	2	0	1	6	27	0
4:30 PM	0	2	6	54	34	2	17	18	7	7	0	6	84	0	0	0	1	13	6	1	0	3	17	23	0
4:45 PM	0	0	2	59	24	1	15	15	10	9	0	10	76	1	0	0	2	14	7	0	0	1	9	15	0
5:00 PM	0	0	5	70	23	2	21	31	9	10	0	15	78	6	0	0	0	11	24	0	0	3	10	33	0
5:15 PM	0	0	5	74	23	1	10	21	14	9	0	12	72	5	0	0	1	14	26	1	0	2	7	26	0
5:30 PM	0	0	4	76	24	4	14	24	6	5	0	9	80	3	0	0	1	10	8	2	0	2	13	27	0
5:45 PM	0	0	7	56	24	2	20	20	11	11	0	8	83	2	0	0	0	12	14	1	0	1	10	24	0
6:00 PM	0	0	4	80	23	3	12	16	7	9	0	10	70	6	2	0	0	20	20	0	0	2	4	30	0
6:15 PM	0	0	7	72	25	3	19	21	7	5	0	14	83	2	0	0	2	15	14	0	0	3	3	37	0
6:30 PM	0	0	5	86	19	1	14	23	10	3	0	10	73	10	0	0	0	12	21	0	0	1	5	26	0
6:45 PM	0	0	5	80	23	1	20	30	9	7	1	5	71	10	0	0	3	11	16	1	0	1	5	19	0
Totals	0	5	67	1113	396	26	303	368	129	99	1	139	1228	61	6	1	15	203	208	13	0	38	137	388	0

Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES

7409 SW Tech Center Dr, Ste B150
Tigard, OR 97223
503-620-4242
www.qualitycounts.net

Counts: Pedestrian Counts
Location: Blair Rd NW & Cedar St NW
Date: 9/24/2013

	Blair Rd NW (Southbound)					Cedar St NW (Westbound)					Blair Rd NW (Northbound)					4th St NW (Northbound)					Cedar St NW (Eastbound)					
	Peds	Right	Thru to 4th St NW	Thru	Left	Peds	Right	Thru	Left to 4th St NW	Left	Peds	Right	Thru	Left	Left to 4th St NW	Peds	Right to Blair Rd NW	Right to Cedar St NW	Thru to Blair Rd NW	Left to Cedar St NW	Peds	Right to 4th St NW	Right	Thru	Left	Mid Crosswalk
6:00 AM	8	0	0	0	0	2	0	1	0	0	3	0	0	0	0	1	0	0	0	0	4	0	0	0	0	0
6:15 AM	9	0	0	0	0	5	0	0	0	0	5	0	0	0	0	2	0	0	0	0	1	0	0	0	0	3
6:30 AM	16	0	0	0	0	3	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	25	0	0	0	0	15	0	0	1	1	16	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
7:00 AM	32	0	0	0	0	18	0	0	0	0	21	1	0	0	0	0	0	0	0	0	2	0	0	0	0	2
7:15 AM	24	0	0	0	0	23	0	0	0	0	25	0	0	0	0	0	0	1	0	0	1	0	0	0	0	4
7:30 AM	35	0	0	0	0	32	0	1	1	0	43	0	0	0	0	4	0	0	0	0	3	0	0	0	0	2
7:45 AM	55	0	0	0	0	30	0	1	2	1	28	0	0	0	0	1	0	2	0	0	17	0	1	1	0	1
8:00 AM	35	0	0	0	0	40	0	0	1	1	45	0	0	0	0	1	0	0	0	0	6	0	1	2	0	4
8:15 AM	45	0	0	0	0	36	0	0	0	0	41	0	1	0	0	1	0	1	0	0	15	0	0	1	0	1
8:30 AM	57	0	0	0	0	48	0	0	0	0	51	0	0	0	0	1	0	0	0	0	17	0	0	0	0	3
8:45 AM	48	0	0	0	0	20	0	1	0	0	39	0	0	0	0	1	0	0	0	0	21	0	0	1	0	4
9:00 AM	47	0	0	0	0	12	0	0	0	0	21	0	0	0	0	1	0	2	1	0	15	0	0	4	0	4
9:15 AM	26	0	0	0	0	15	0	0	0	0	24	0	0	0	0	1	0	0	0	0	4	0	0	1	0	5
9:30 AM	26	0	0	0	0	22	0	0	0	0	22	0	0	0	0	1	0	0	0	0	8	0	0	1	0	5
9:45 AM	20	0	0	0	0	7	0	0	0	0	9	0	0	0	0	0	0	0	0	0	3	0	0	0	0	5
Totals	508	0	0	0	0	328	0	4	5	3	402	1	1	0	0	15	0	7	1	0	117	0	2	11	0	45

	Blair Rd NW (Southbound)					Cedar St NW (Westbound)					Blair Rd NW (Northbound)					4th St NW (Northbound)					Cedar St NW (Eastbound)					
	Peds	Right	Thru to 4th St NW	Thru	Left	Peds	Right	Thru	Left to 4th St NW	Left	Peds	Right	Thru	Left	Left to 4th St NW	Peds	Right to Blair Rd NW	Right to Cedar St NW	Thru to Blair Rd NW	Left to Cedar St NW	Peds	Right to 4th St NW	Right	Thru	Left	Mid Crosswalk
3:00 PM	14	0	0	0	0	12	0	0	0	0	4	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4
3:15 PM	12	0	0	0	0	13	0	0	0	0	10	0	0	0	0	1	0	0	0	0	0	0	0	0	0	5
3:30 PM	21	0	0	0	0	38	0	0	1	0	38	0	0	0	1	2	0	0	0	0	8	0	0	0	0	18
3:45 PM	17	0	0	0	0	16	0	0	0	0	24	0	0	0	0	2	0	1	1	0	4	0	0	1	0	10
4:00 PM	18	0	0	0	0	20	0	0	1	0	21	0	0	0	0	2	0	0	0	0	4	0	0	0	0	4
4:15 PM	20	0	0	0	0	14	0	0	0	0	20	0	0	0	0	0	0	0	0	0	2	0	0	0	0	5
4:30 PM	31	0	0	0	0	29	1	0	0	0	34	0	0	0	1	6	0	0	0	0	2	0	0	0	0	6
4:45 PM	15	0	0	0	0	12	0	0	0	0	11	0	0	0	0	2	0	0	1	0	3	1	0	0	0	4
5:00 PM	27	0	0	0	0	25	0	0	0	1	29	0	0	0	0	4	0	0	0	0	1	0	0	2	0	11
5:15 PM	21	0	0	0	0	22	1	2	0	0	20	0	0	0	0	7	0	0	0	0	2	0	0	0	0	2
5:30 PM	39	0	0	0	1	33	0	0	0	0	40	0	0	0	0	2	0	0	0	0	1	1	0	1	0	12
5:45 PM	22	1	0	0	0	34	0	0	0	0	40	0	0	0	0	5	0	0	0	0	3	0	0	0	0	11
6:00 PM	35	0	0	0	2	26	0	0	0	1	38	0	0	0	0	5	0	0	1	0	3	0	0	2	0	8
6:15 PM	37	0	0	0	0	18	1	0	2	1	30	0	0	0	0	2	0	0	0	0	4	0	0	0	0	18
6:30 PM	27	0	0	0	0	28	1	0	0	0	33	0	0	0	0	5	0	0	0	0	1	0	1	1	0	12
6:45 PM	16	0	0	0	0	37	0	1	0	0	37	0	0	0	0	11	0	0	0	0	4	0	0	1	0	11
Totals	372	1	0	0	3	377	4	3	4	3	429	0	0	0	2	56	0	1	3	0	46	2	1	8	0	141

Appendix B

TIMING PLAN SCHEDULE	TS-	213-I	4TH STREET, BLAIR ROAD, CEDAR STREET, N.W. LOCATION

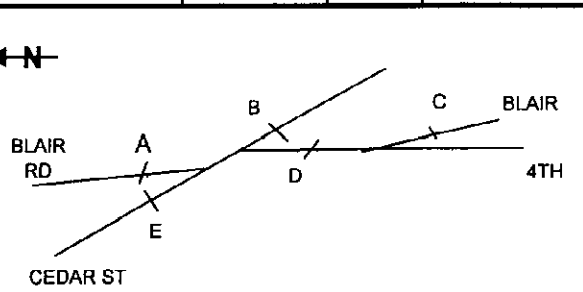
PLAN	PERIOD
1	OFF PEAK - 90
2	AM PEAK - 80
3	PM PEAK - 100
4	OFF PEAK - 100
5	AM PEAK - 100
6	PM PEAK - 100
7	AM PEAK - 120
8	PM PEAK - 120

DEPARTMENT OF TRANSPORTATION

WASHINGTON, D.C.

TRAFFIC SERVICES ADMINISTRATION

S-DRAWING NO: | SHEET: 1



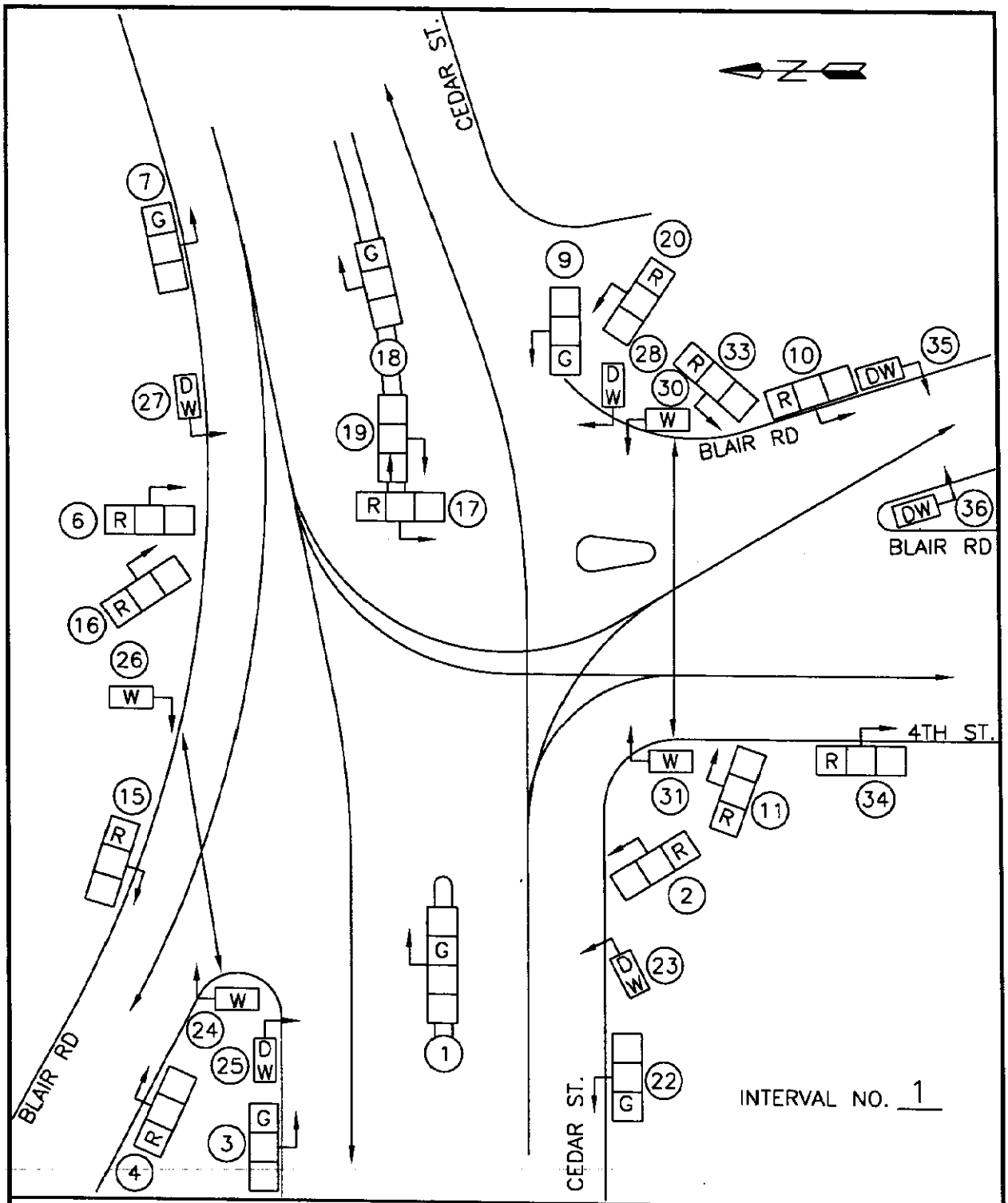
CONTROLLER	ISNUM	ACISA
170	774	5009

DESCRIPTION (INTERSECTION / STREET / DIRECTION)

CEDAR ST			BLAIR RD			4TH	PEDESTRIANS					INTERVAL		1		2		3		4		5		6		7		8					
EB	WB AT 4TH	WB AT BLAIR	SEB	NWB AT 4TH	NWB AT CEDAR		A	B	C	D	E	TYPE	NUMBER	S	C	S	C	S	C	S	C	S	C	S	C	S	C	S	C	S	C	S	C
G	G	G	R	R	R	R	W	DW	DW	W	DW	F	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4				
G	G	G	R	R	R	R	W	DW	DW	W	DW	V	2	1	5	1	5	1	5	6	10	11	15	1	5	21	25	6	10				
G	G	G	R	R	R	R	W	DW	DW	FDW	DW	F	3	14	19	14	19	14	19	14	24	14	29	14	19	14	39	14	24				
Y	G	G	R	R	R	R	W	DW	DW	DW	DW	F	4	4	23	4	23	4	23	4	28	4	33	4	23	4	43	4	28				
R	G	G ←	R	R	R	R	W	DW	DW	DW	DW	F	5	3	26	3	26	3	26	3	31	3	36	3	26	3	46	3	31				
R	Y	G ←	R	R	R	R	FDW	DW	DW	DW	DW	F	6	4	30	4	30	4	30	4	35	4	40	4	30	4	50	4	35				
R	R	Y	R	R	R	R	DW	DW	DW	DW	DW	F	7	4	34	4	34	4	34	4	39	4	44	4	34	4	54	4	39				
R	R	R	R	R	R	R	DW	W	DW	DW	DW	F	8	3	37	3	37	3	37	3	42	3	47	3	37	3	57	3	42				
R	R	R	R	R	G FY	G	DW	W	W	DW	W	F	9	6	43	6	43	6	43	6	48	6	53	6	43	6	63	6	48				
R	R	R	R	R	G FY	G	DW	W	W	DW	W	V	10	1	44	1	44	1	44	1	49	1	54	1	44	1	64	1	49				
R	R	R	R	R	G FY	G	DW	FDW	FDW	DW	W	F	11	8	52	8	52	8	52	8	57	8	62	8	52	8	72	8	57				
R	R	R	G	R	G FY	Y	DW	FDW	DW	DW	W	F	12	4	56	4	56	4	56	4	61	4	66	4	56	4	76	4	61				
R	R	R	G	G	G FY	R	DW	FDW	DW	DW	W	F	13	6	62	6	62	6	62	6	67	6	72	6	62	6	82	6	67				
R	R	R	G	G	G FY	R	DW	FDW	DW	DW	W	V	14	12	74	2	64	22	84	17	84	12	84	22	84	22	104	37	104				
R	R	R	G	G	G FY	R	DW	DW	DW	DW	FDW	F	15	2	76	2	66	2	86	2	86	2	86	2	86	2	106	2	106				
R	R	R	G	Y	G FY	R	DW	DW	DW	DW	FDW	F	16	4	80	4	70	4	90	4	90	4	90	4	90	4	110	4	110				
R	R	R	Y	R	Y	R	DW	DW	DW	DW	DW	F	17	4	84	4	74	4	94	4	94	4	94	4	94	4	114	4	114				
R	R	R	R	R	R	R	DW	DW	DW	DW	DW	F	18	2	86	2	76	2	96	2	96	2	96	2	96	2	116	2	116				
R	R	R	R	R	R	R	W	DW	DW	W	DW	F	19	4	90	4	80	4	100	4	100	4	100	4	100	4	120	4	120				
													CYCLE LENGTH	90		80		100		100		100		100		120		120				
													OFFSET	0		13		0		51		0		0		118		0				
PREPARED BY:																										NS							
DATE TO SHOP:																																	
WORK OR SHOP ORDER NO.																										S08- 03-110-							
APPROVED BY:														WWM		WWM		WWM		WWM		WWM		WWM		WWM		WWM					
DATE INSTALLED:																																	
INSTALLED BY:																																	

S=Seconds C=Cummulative secs

◯ = Force Off (circle the interval)



TRAFFIC SIGNAL OPERATION

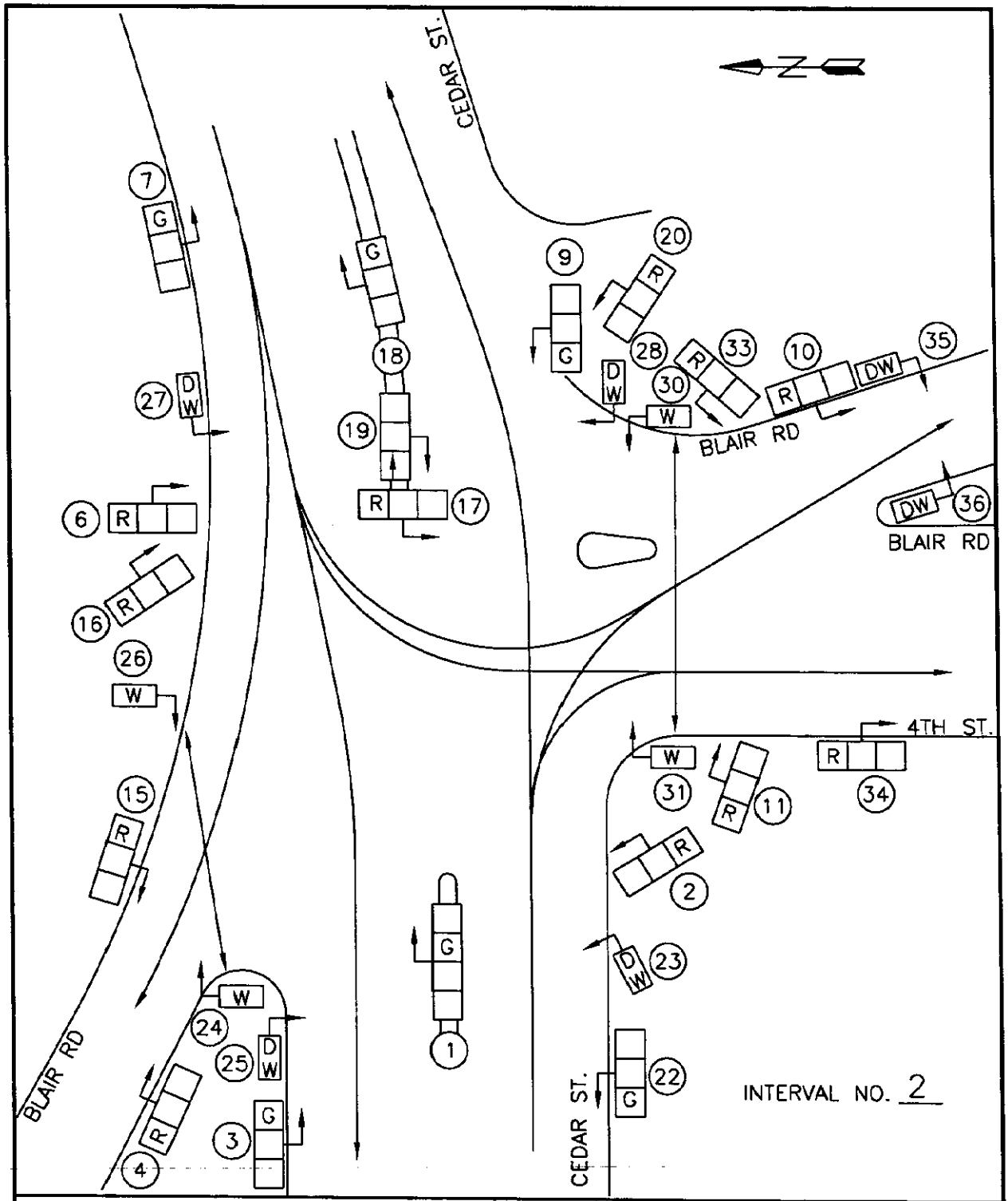
4TH STREET BLAIR ROAD AND CEDAR STREET, N.W.

D.C. DEPARTMENT OF TRANSPORTATION
TRAFFIC SERVICES ADMINISTRATION
TRAFFIC SIGNAL SYSTEM DIVISION

CHECK BY: J.E. AM AG BO SD DATE: 9/24/04
DRAWN BY: BY DATE:
IN SERVICE: SCALE: NONE

DESIGNED BY: NJ
SUBMITTED BY: Johnny Arrington 9/24/04
CHIEF, SIGNAL DESIGN BRANCH
APPROVED BY: William W. McGuirk 9/29/04
DIVISION CHIEF

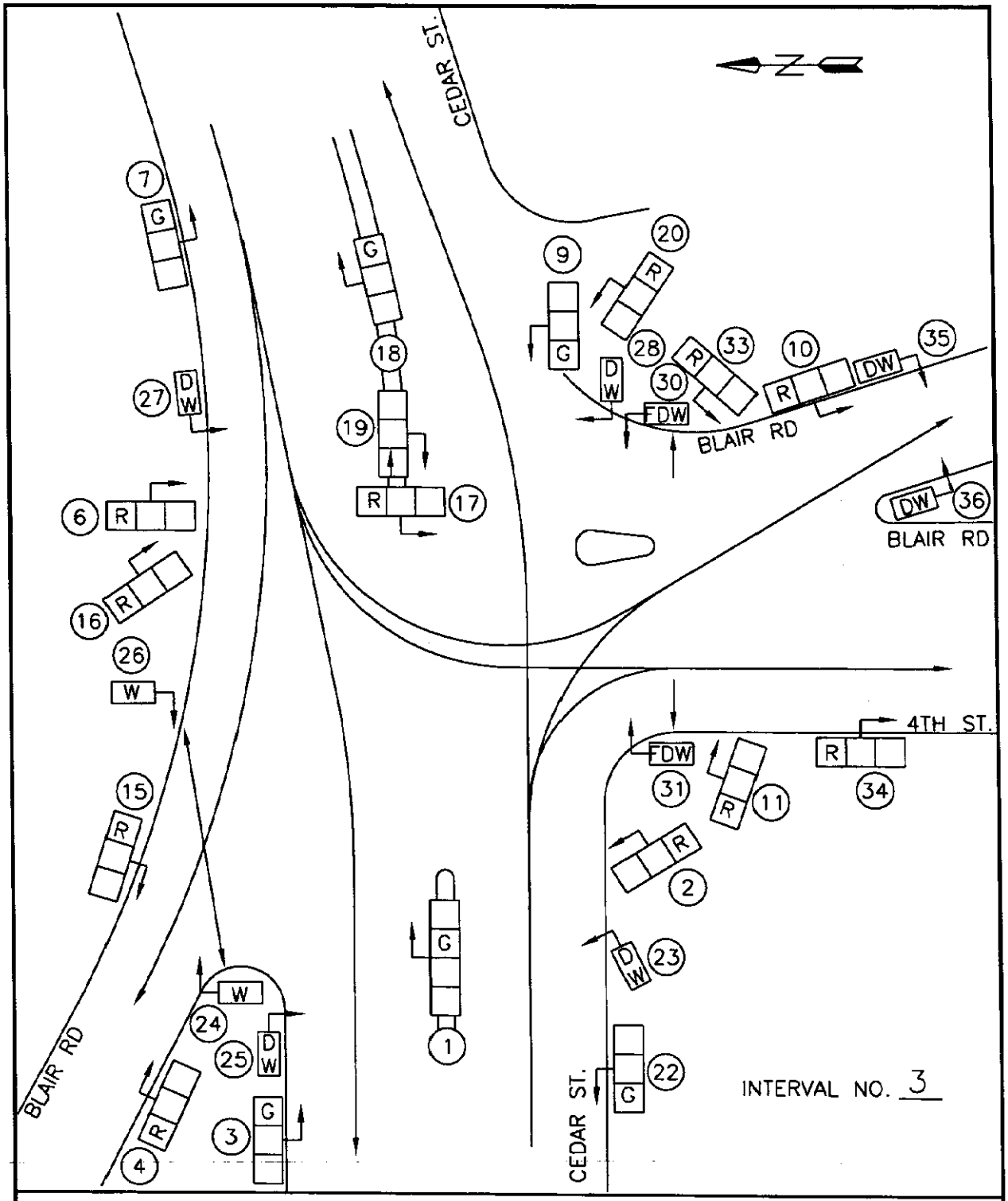
T.S. 213-1
SHEET 1 OF 19



TRAFFIC SIGNAL OPERATION

4TH STREET BLAIR ROAD AND CEDAR STREET, N.W.

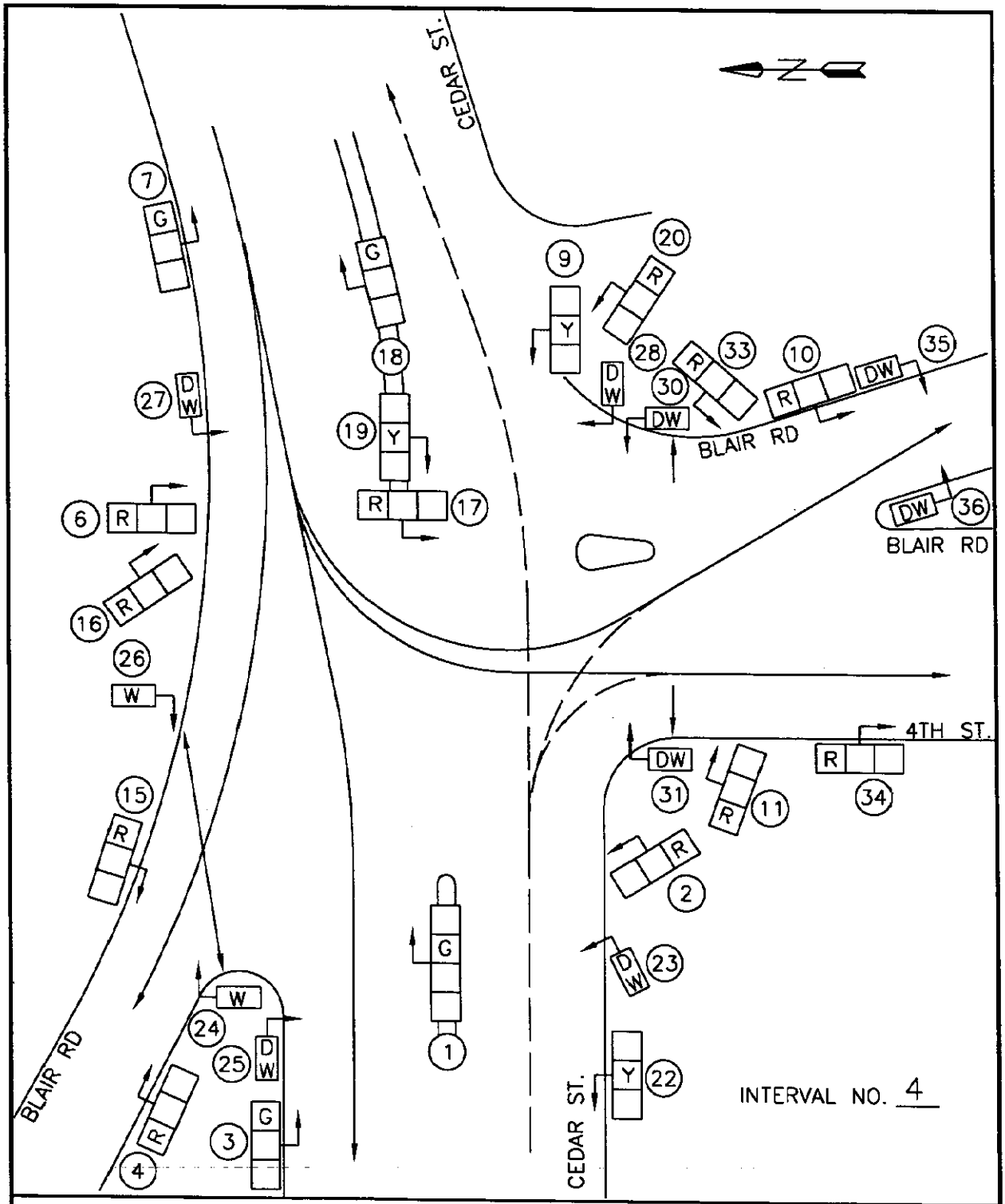
D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY:	T.S. 213-1
CHECK BY: DATE:	SUBMITTED BY: CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY DATE:	APPROVED BY: DIVISION CHIEF	2 OF 19
IN SERVICE: SCALE: NONE		



TRAFFIC SIGNAL OPERATION

4TH STREET BLAIR ROAD AND CEDAR STREET, N.W.

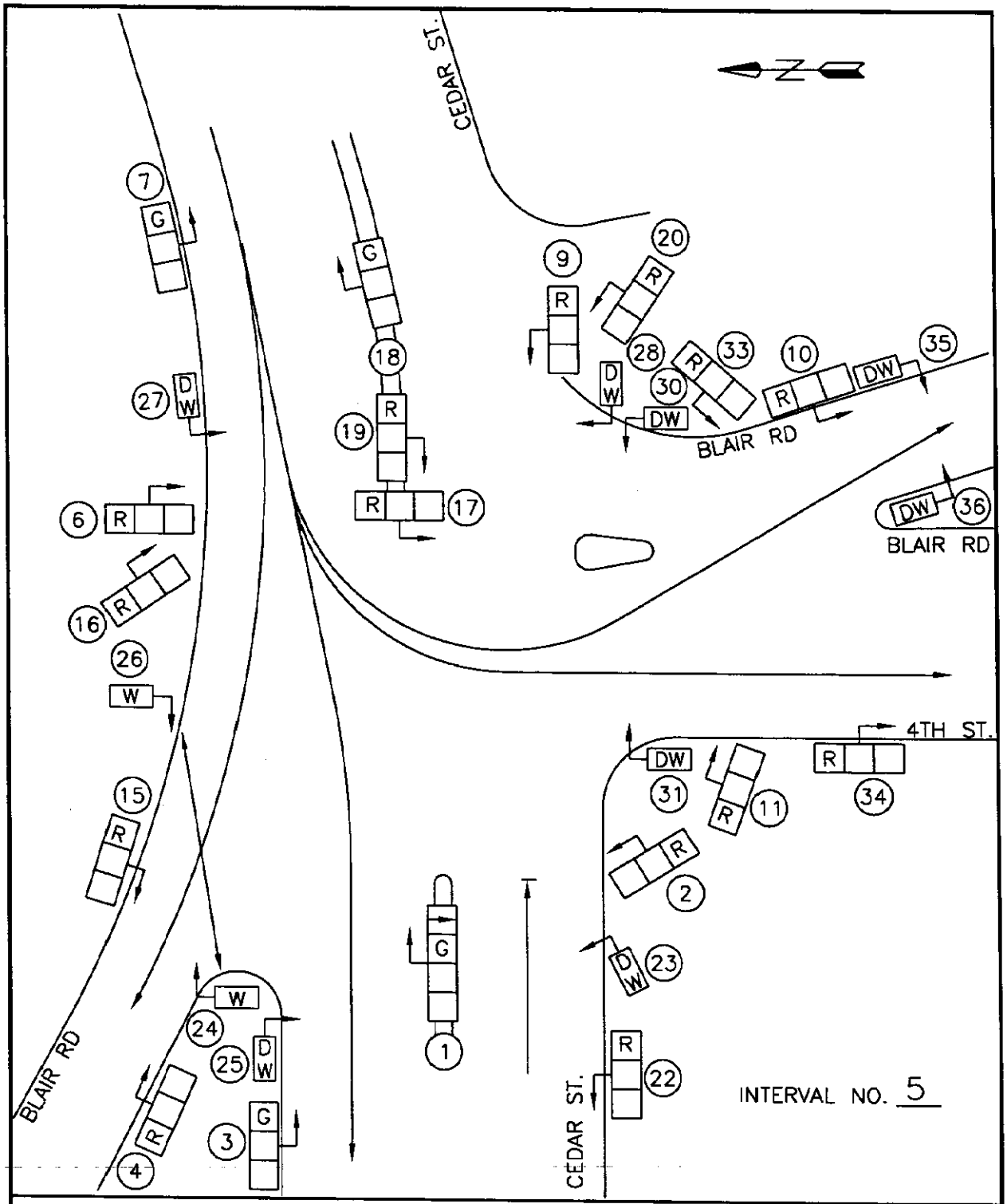
D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION		DESIGNED BY:	T.S. 213-1
CHECK BY:	DATE:	SUBMITTED BY: CHIEF, SIGNAL DESIGN BRANCH	SHEET 3 OF 19
DRAWN BY: BY	DATE:	APPROVED BY: DIVISION CHIEF	
IN SERVICE:	SCALE: NONE		



TRAFFIC SIGNAL OPERATION

4TH STREET BLAIR ROAD AND CEDAR STREET, N.W.

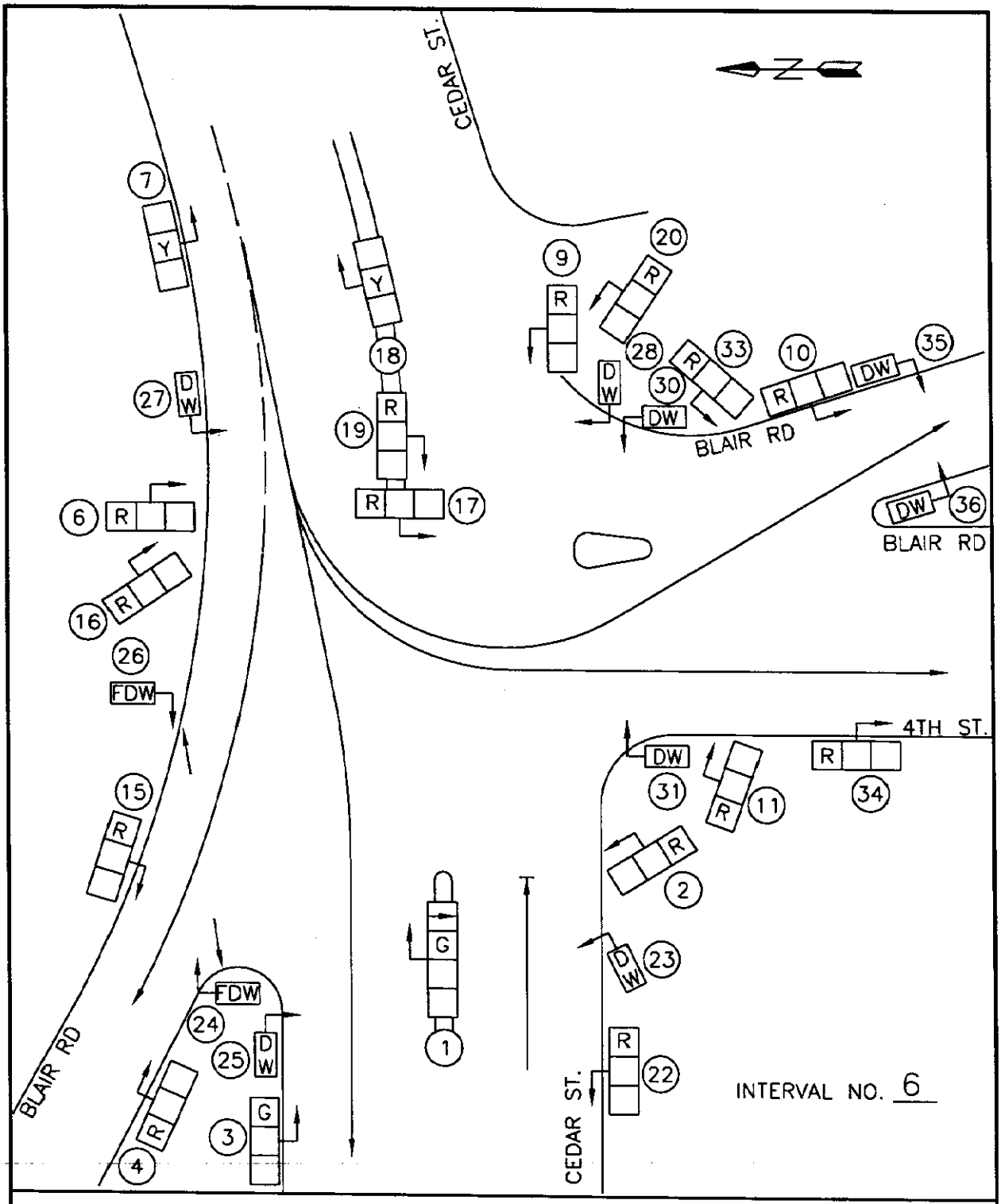
D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY:	T.S. 213-1
CHECK BY: DATE:	SUBMITTED BY: CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY DATE:	APPROVED BY: DIVISION CHIEF	4 OF 19
IN SERVICE: SCALE: NONE		



TRAFFIC SIGNAL OPERATION

4TH STREET BLAIR ROAD AND CEDAR STREET, N.W.

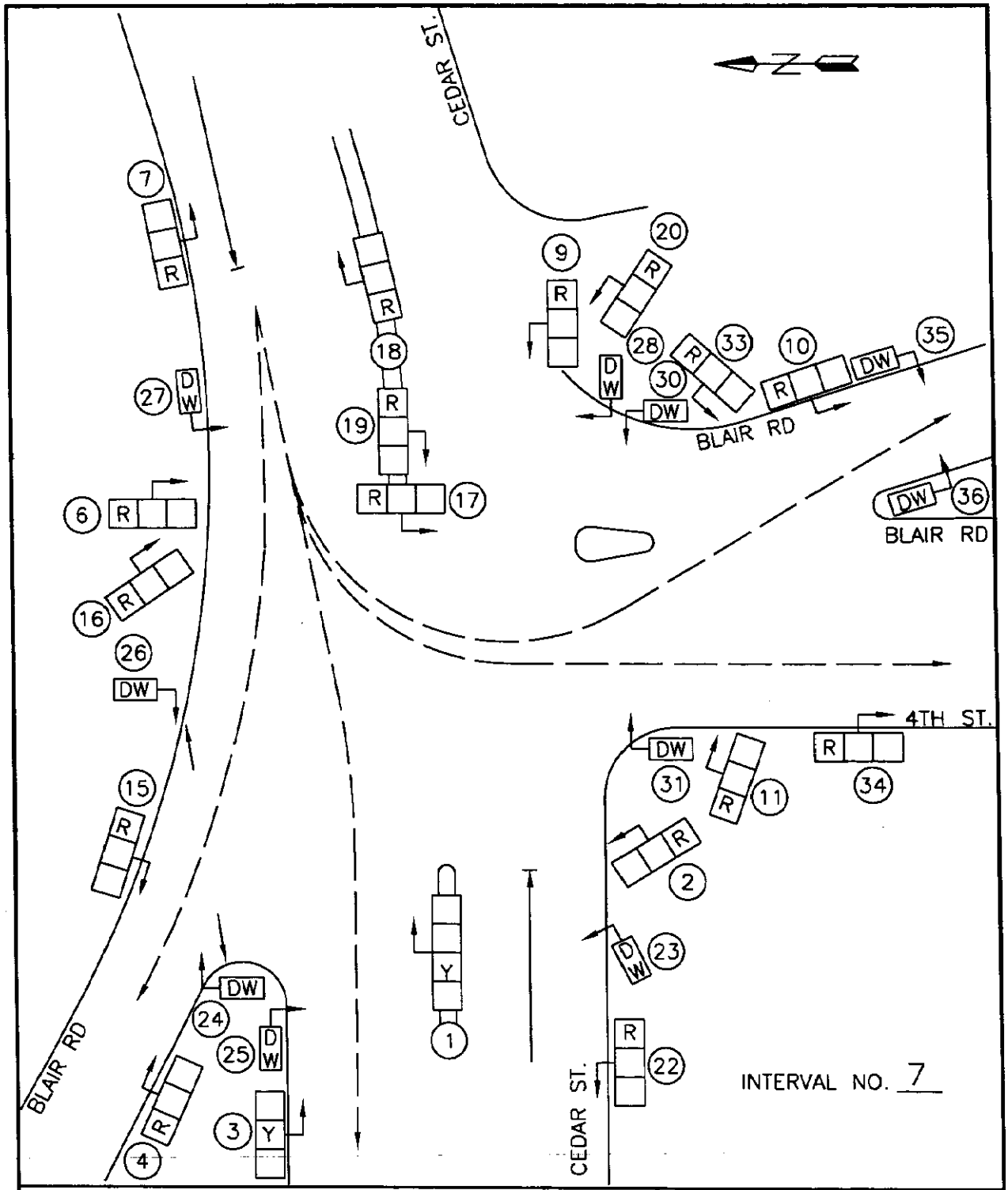
D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY:	T.S. 213-1
CHECK BY: DATE:	SUBMITTED BY: CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY DATE:	APPROVED BY: DIVISION CHIEF	5 OF 19
IN SERVICE: SCALE: NONE		



TRAFFIC SIGNAL OPERATION

4TH STREET BLAIR ROAD AND CEDAR STREET, N.W.

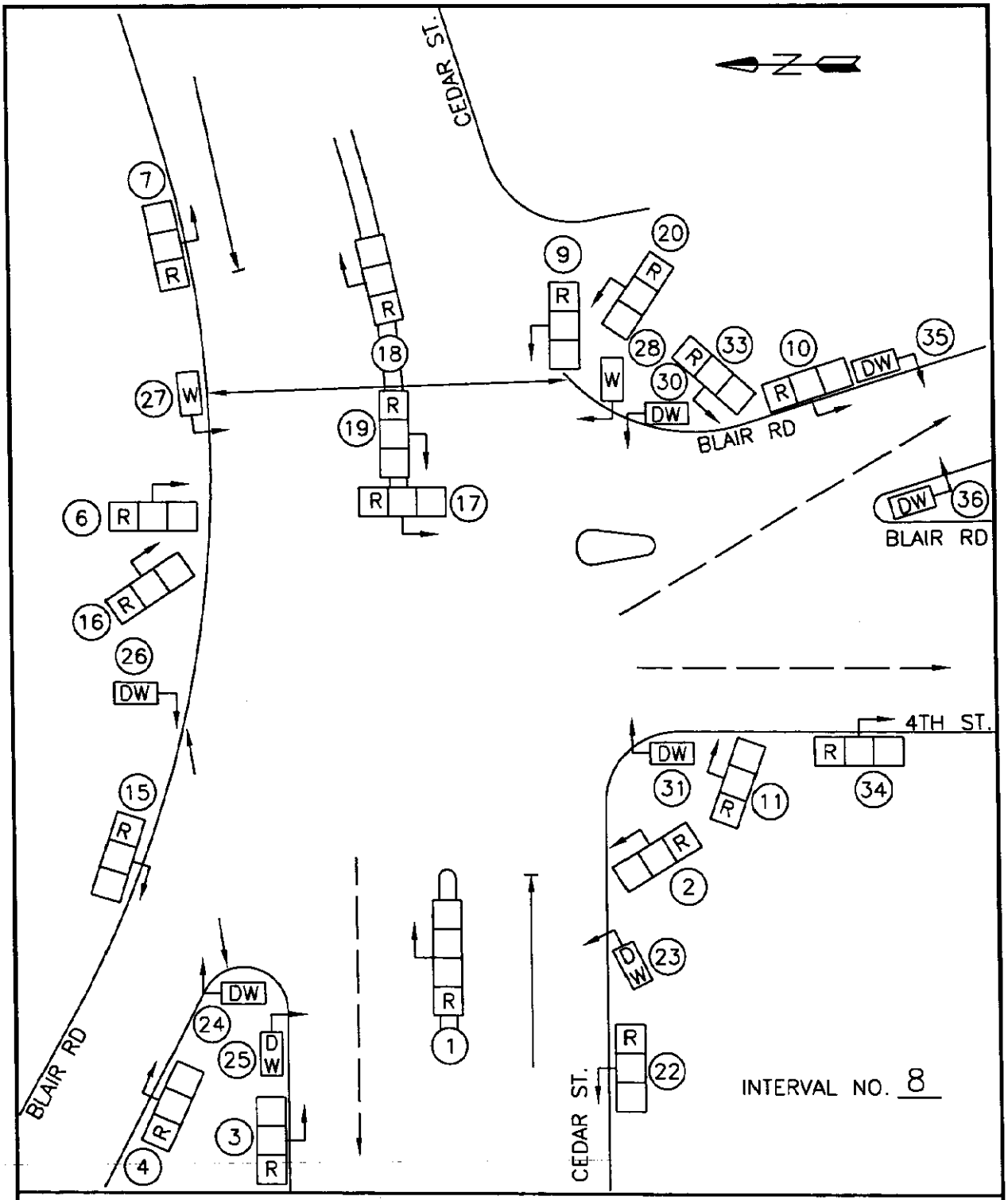
D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY:	T.S. 213-1
CHECK BY: DATE:	SUBMITTED BY: CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY DATE:	APPROVED BY: DIVISION CHIEF	6 OF 19
IN SERVICE: SCALE: NONE		



TRAFFIC SIGNAL OPERATION

4TH STREET BLAIR ROAD AND CEDAR STREET, N.W.

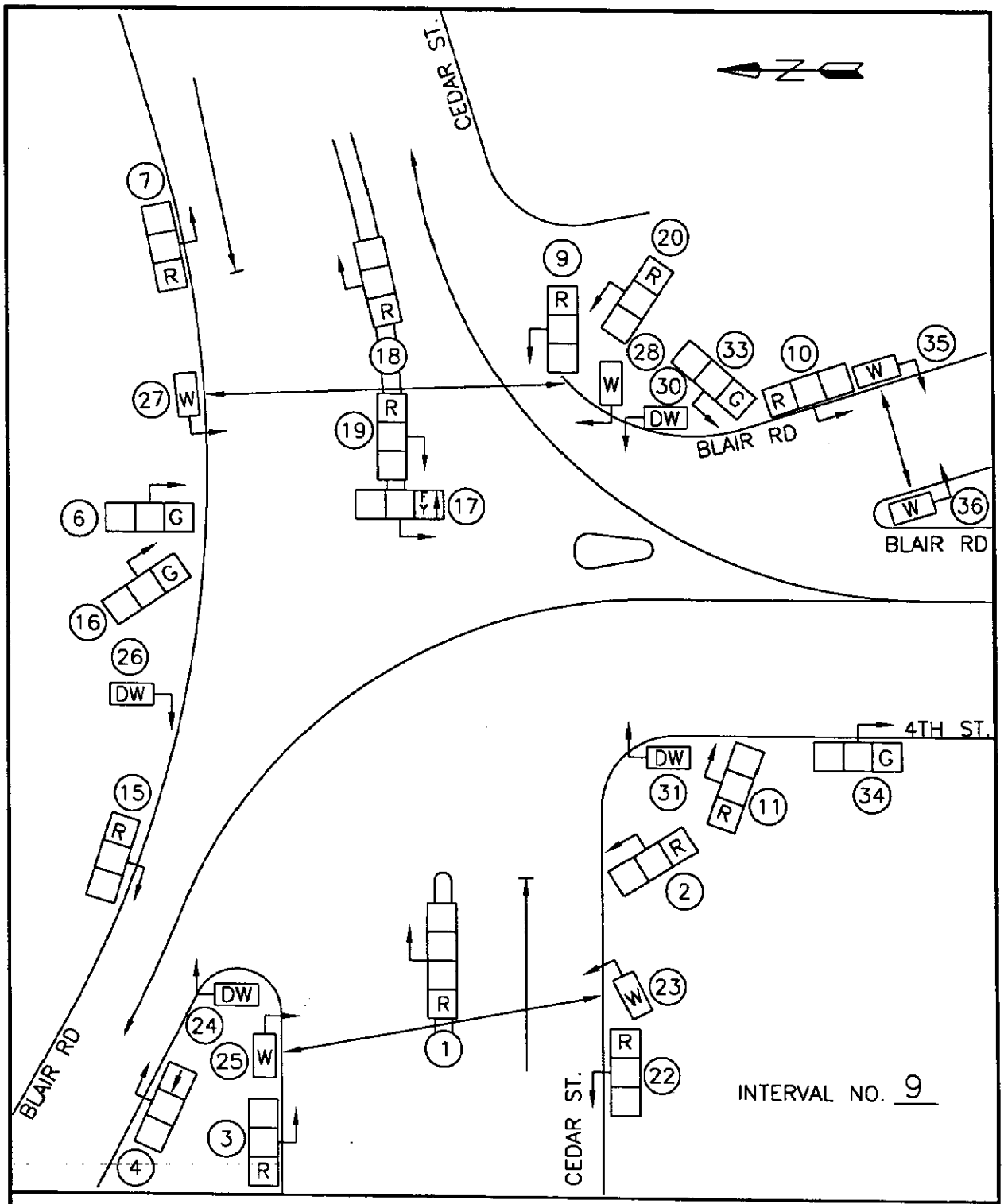
D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY:	T.S. 213-1
CHECK BY: DATE:	SUBMITTED BY: CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY DATE:	APPROVED BY: DIVISION CHIEF	7 OF 19
IN SERVICE: SCALE: NONE		



TRAFFIC SIGNAL OPERATION

4TH STREET BLAIR ROAD AND CEDAR STREET, N.W.

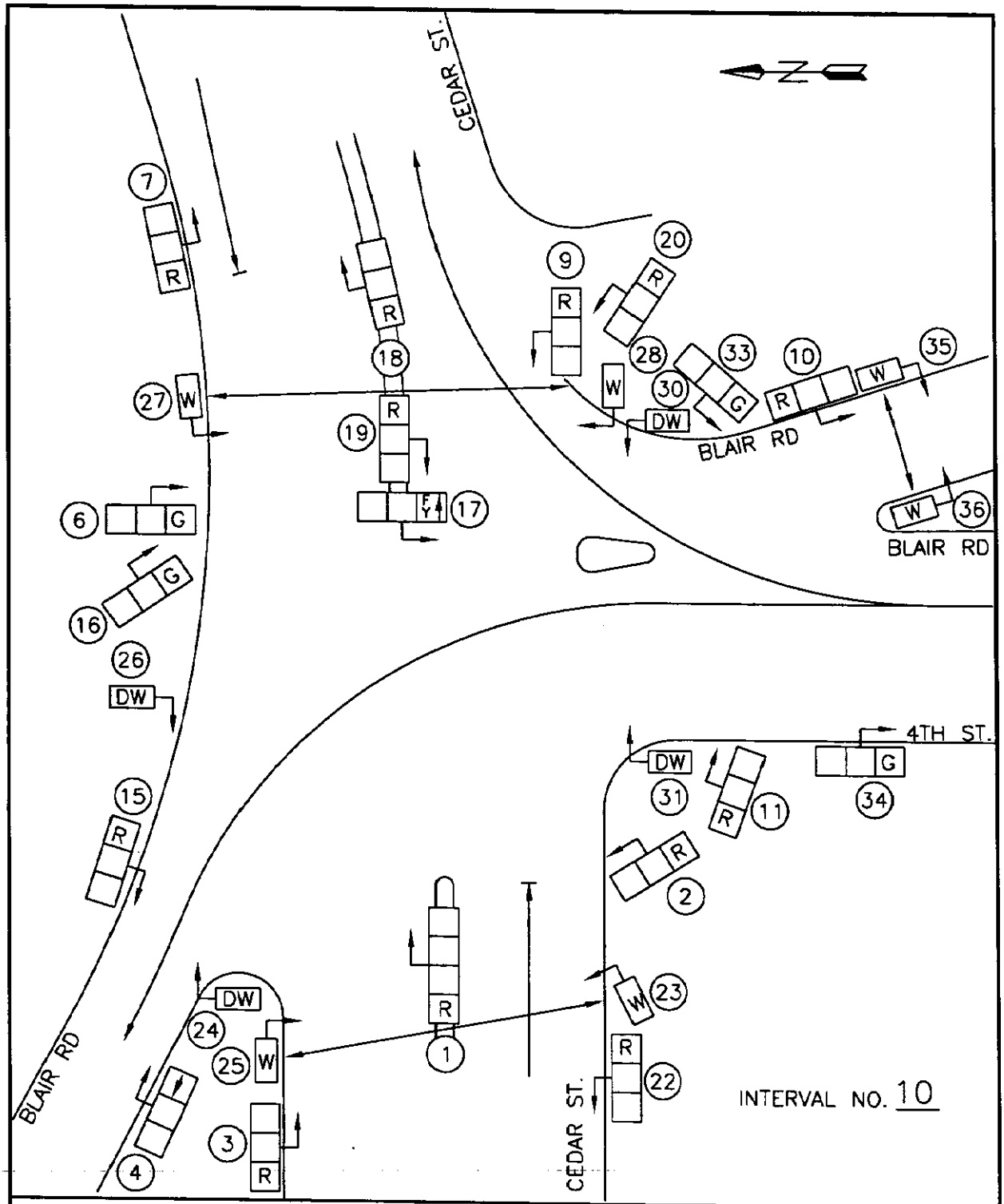
D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY:	T.S. 213-1
CHECK BY: DATE:	SUBMITTED BY: CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY DATE:	APPROVED BY: DIVISION CHIEF	8 OF 19
IN SERVICE: SCALE: NONE		



TRAFFIC SIGNAL OPERATION

4TH STREET BLAIR ROAD AND CEDAR STREET, N.W.

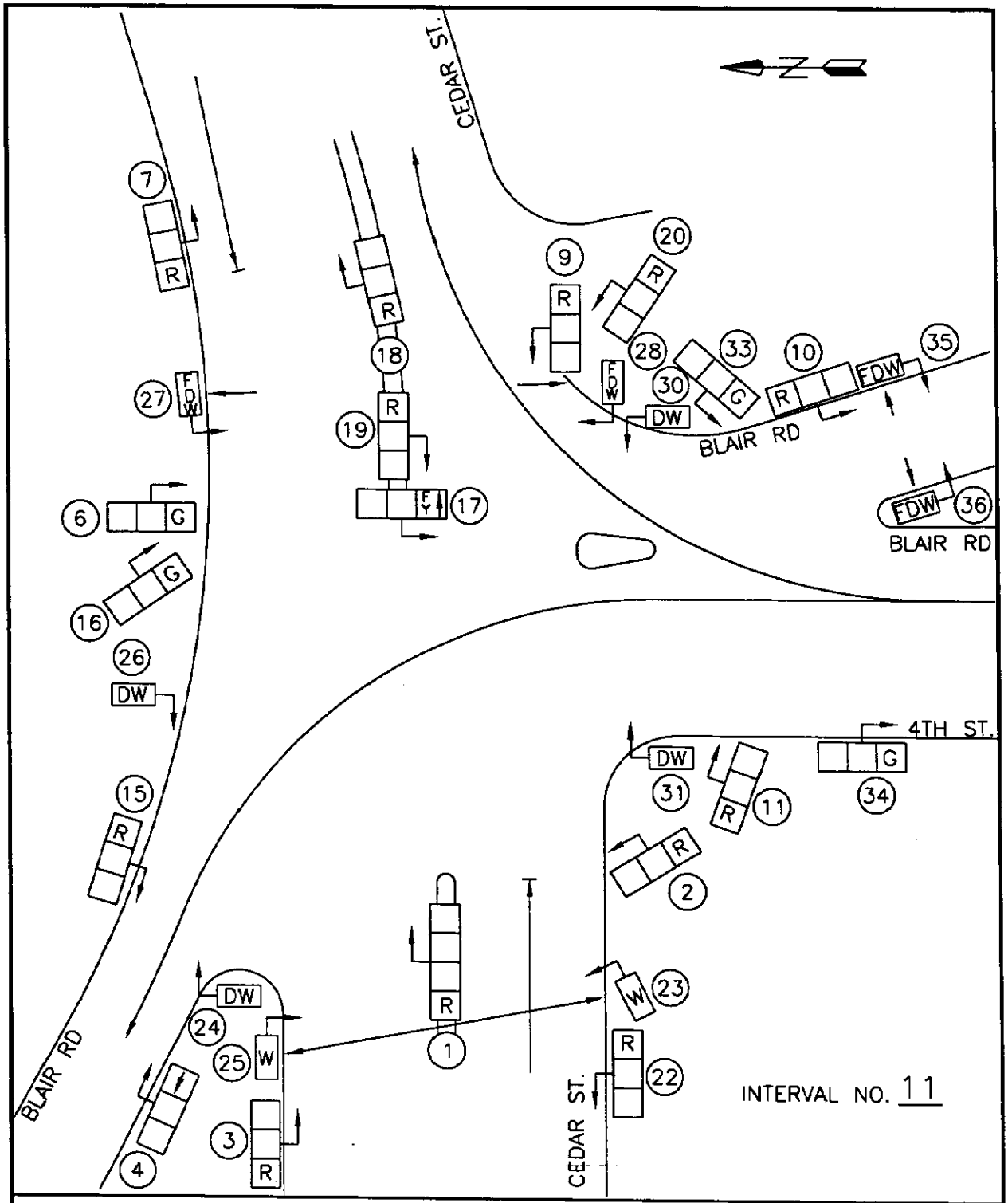
D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION		DESIGNED BY:	T.S. 213-1
CHECK BY:	DATE:	SUBMITTED BY: _____ CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY	DATE:	APPROVED BY: _____ DIVISION CHIEF	9 OF 19
IN SERVICE:	SCALE: NONE		



TRAFFIC SIGNAL OPERATION

4TH STREET BLAIR ROAD AND CEDAR STREET, N.W.

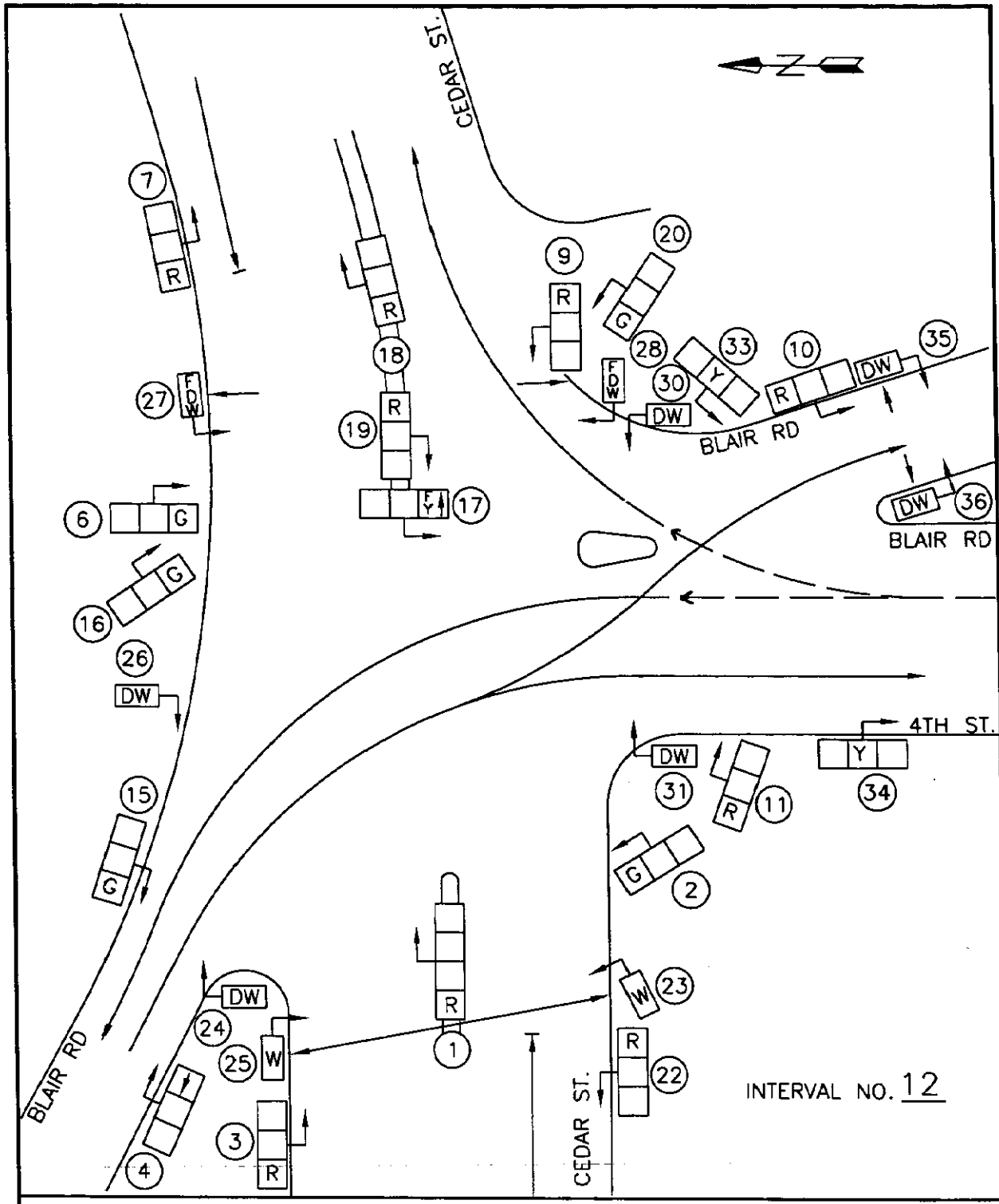
D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY:	T.S. 213-1
CHECK BY: DATE:	SUBMITTED BY: CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY DATE:	APPROVED BY: DIVISION CHIEF	10 OF 19
IN SERVICE: SCALE: NONE		



TRAFFIC SIGNAL OPERATION

4TH STREET BLAIR ROAD AND CEDAR STREET, N.W.

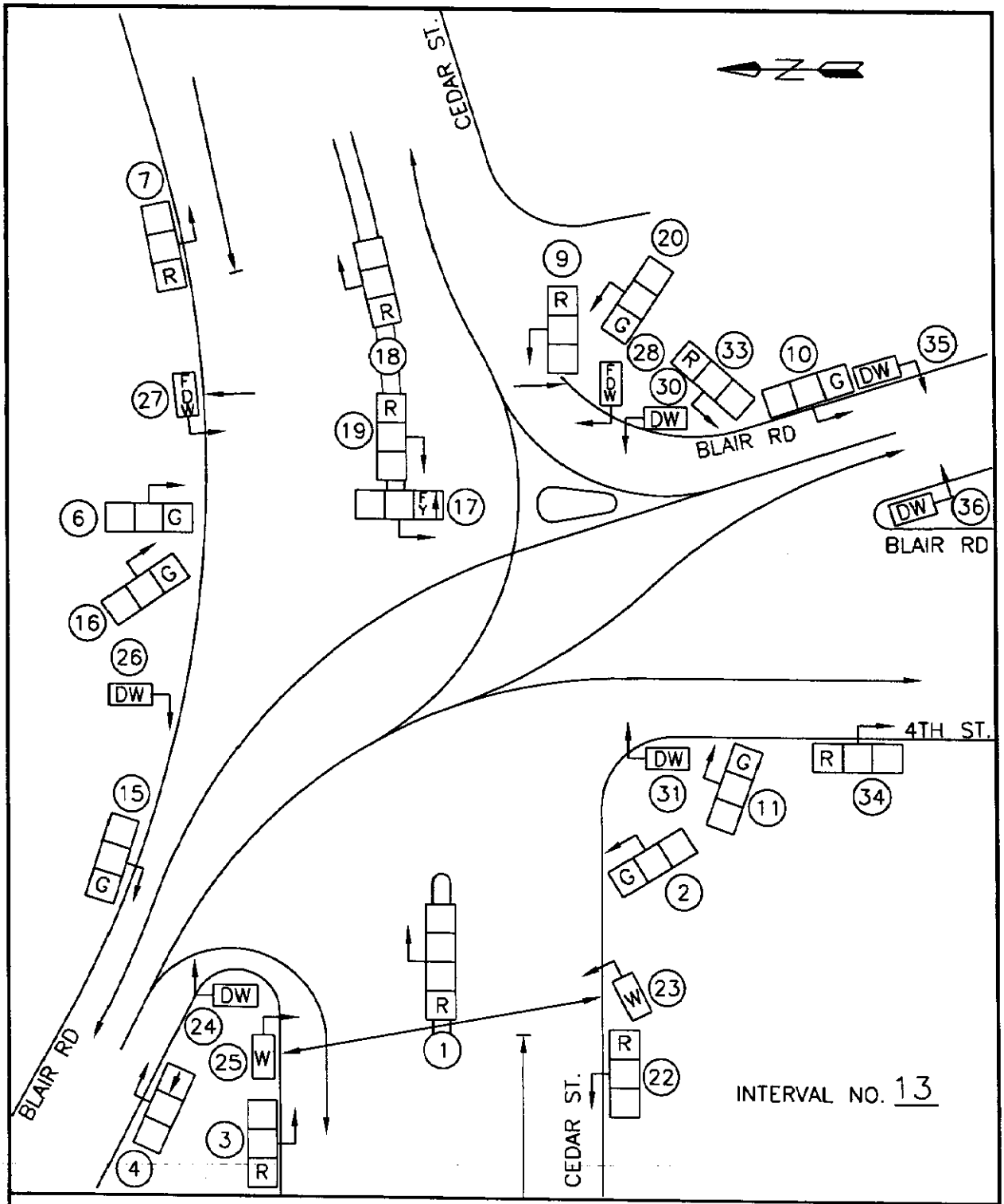
D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY:	T.S. 213-1
CHECK BY: DATE:	SUBMITTED BY: CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY DATE:	APPROVED BY: DIVISION CHIEF	11 OF 19
IN SERVICE: SCALE: NONE		



TRAFFIC SIGNAL OPERATION

4TH STREET BLAIR ROAD AND CEDAR STREET, N.W.

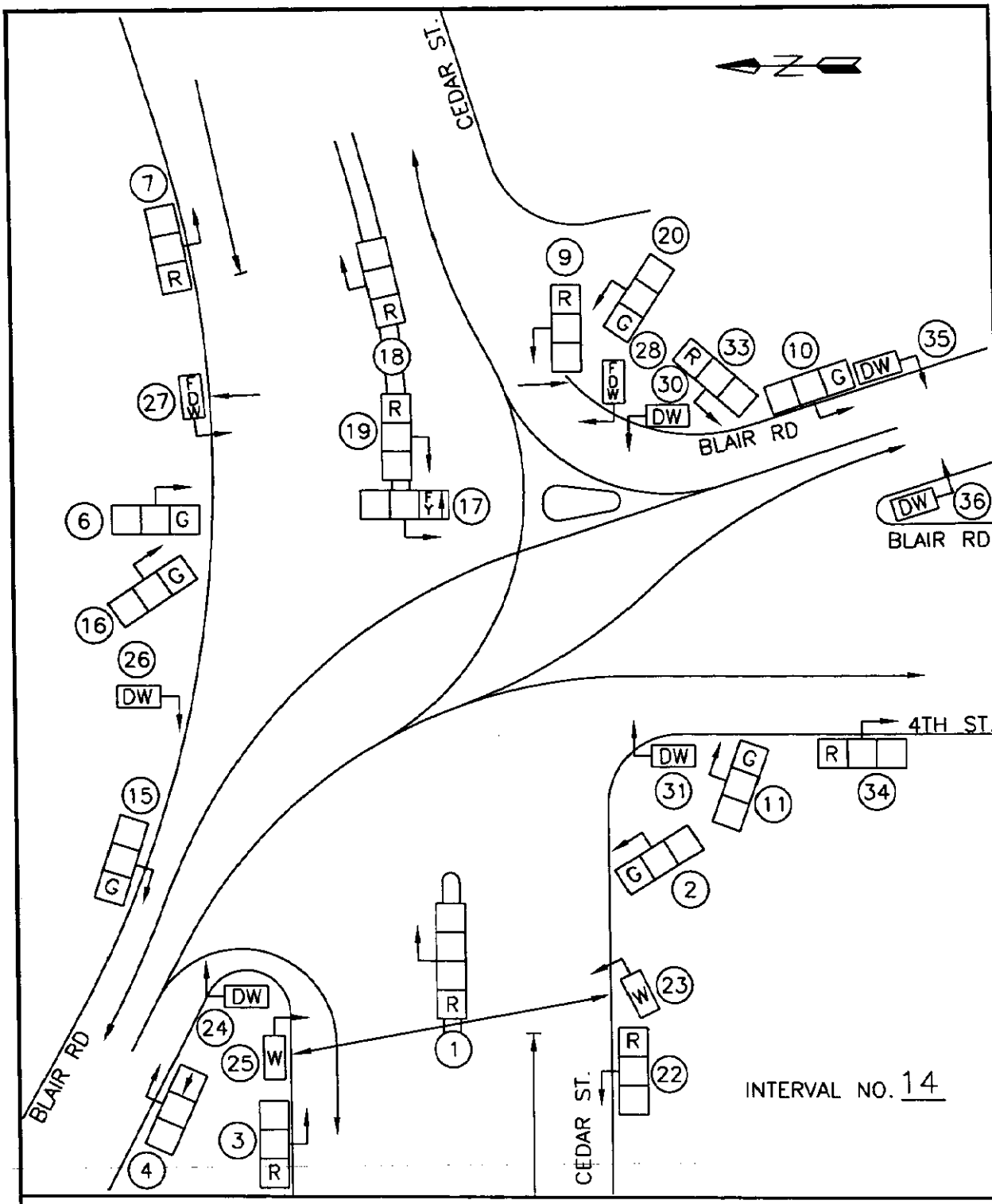
D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY:	T.S. 213-1
CHECK BY: DATE:	SUBMITTED BY: CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY DATE:	APPROVED BY: DIVISION CHIEF	12 OF 19
IN SERVICE: SCALE: NONE		



TRAFFIC SIGNAL OPERATION

4TH STREET BLAIR ROAD AND CEDAR STREET, N.W.

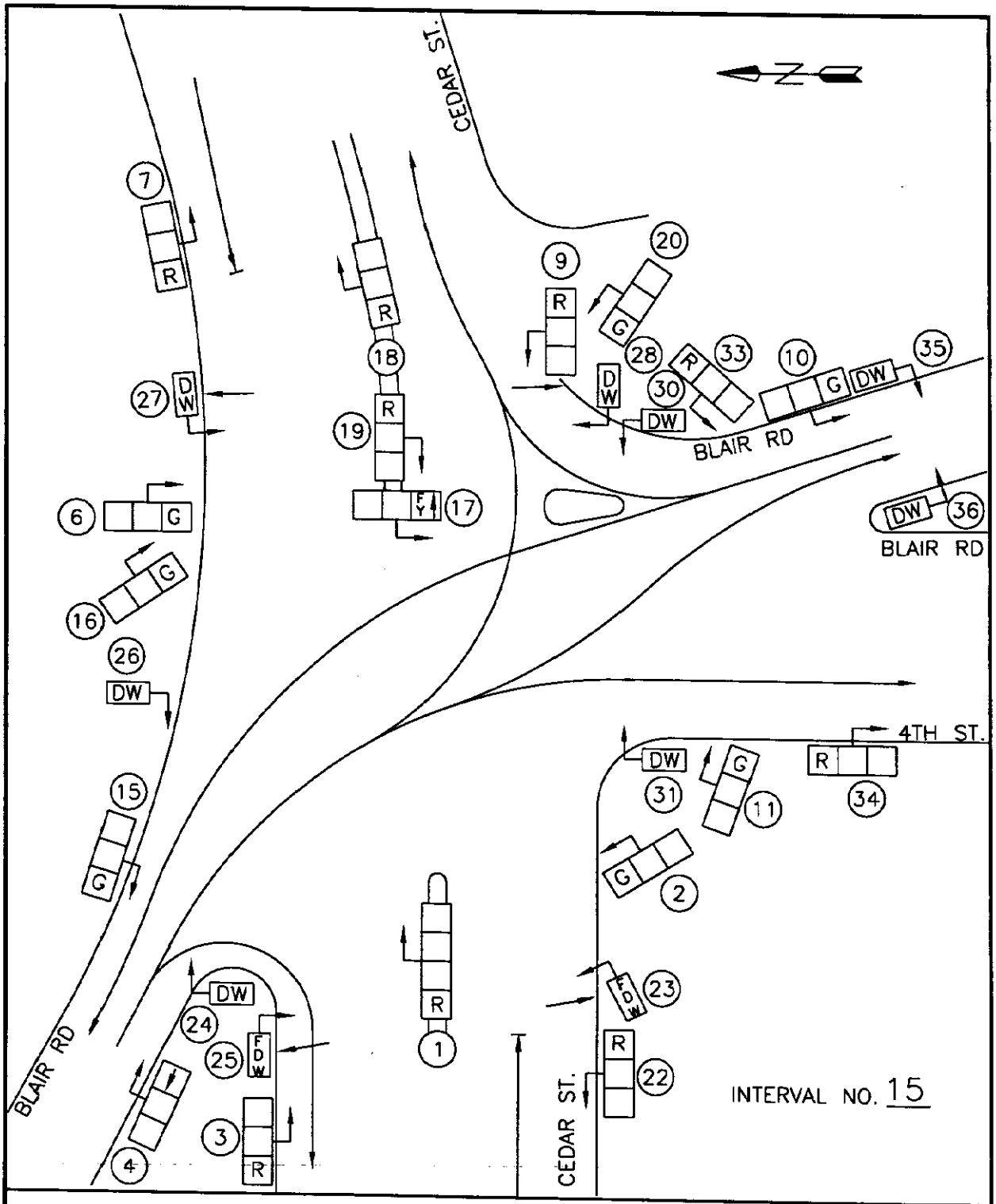
D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY:	T.S. 213-1
CHECK BY: DATE:	SUBMITTED BY: _____ CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY DATE:	APPROVED BY: _____ DIVISION CHIEF	13 OF 19
IN SERVICE: SCALE: NONE		



TRAFFIC SIGNAL OPERATION

4TH STREET BLAIR ROAD AND CEDAR STREET, N.W.

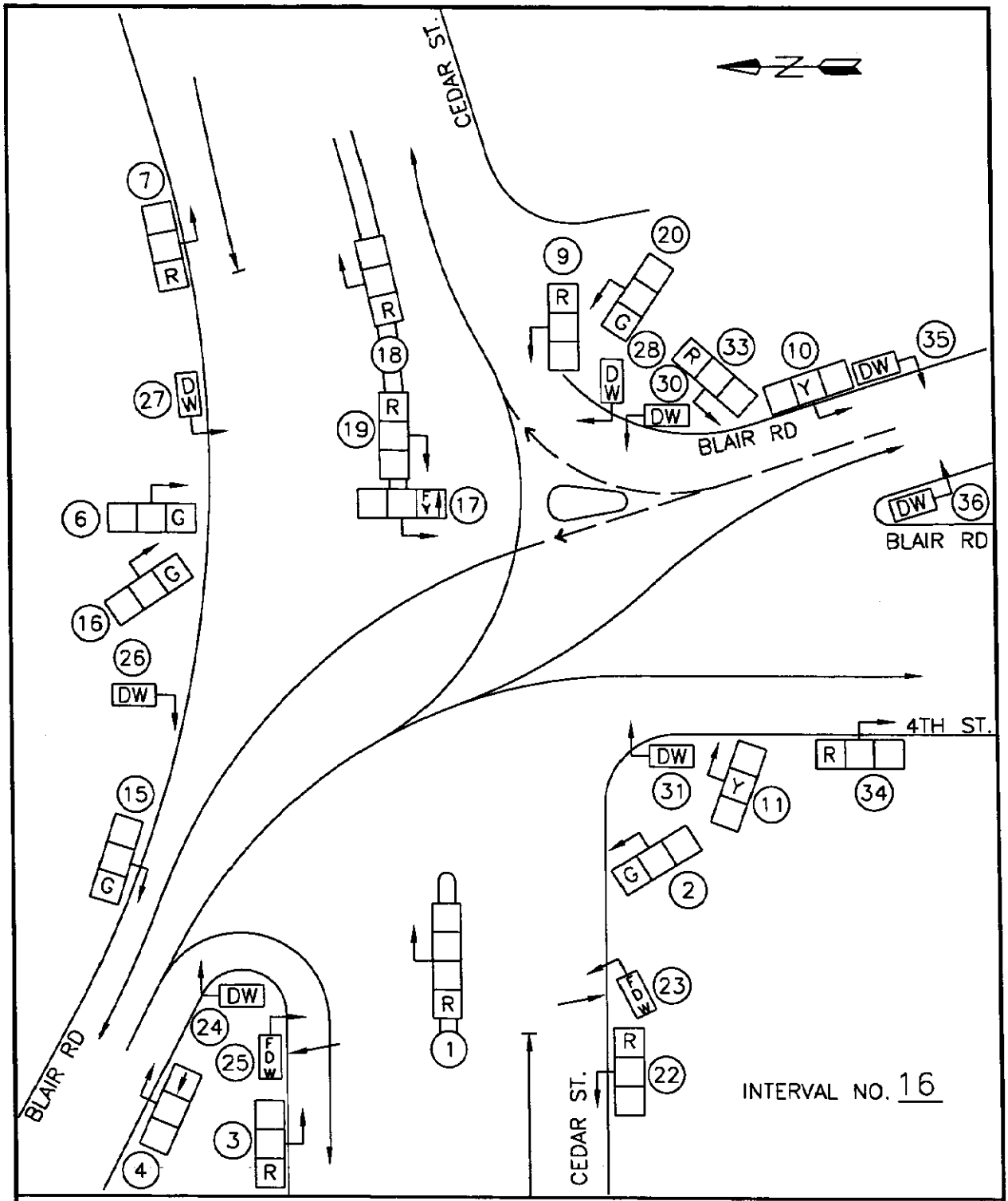
D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY:	T.S. 213-1
CHECK BY: DATE:	SUBMITTED BY: CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY DATE:	APPROVED BY: DIVISION CHIEF	14 OF 19
IN SERVICE: SCALE: NONE		



TRAFFIC SIGNAL OPERATION

4TH STREET BLAIR ROAD AND CEDAR STREET, N.W.

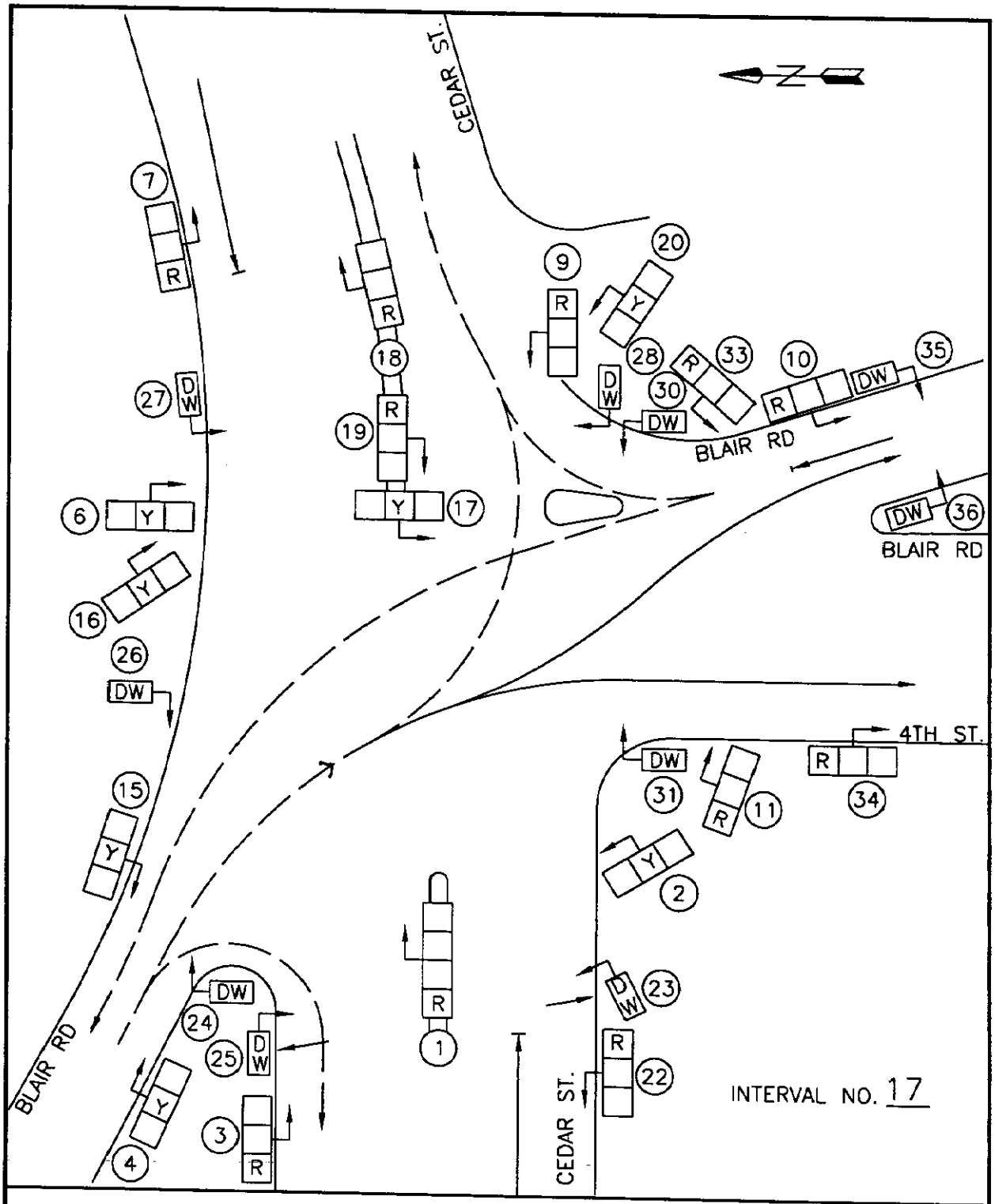
D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY:	T.S. 213-1
CHECK BY: DATE:	SUBMITTED BY: _____ CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY DATE:	APPROVED BY: _____ DIVISION CHIEF	15 OF 19
IN SERVICE: SCALE: NONE		



TRAFFIC SIGNAL OPERATION

4TH STREET BLAIR ROAD AND CEDAR STREET, N.W.

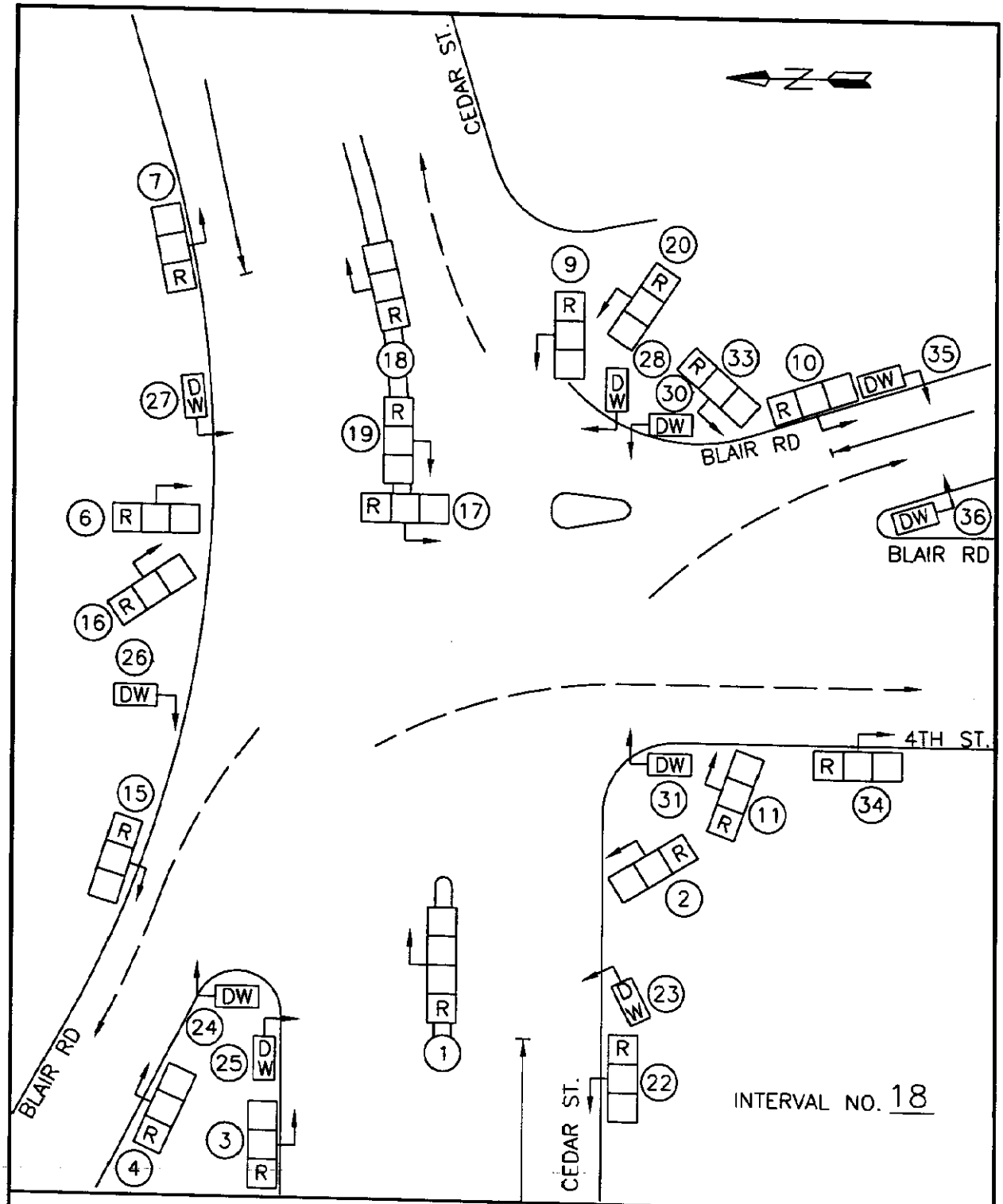
D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY:	T.S. 213-1
CHECK BY: DATE:	SUBMITTED BY: CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY DATE:	APPROVED BY: DIVISION CHIEF	16 OF 19
IN SERVICE: SCALE: NONE		



TRAFFIC SIGNAL OPERATION

4TH STREET BLAIR ROAD AND CEDAR STREET, N.W.

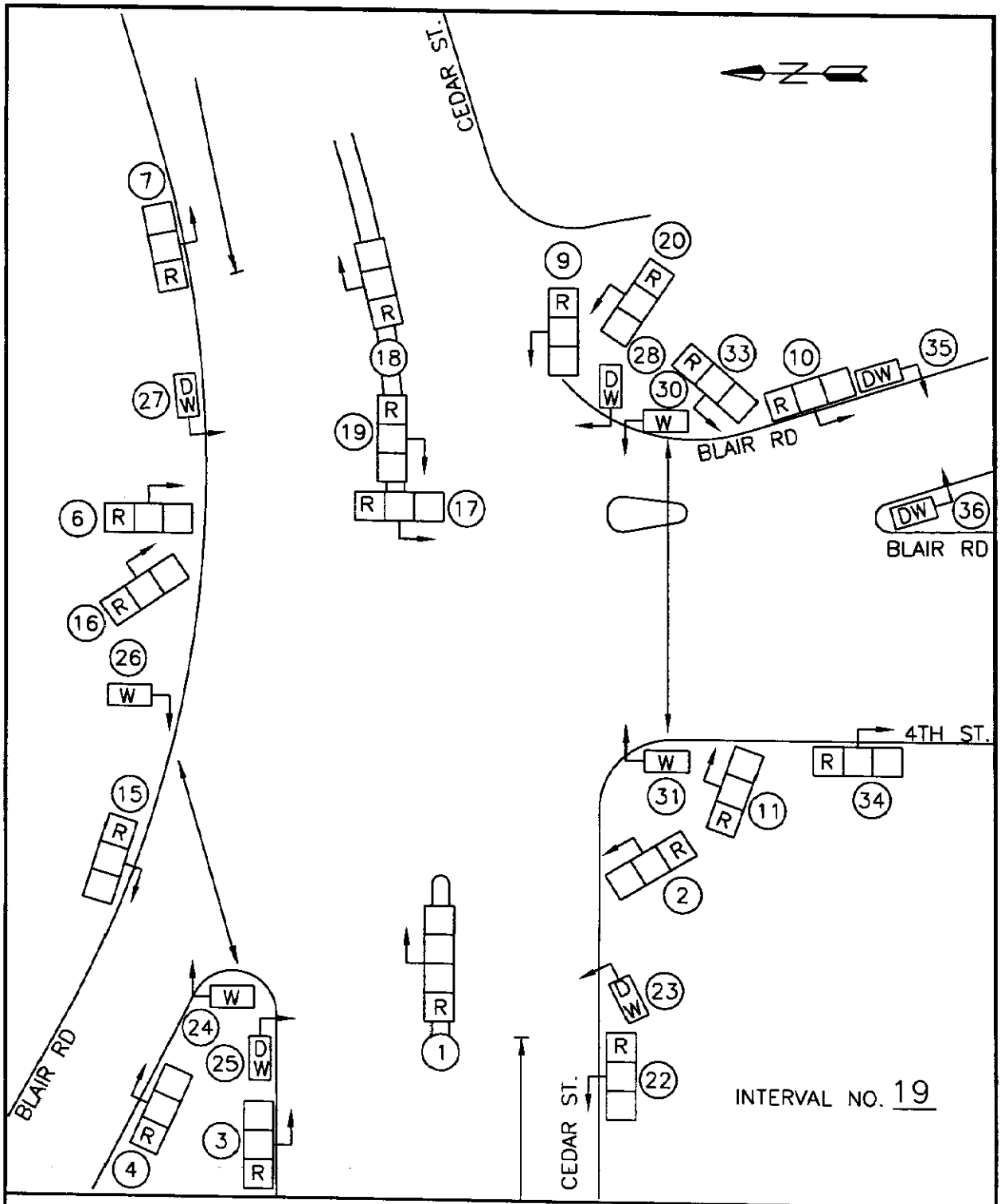
D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY:	T.S.	
CHECK BY: DATE:	SUBMITTED BY: CHIEF, SIGNAL DESIGN BRANCH	213-1	
DRAWN BY: BY DATE:		SHEET	
IN SERVICE: SCALE: NONE	APPROVED BY: DIVISION CHIEF	17 OF 19	



TRAFFIC SIGNAL OPERATION

4TH STREET BLAIR ROAD AND CEDAR STREET, N.W.

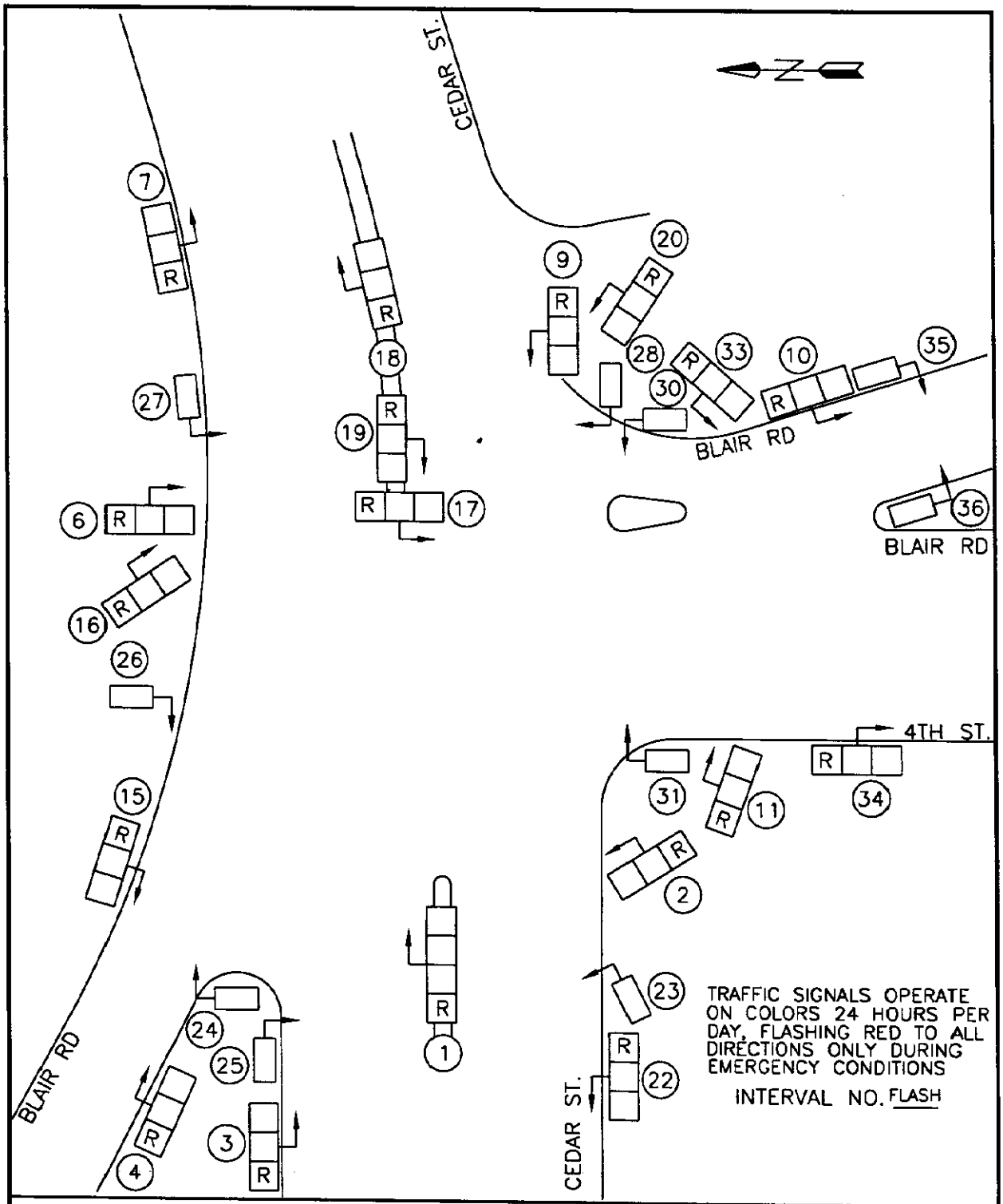
D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION		DESIGNED BY:	T.S. 213-1
CHECK BY:	DATE:	SUBMITTED BY: _____ CHIEF, SIGNAL DESIGN BRANCH	SHEET 18 OF 19
DRAWN BY: BY	DATE:	APPROVED BY: _____ DIVISION CHIEF	
IN SERVICE:	SCALE: NONE		



TRAFFIC SIGNAL OPERATION

4TH STREET BLAIR ROAD AND CEDAR STREET, N.W.

D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY:	T.S. 213-1
CHECK BY: DATE:	SUBMITTED BY: CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY DATE:	APPROVED BY: DIVISION CHIEF	19 OF 19
IN SERVICE: SCALE: NONE		



TRAFFIC SIGNAL OPERATION

4TH STREET BLAIR ROAD AND CEDAR STREET, N.W.

D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION		DESIGNED BY:	T.S. 213-1
CHECK BY:	DATE:	SUBMITTED BY: _____ CHIEF, SIGNAL DESIGN BRANCH	SHEET FLASH
DRAWN BY: BY	DATE:	APPROVED BY: _____ DIVISION CHIEF	OF
IN SERVICE:	SCALE: NONE		

TIMING PLAN SCHEDULE		
PLAN	PERIOD	DATE
1	OFF PEAK - 70	
2	AM PEAK - 80	
3	PM PEAK - 80	
4	OFF PEAK - 100	
5	AM PEAK - 100	
6	PM PEAK - 100	
7	AM PEAK - 120	
8	PM PEAK - 120	

TS- 541-D

CARROLL STREET AND CEDAR STREET, N.W.

LOCATION

DEPARTMENT OF TRANSPORTATION

WASHINGTON, D.C.

TRAFFIC SERVICES ADMINISTRATION

S-DRAWING NO: | SHEET: 1

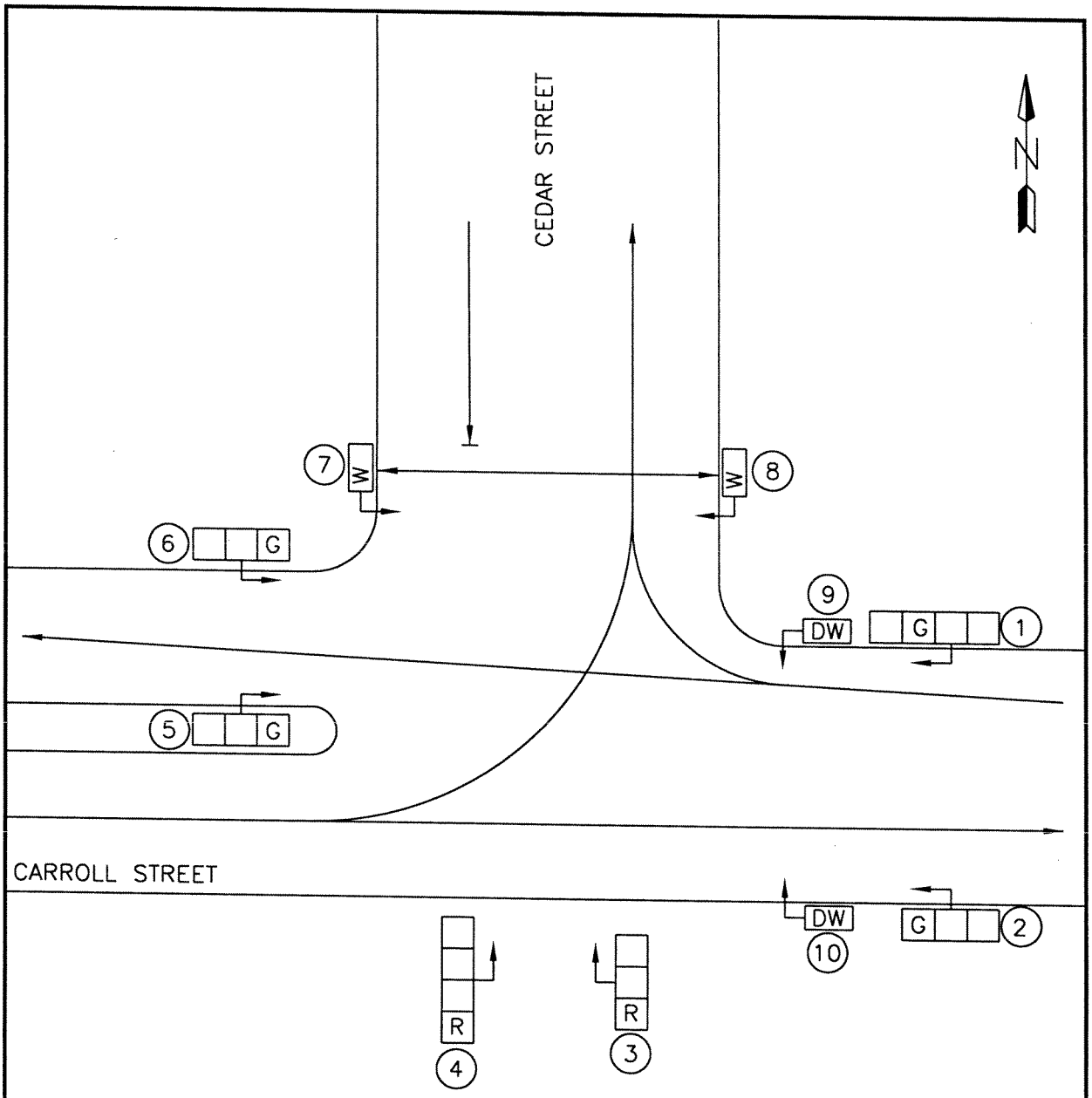
Int. Sketch

CONTROLLER	ISNUM	ACISA
170	879	5114

DESCRIPTION (INTERSECTION / STREET / DIRECTION)	INTERVAL TYPE	INTERVAL NUMBER	TIMING PLAN NUMBER 1 S	1 C	2 S	2 C	3 S	3 C	4 S	4 C	5 S	5 C	6 S	6 C	7 S	7 C	8 S	8 C	S	C	S	C
CARROLL STREET EB GREEN, WB GREEN + W (NS)	F	1	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10				
CARROLL STREET EB GREEN, WB GREEN + W (NS)	V	2	9	(19)	25	(35)	7	(17)	24	(34)	45	(55)	17	(27)	65	(75)	27	(37)				
CARROLL STREET EB GREEN, WB GREEN + FDW (NS)	F	3	10	29	10	45	10	27	10	44	10	65	10	37	10	85	10	47				
CARROLL STREET EB GREEN, WB YELLOW + DW (NS)	F	4	4	33	4	49	4	31	4	48	4	69	4	41	4	89	4	51				
CARROLL STREET EB GREEN ← G , WB RED , CEDAR STREET RED G →	F	5	6	39	6	55	6	37	6	54	6	75	6	47	6	95	6	57				
CARROLL STREET EB GREEN ← G , WB RED , CEDAR STREET RED G →	V	6	5	(44)	1	(56)	15	(52)	10	(64)	1	(76)	20	(67)	1	(96)	25	(82)				
CARROLL STREET EB YELLOW , WB RED , CEDAR STREET RED G →	F	7	4	48	4	60	4	56	4	68	4	80	4	71	4	100	4	86				
CARROLL STREET RED, CEDAR STREET RED G →	F	8	1	49	1	61	1	57	1	69	1	81	1	72	1	101	1	87				
CEDAR STREET GREEN + W (ES)	F	9	7	56	7	68	7	64	7	76	7	88	7	79	7	108	7	94				
CEDAR STREET GREEN + W (ES)	V	10	3	(59)	1	(69)	5	(69)	13	(89)	1	(89)	10	(89)	1	(109)	15	(109)				
CEDAR STREET GREEN + FDW (ES)	F	11	6	65	6	75	6	75	6	95	6	95	6	95	6	115	6	115				
CEDAR STREET YELLOW + DW (ES)	F	12	4	69	4	79	4	79	4	99	4	99	4	99	4	119	4	119				
ALL RED	F	13	1	70	1	80	1	80	1	100	1	100	1	100	1	120	1	120				
CYCLE LENGTH			70		80		80		100		100		100		120		120					
OFFSET			42		60		78		42		60		78		60		112					
PREPARED BY:															NJ							
DATE TO SHOP:																						
WORK OR SHOP ORDER NO.													503		03		47					
APPROVED BY:			WWM		WWM		WWM		WWM		WWM		WWM		WWM		WWM					
DATE INSTALLED:																						
INSTALLED BY:																						

S=Seconds C=Cummulative secs F=Fixed interval V=Variable Interval ◯ = Force Off (circle the interval)

20010416

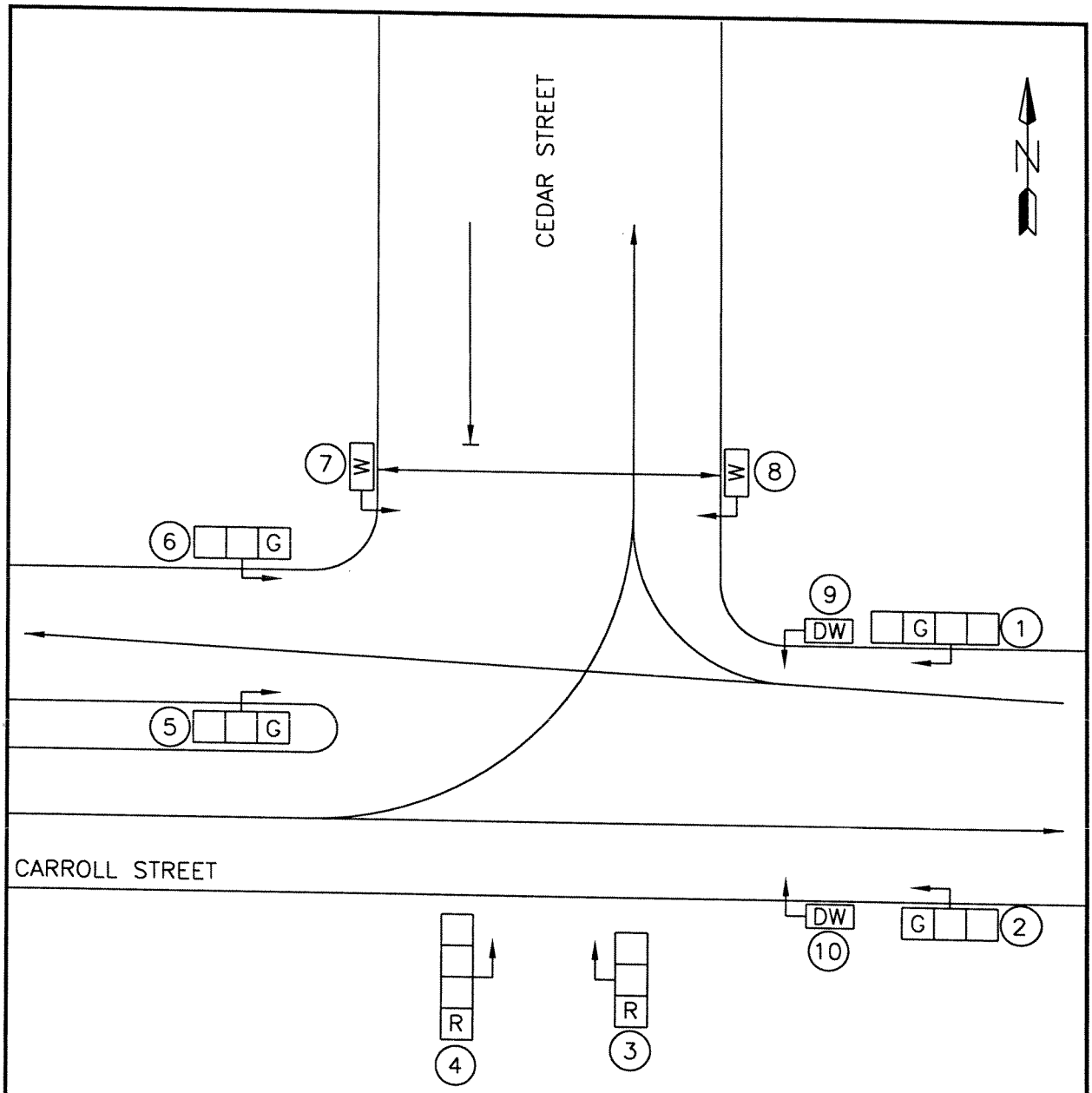


INTERVAL NO. 1

TRAFFIC SIGNAL OPERATION

CARROLL STREET AND CEDAR STREET, N.W.

D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY: NJ	T.S. 541-D
CHECK BY: J.E. ANIAGBOSO DATE: 9/29/04	SUBMITTED BY: Johnny Aniagbosso 9/30/04 CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY DATE:	APPROVED BY: William W. McGuirk 9/29/04 DIVISION CHIEF	1 OF 13
IN SERVICE: SCALE: NONE		

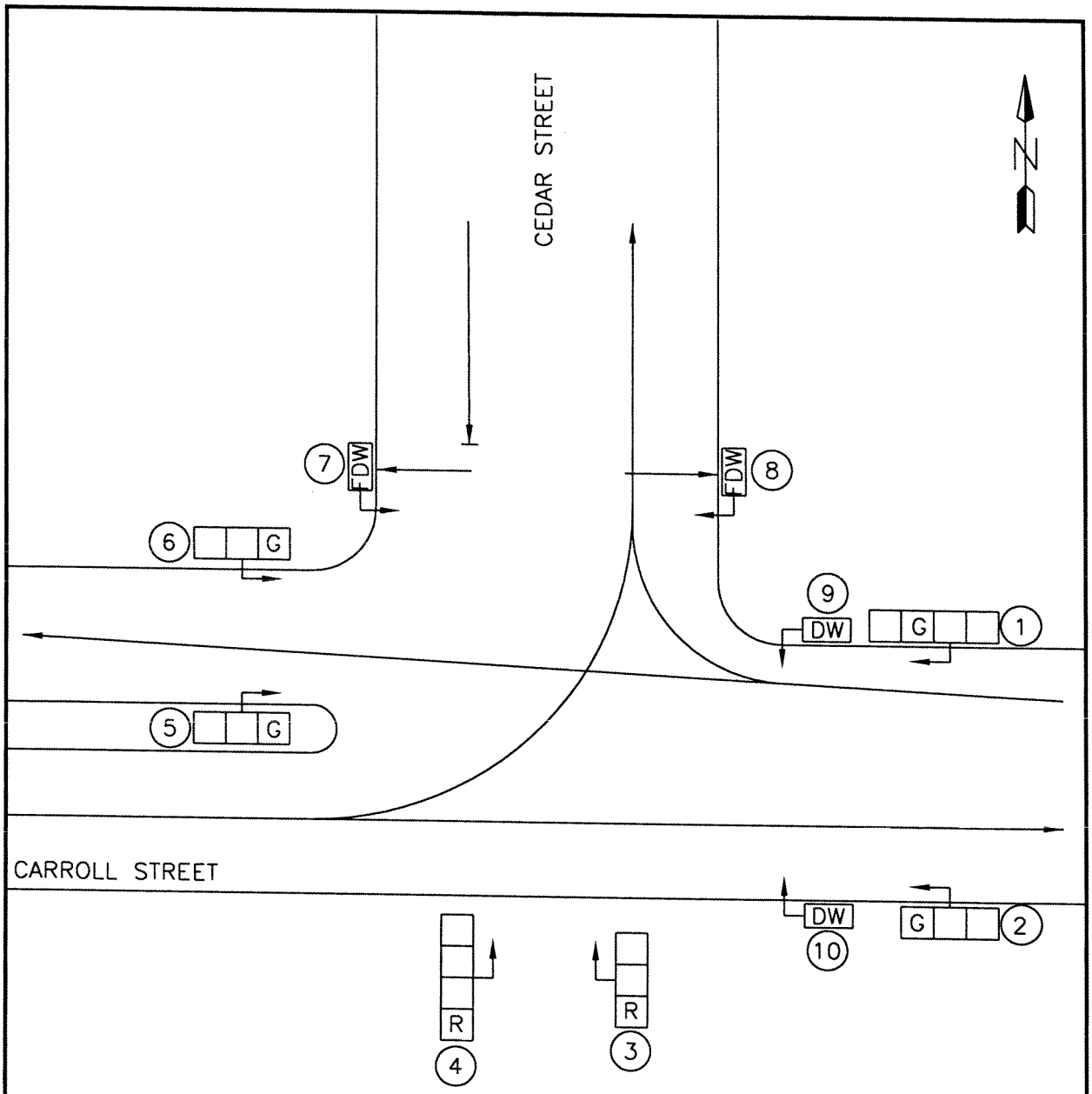


INTERVAL NO. 2

TRAFFIC SIGNAL OPERATION

CARROLL STREET AND CEDAR STREET, N.W.

D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION		DESIGNED BY:	T.S. 541-D
CHECK BY:	DATE:	SUBMITTED BY: _____ CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY	DATE:		
IN SERVICE:	SCALE: NONE	APPROVED BY: _____ DIVISION CHIEF	2 OF 13

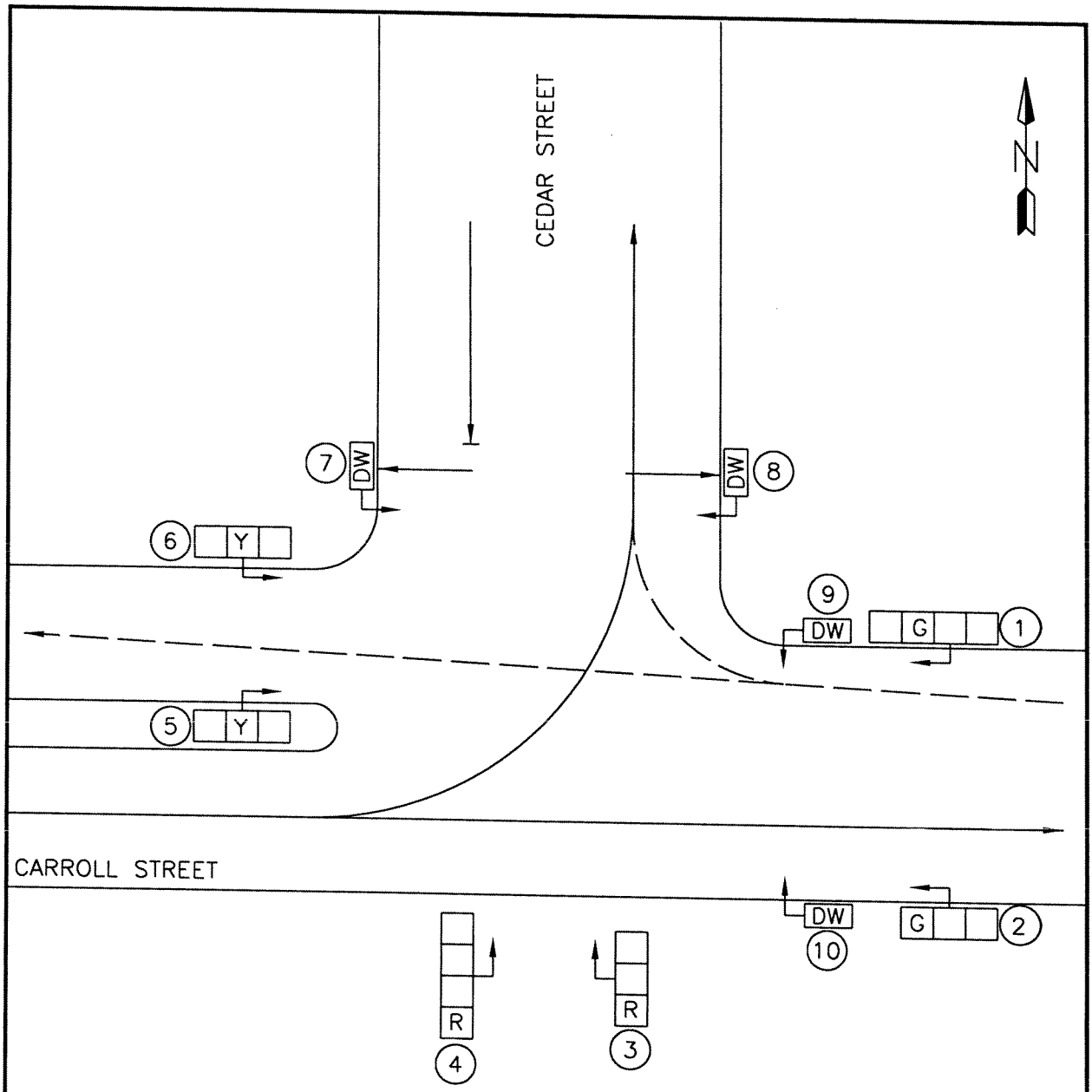


INTERVAL NO. 3

TRAFFIC SIGNAL OPERATION

CARROLL STREET AND CEDAR STREET, N.W.

D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY:	T.S. 541-D
CHECK BY: DATE:	SUBMITTED BY: _____ CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY DATE:	APPROVED BY: _____ DIVISION CHIEF	3 OF 13
IN SERVICE: SCALE: NONE		

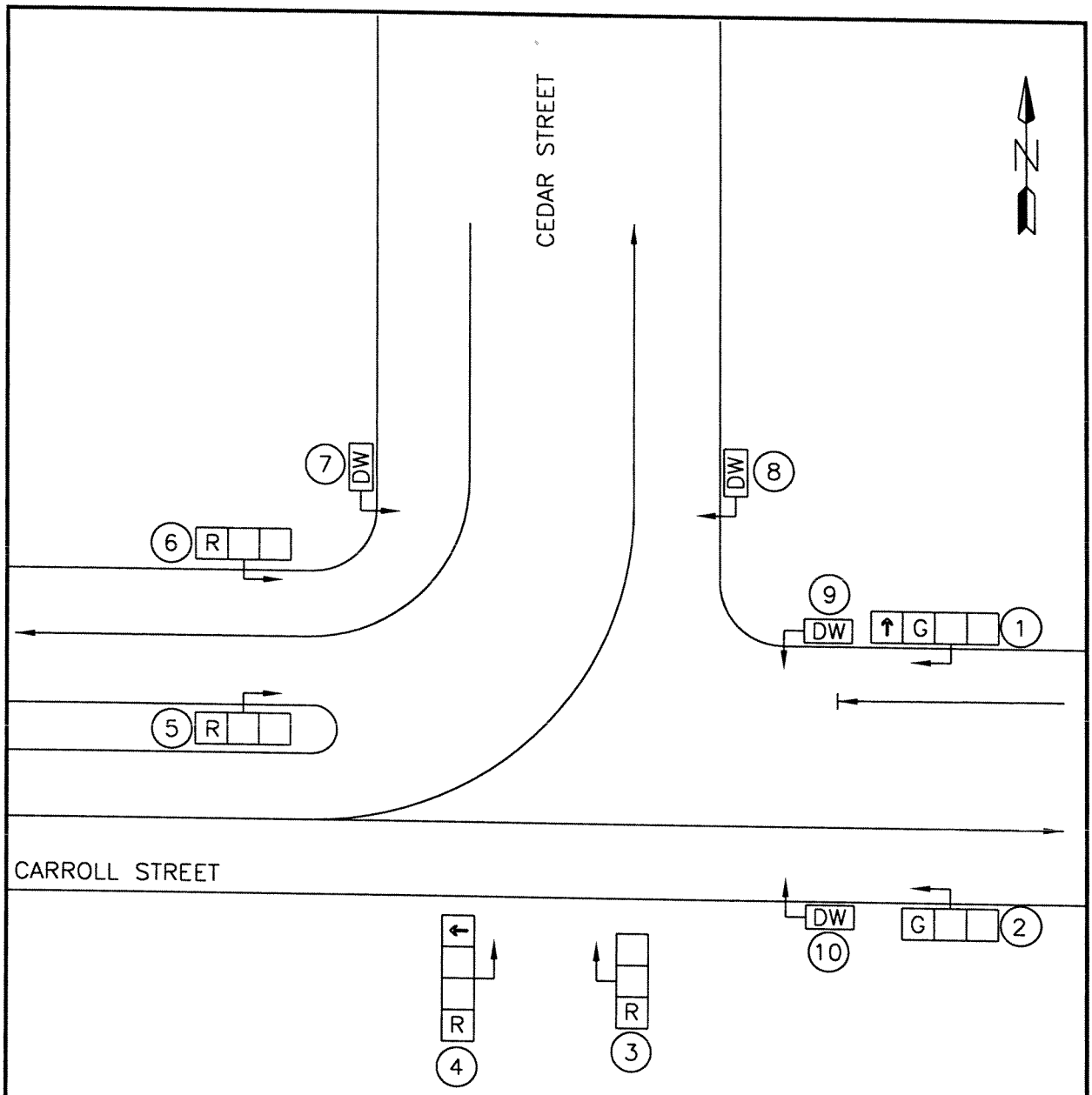


INTERVAL NO. 4

TRAFFIC SIGNAL OPERATION

CARROLL STREET AND CEDAR STREET, N.W.

D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY:	T.S. 541-D
CHECK BY: DATE:	SUBMITTED BY: _____ CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY DATE:	APPROVED BY: _____ DIVISION CHIEF	4 OF 13
IN SERVICE: SCALE: NONE		

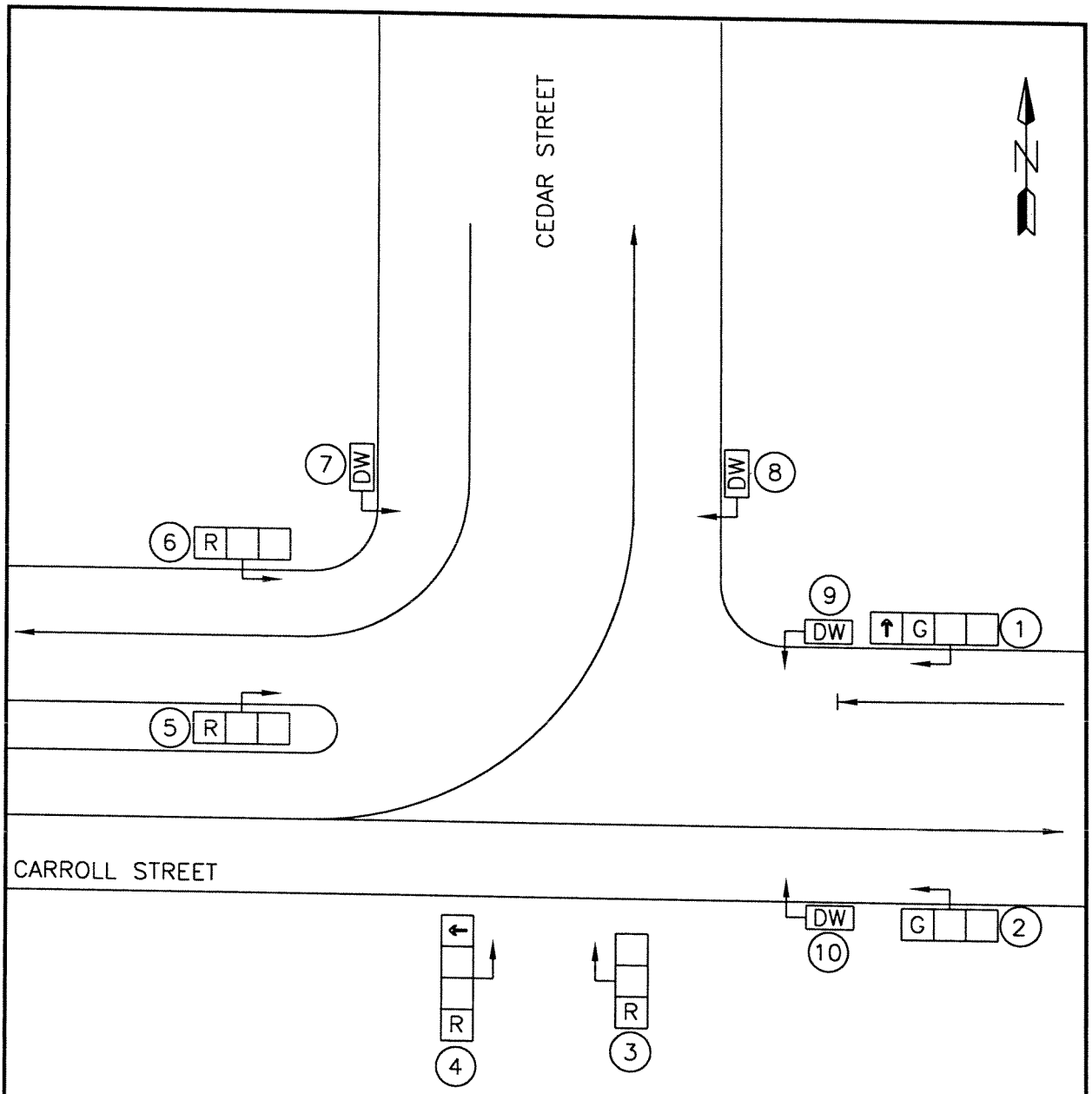


INTERVAL NO. 5

TRAFFIC SIGNAL OPERATION

CARROLL STREET AND CEDAR STREET, N.W.

D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY:	T.S. 541-D
CHECK BY: DATE:	SUBMITTED BY: _____ CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY DATE:	APPROVED BY: _____ DIVISION CHIEF	5 OF 13
IN SERVICE: SCALE: NONE		

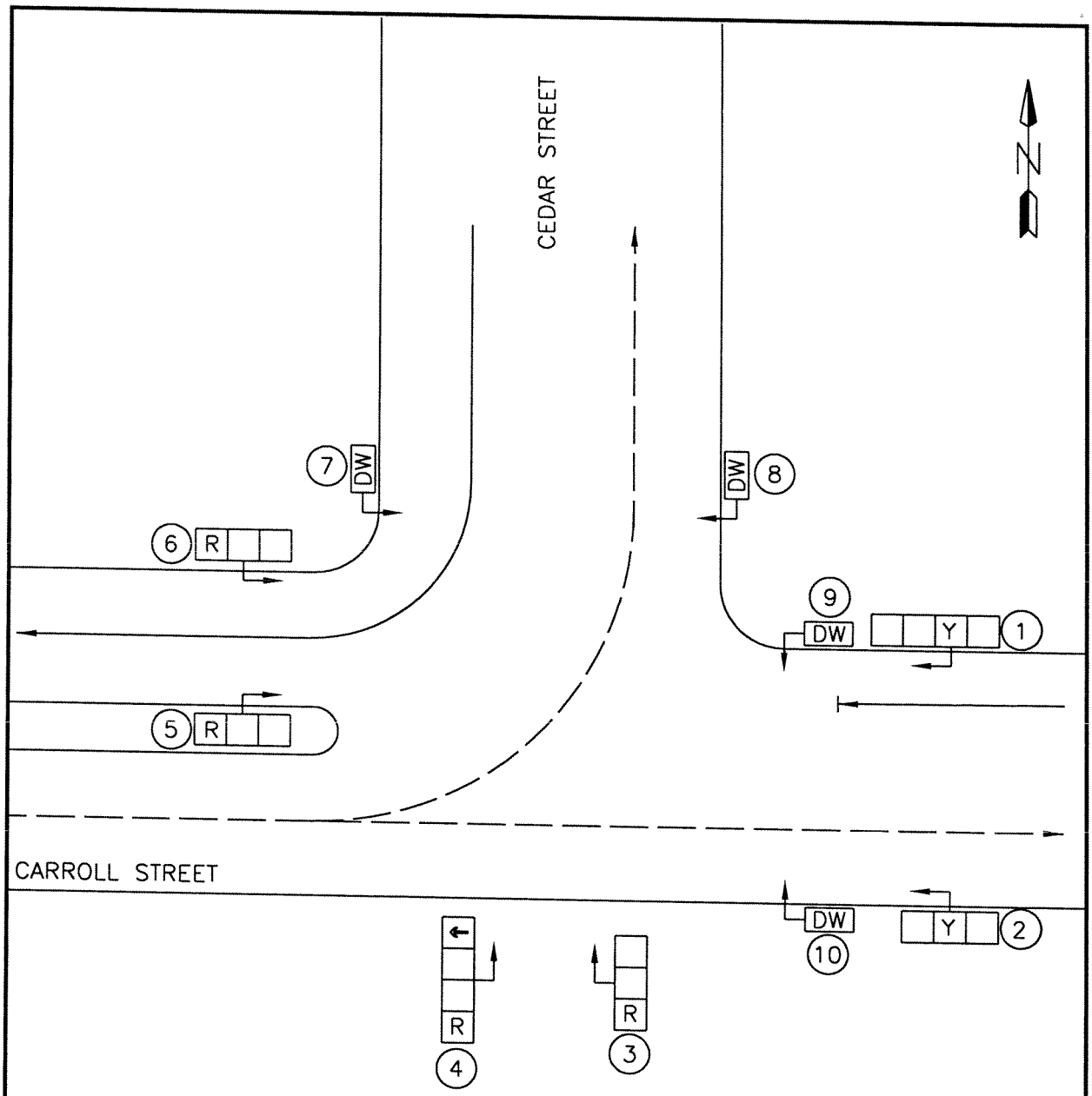


INTERVAL NO. 6

TRAFFIC SIGNAL OPERATION

CARROLL STREET AND CEDAR STREET, N.W.

D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY:	T.S. 541-D
CHECK BY: DATE:	SUBMITTED BY: _____ CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY DATE:	APPROVED BY: _____ DIVISION CHIEF	6 OF 13
IN SERVICE: SCALE: NONE		

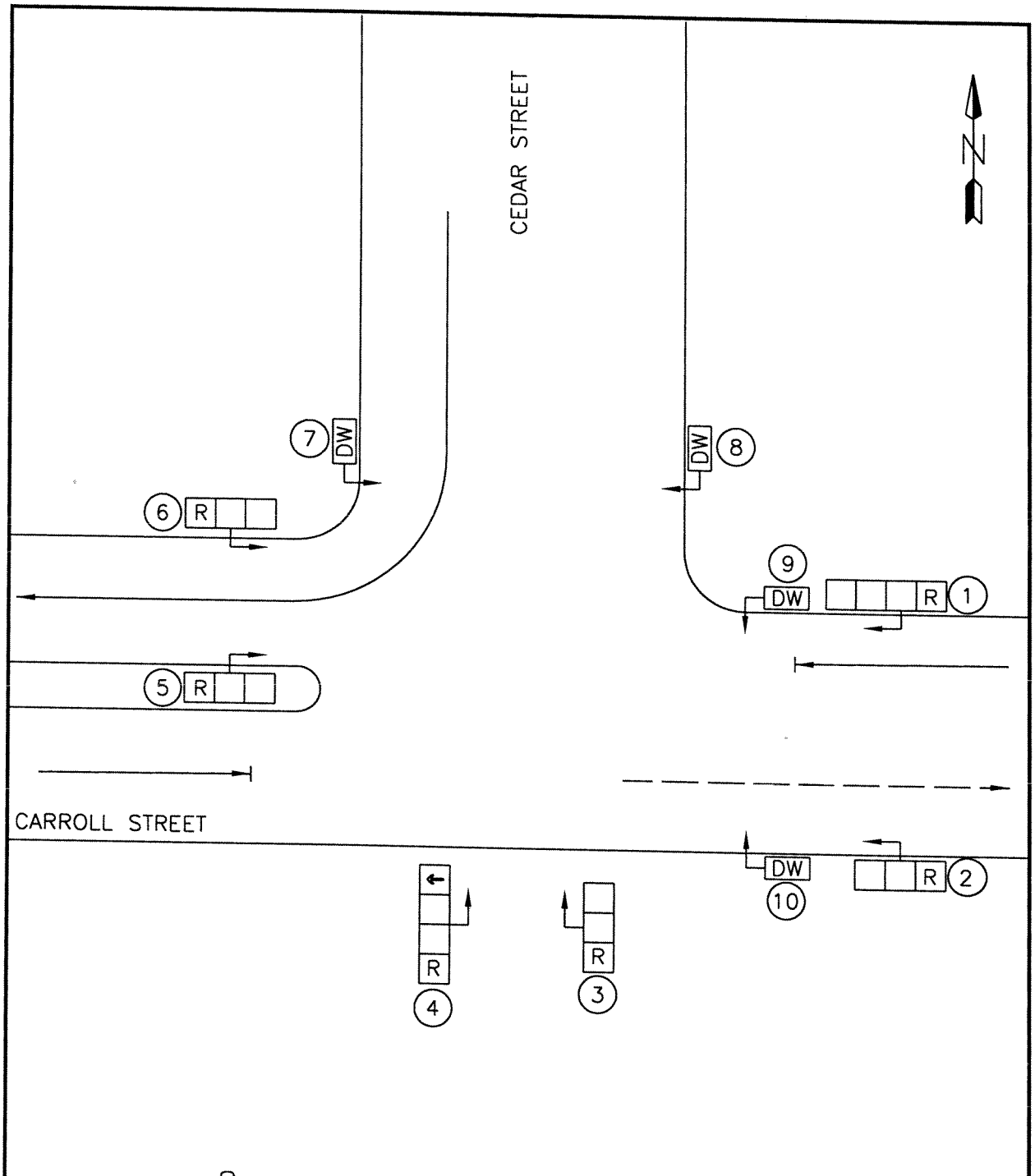


INTERVAL NO. 7

TRAFFIC SIGNAL OPERATION

CARROLL STREET AND CEDAR STREET, N.W.

D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY:	T.S. 541-D
CHECK BY: DATE:	SUBMITTED BY: _____ CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY DATE:	APPROVED BY: _____ DIVISION CHIEF	7 OF 13
IN SERVICE: SCALE: NONE		

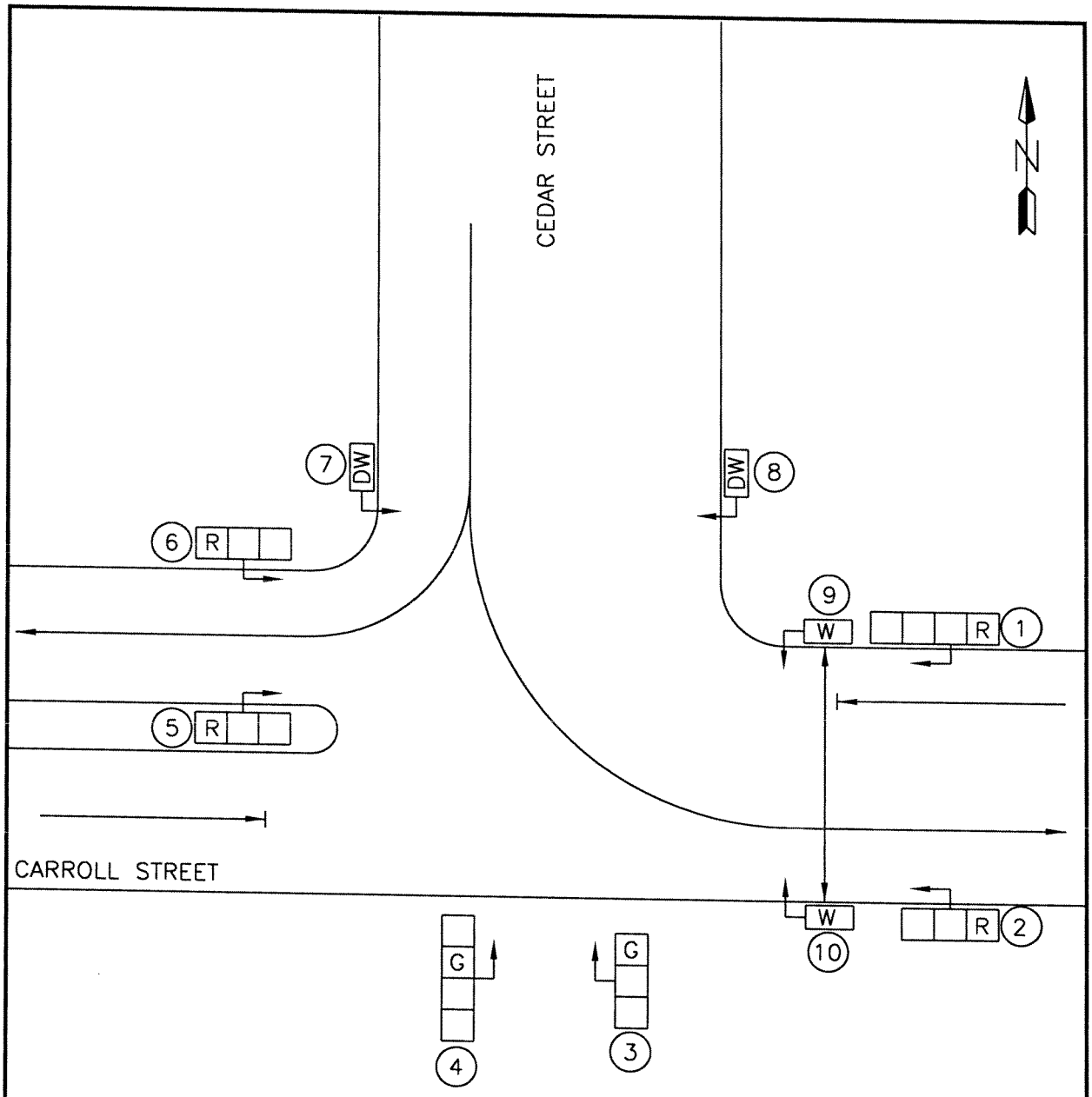


INTERVAL NO. 8

TRAFFIC SIGNAL OPERATION

CARROLL STREET AND CEDAR STREET, N.W.

D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION		DESIGNED BY:	T.S. 541-D
CHECK BY:	DATE:	SUBMITTED BY: _____ CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY	DATE:		
IN SERVICE:	SCALE: NONE	APPROVED BY: _____ DIVISION CHIEF	8 OF 13

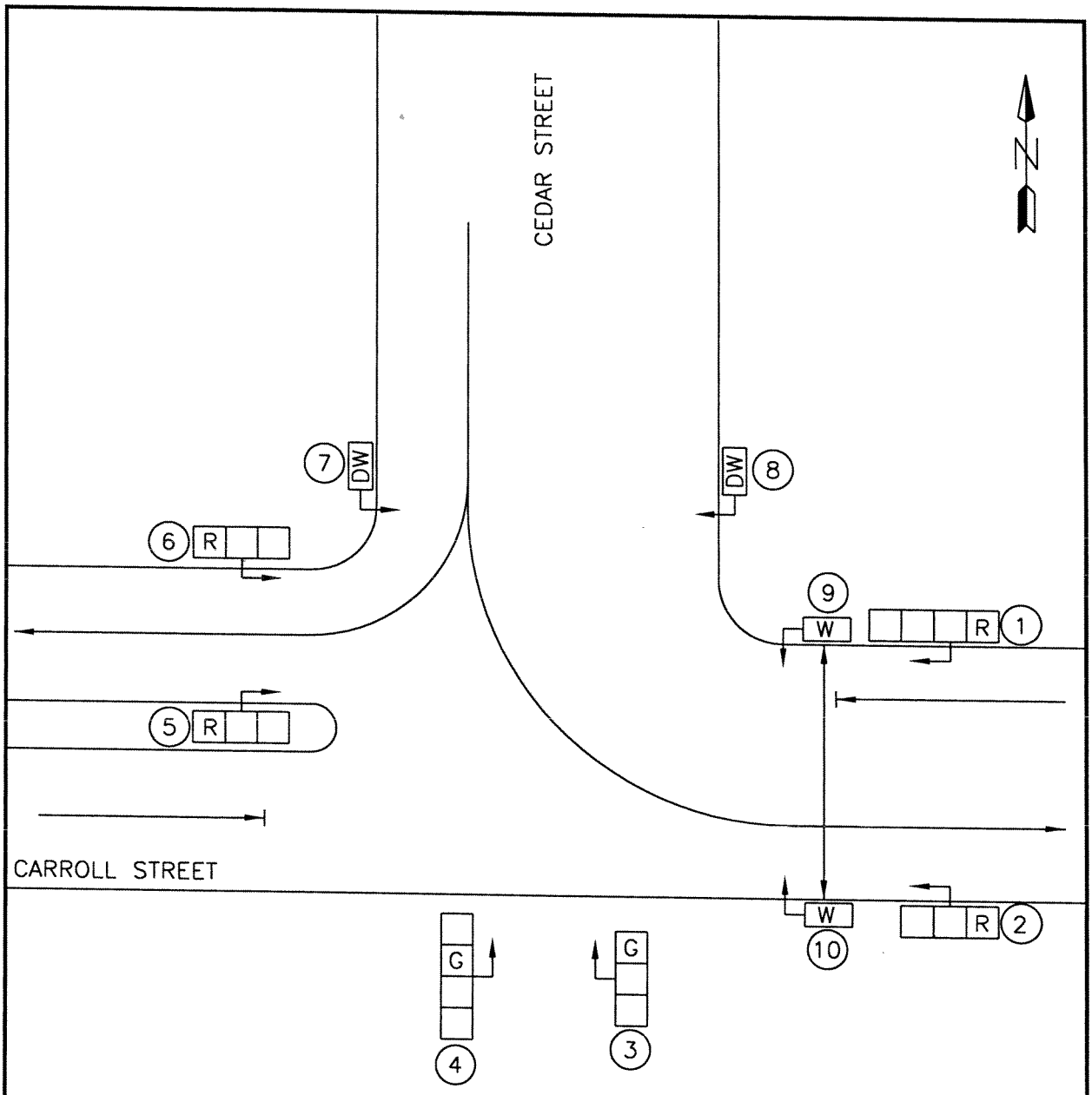


INTERVAL NO. 9

TRAFFIC SIGNAL OPERATION

CARROLL STREET AND CEDAR STREET, N.W.

D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION		DESIGNED BY:	T.S. 541-D
CHECK BY:	DATE:	SUBMITTED BY: _____ CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY	DATE:		
IN SERVICE:	SCALE: NONE	APPROVED BY: _____ DIVISION CHIEF	9 OF 13

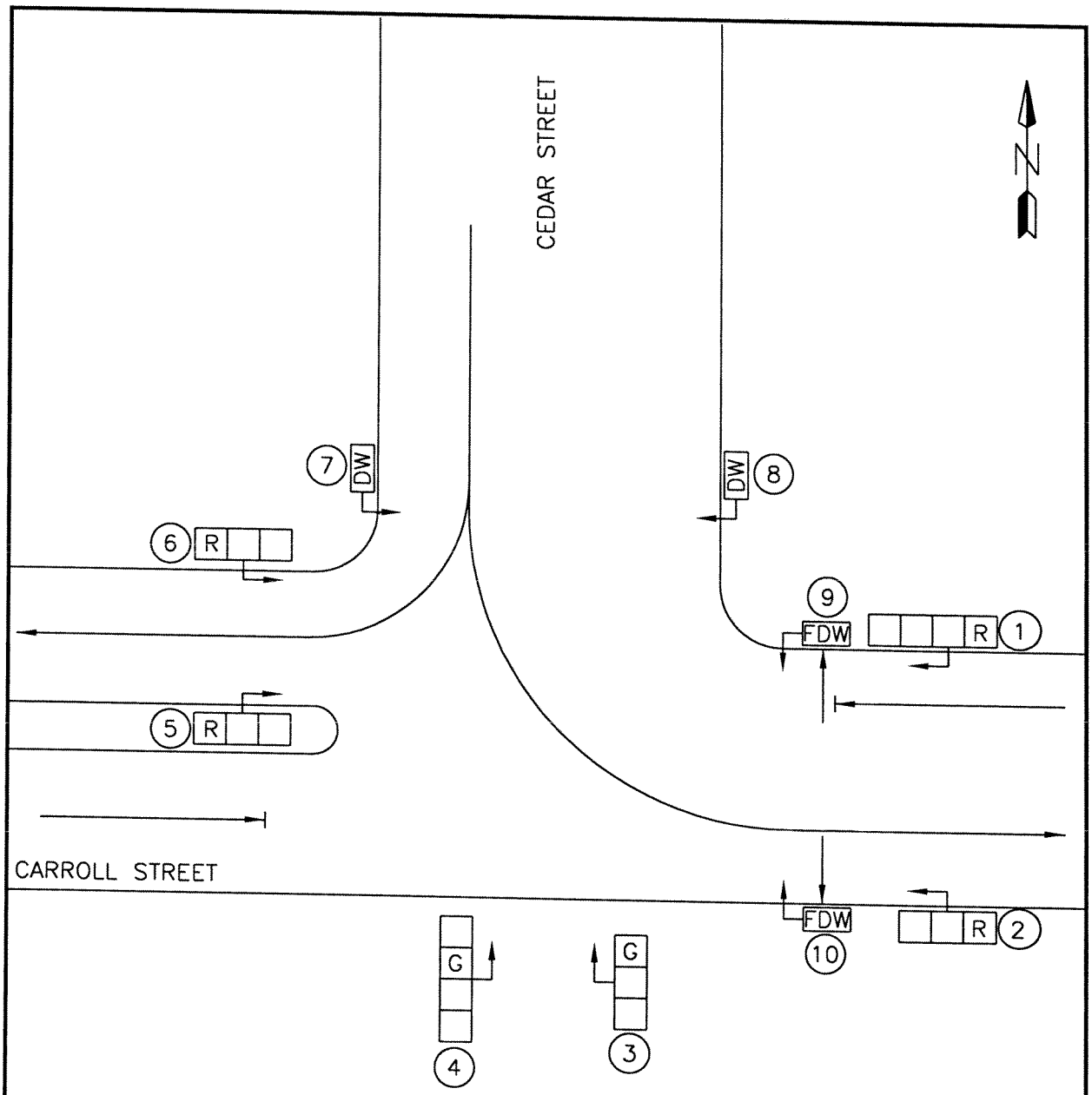


INTERVAL NO. 10

TRAFFIC SIGNAL OPERATION

CARROLL STREET AND CEDAR STREET, N.W.

D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION		DESIGNED BY:	T.S. 541-D
CHECK BY:	DATE:	SUBMITTED BY: _____ CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY	DATE:		
IN SERVICE:	SCALE: NONE	APPROVED BY: _____ DIVISION CHIEF	10 OF 13

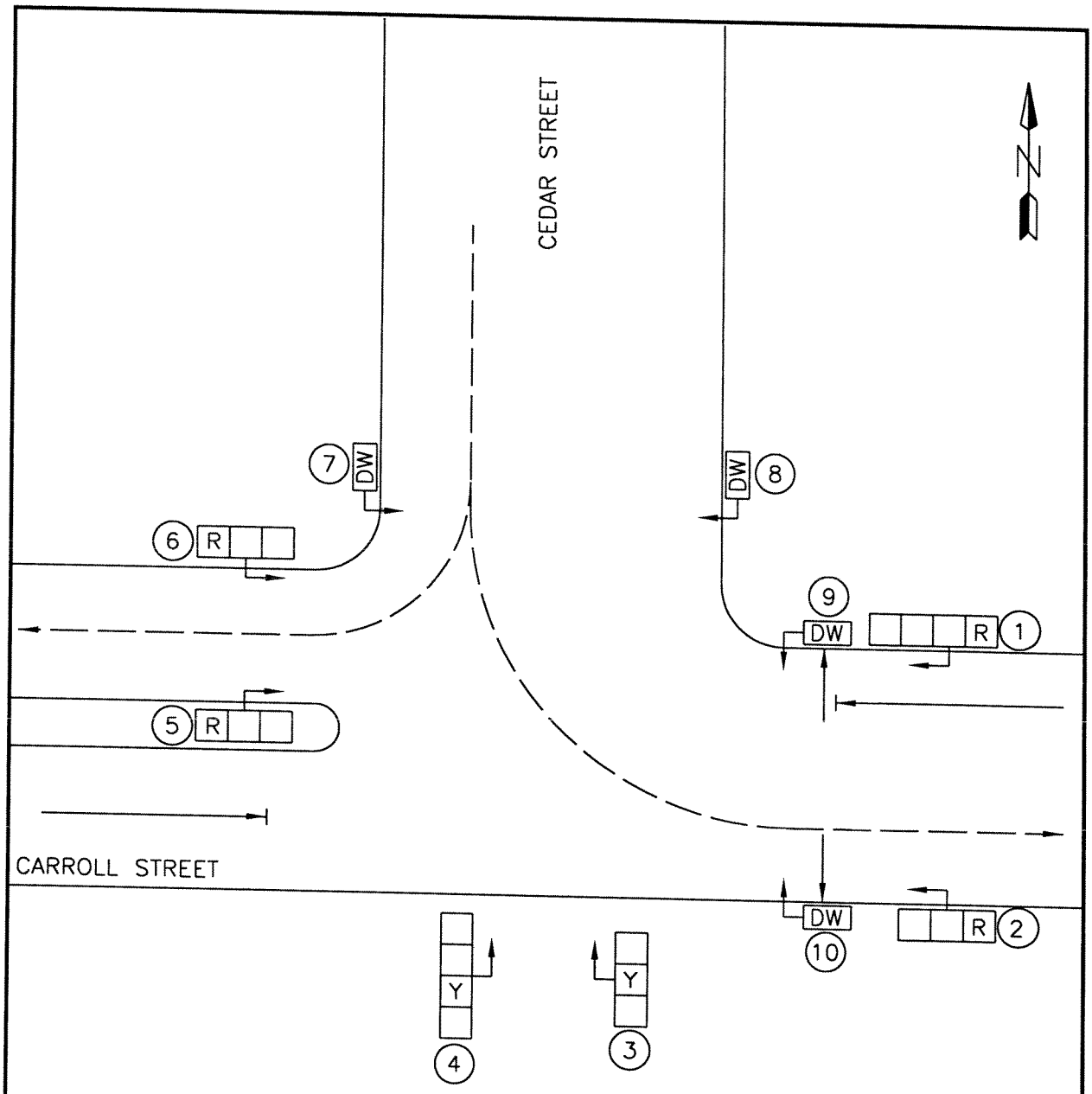


INTERVAL NO. 11

TRAFFIC SIGNAL OPERATION

CARROLL STREET AND CEDAR STREET, N.W.

D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY: _____	T.S. 541-D
CHECK BY: DATE:	SUBMITTED BY: _____ CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY DATE:	APPROVED BY: _____ DIVISION CHIEF	11 OF 13
IN SERVICE: SCALE: NONE		

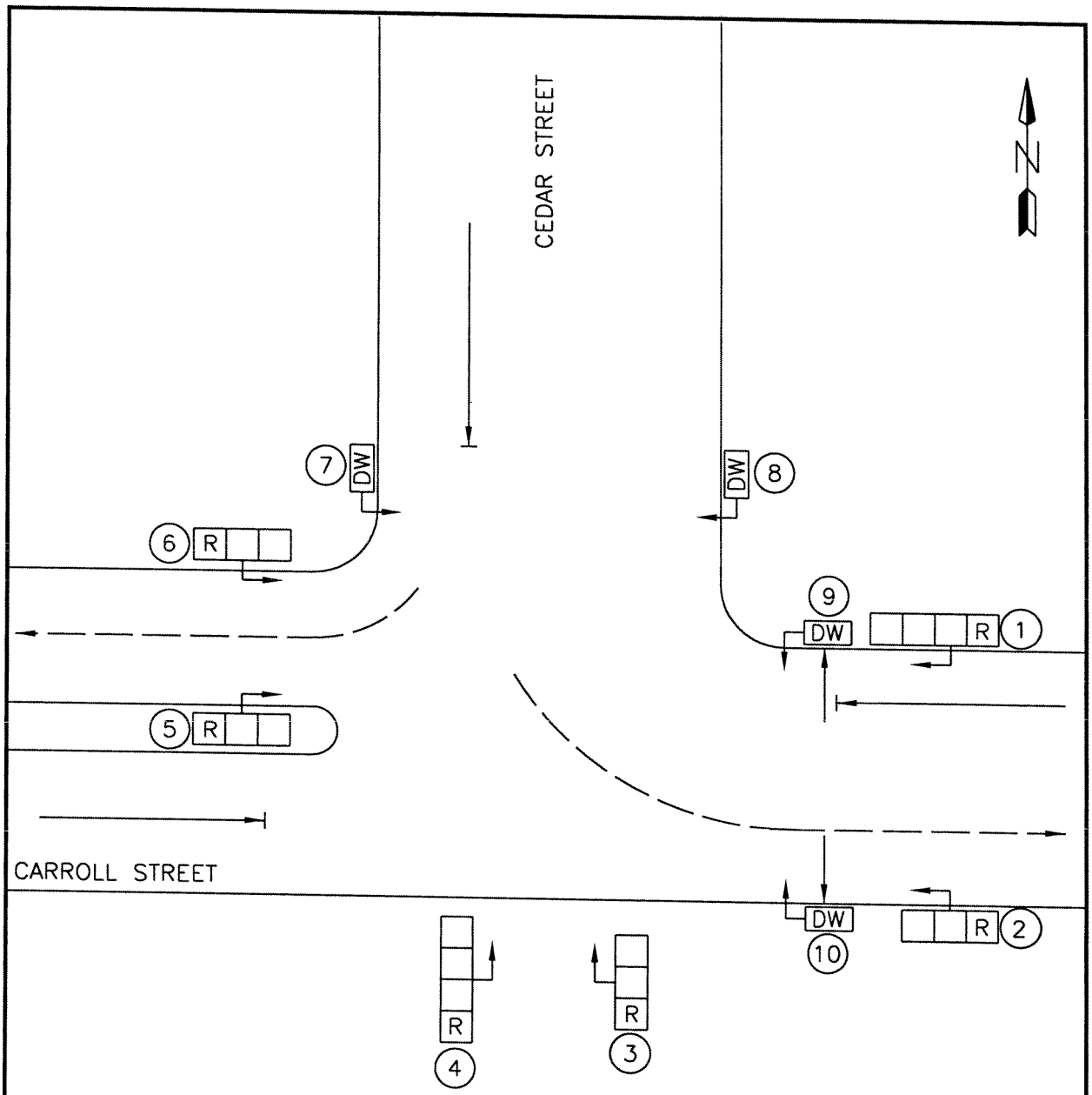


INTERVAL NO. 12

TRAFFIC SIGNAL OPERATION

CARROLL STREET AND CEDAR STREET, N.W.

D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY:	T.S. 541-D
CHECK BY: DATE:	SUBMITTED BY: CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY DATE:	APPROVED BY: DIVISION CHIEF	12 OF 13
IN SERVICE: SCALE: NONE		

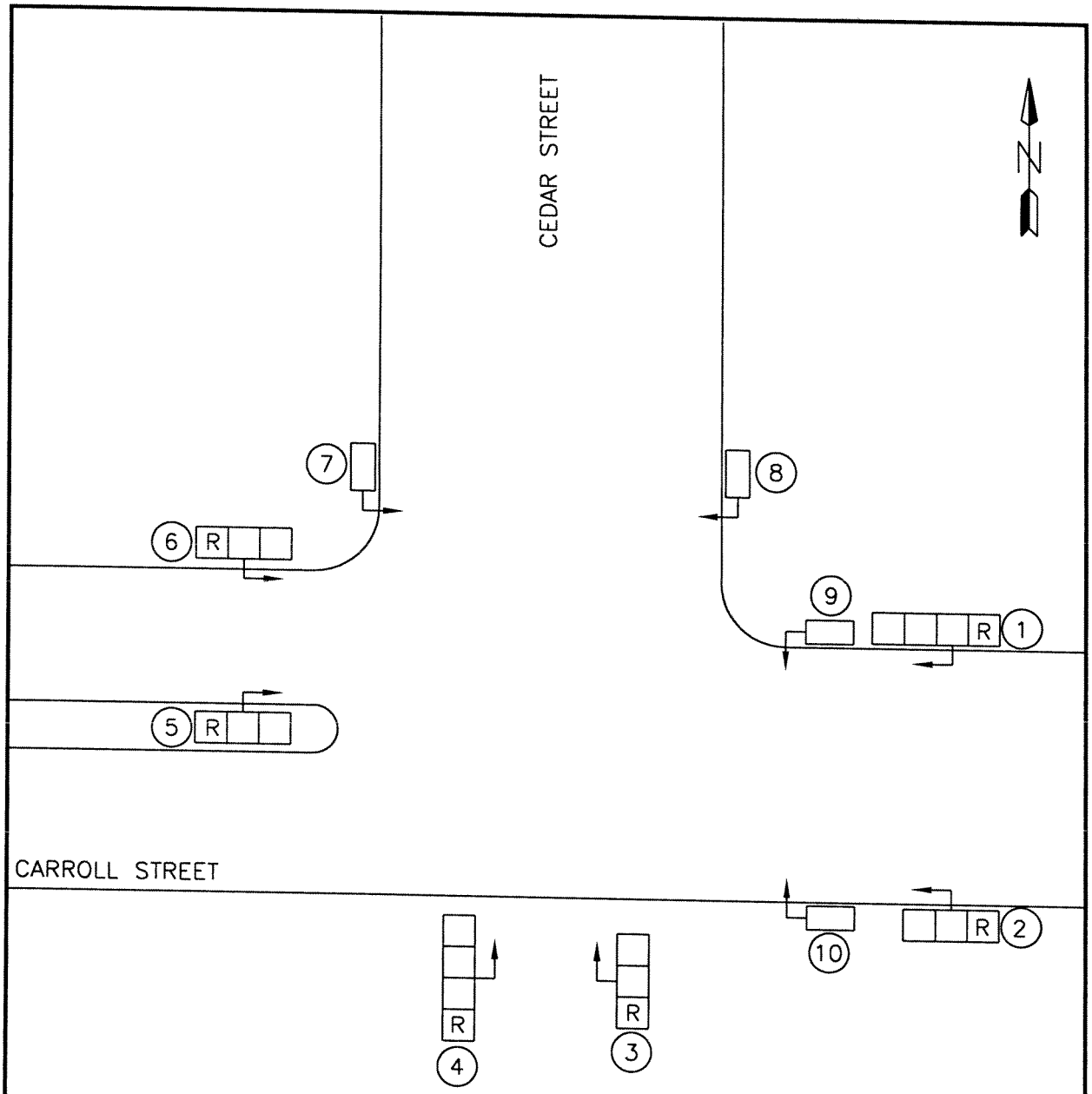


INTERVAL NO. 13

TRAFFIC SIGNAL OPERATION

CARROLL STREET AND CEDAR STREET, N.W.

D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY:	T.S. 541-D
CHECK BY: DATE:	SUBMITTED BY: CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: BY DATE:	APPROVED BY: DIVISION CHIEF	13 OF 13
IN SERVICE: SCALE: NONE		



INTERVAL NO. FLASH

TRAFFIC SIGNALS OPERATE ON COLORS
24 HOURS PER DAY, FLASHING RED TO
ALL DIRECTIONS ONLY DURING
EMERGENCY CONDITIONS

TRAFFIC SIGNAL OPERATION

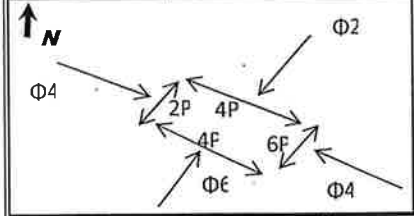
CARROLL STREET AND CEDAR STREET, N.W.

D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION			T.S. 541-D
CHECK BY:	DATE:	DESIGNED BY: _____	
DRAWN BY: BY	DATE:	SUBMITTED BY: _____ CHIEF, SIGNAL DESIGN BRANCH	SHEET
IN SERVICE:	SCALE: NONE	APPROVED BY: _____ DIVISION CHIEF	FLASH OF

233
Rev - 06/06/2012

BLAIR ROAD AND PINEY BRANCH ROAD, N.W.

SHEET NO. 2



DEPARTMENT OF TRANSPORTATION
WASHINGTON, D.C.
TRANSPORTATION OPERATIONS ADMINISTRATION

ACISA ID	5162	TS-	743-G
ISNUM	927	S-	52-F

C + 0 + F = 1 <F + PHASE + INTVL>

		PHASE TIMING BANK PHASE							
		1	2	3	4	5	6	7	8
INTERVAL									
WALK	0		7		7		7		
FLASH D/W	1		7		14		7		
MIN. GREEN	2	5	10		7	5	10		7
TYPE 3 LIMIT	3								
ADD/ VEH	4	3.0				3.0			
VEH EXTENTION	5	3.0				3.0			
MAX GAP	6								
MIN GAP	7								
MAXIMUM	8	20	80		45	20	80		45
MAXIMUM 2	9								
ADVANCE / DELAY WALK	A								
PREEMPT PED. CLEARENCE	B								
CONDITIONAL SERVICE MINIMUM	C								
REDUCE EVERY	D								
YELLOW	E	4	4		4	4	4		4
RED CLEAR	F	1	3		3	1	3		3

PREEMPT TIMING

< F/1 + E + row >		
EVA DELAY	2	
EVA CLEAR	3	
EVB DELAY	4	
EVB CLEAR	5	
EVC DELAY	6	
EVC CLEAR	7	
EVD DELAY	8	
EVD CLEAR	9	
BUS PRIORITY PARAMETERS		
< F/1 + A + row >		
BUS DELAY	D	
MAX EARLY GREEEN	E	
MAX GREEN EXTN	F	
Min Grn Bef PE Forceoff		
MAX PREEMPT TIME		
Min Tiime Btwn Same PE		

COORDINATION FUNCTIONS

FUNCTION	PHASE 1	2	3	4	5	6	7	8
LAG PHASES (Check by phases)				X				
SYNC PHASES (Check by phases)		X				X		

NOTES:

C+0+C=I ; C + <PLAN> + <FEATURE> — COORDINATION TIMING PLAN

FEATURE		1	2	3	4	5	6	7	8	9
CYCLE TIME	0	70	80	80	100	100	100	120	120	
FORCE OFF 1	1	45	46	46	56	56	56	46	56	
FORCE OFF 2	2	0	0	0	0	0	0	0	0	
FORCE OFF 3	3									
FORCE OFF 4	4	32	33	33	43	43	43	33	43	
FORCE OFF 5	5	45	46	46	56	56	56	46	56	
FORCE OFF 6	6	0	0	0	0	0	0	0	0	
FORCE OFF 7	7									
FORCE OFF 8	8	32	33	33	43	43	43	33	43	
OFFSET A	A	50	41	43	70	51	53	81	73	
END PERMISSIVE 1	D									
PRETIMED (Check by co-ord plan)		2,4,6,8	2,4,6,8	2,4,6,8	2,4,6,8	2,4,6,8	2,4,6,8	2,4,6,8	2,4,6,8	
~~MAX RECALL (Check by co-ord plan)~~										
PERM 1 VEH (Check by co-ord plan)		1,4,5,8	1,4,5,8	1,4,5,8	1,4,5,8	1,4,5,8	1,4,5,8	1,4,5,8	1,4,5,8	
PERM 1 PED (Check by co-ord plan)										

EVENT	TIME	PLAN	OFFSET	DAY OF WEEK
EVENT 0	0:00	1	A	1234567
EVENT 1	5:30	5	A	23456
EVENT 2	10:00	4	A	23456
EVENT 3	14:30	6	A	23456
EVENT 4	19:00	1	A	23456
EVENT 5	10:00	4	A	7
EVENT 6	19:00	1	A	7

NOTES:

NOTES: **SET COUNTDOWN SIGNALS TO BEGIN WITH FDW INTERVALS**

C + 0 + E = 29 — OVERLAP CONFIG

FUNCTION	OL A	OL B	OL C	OL D
SET 1 (Overlapped Phases)				
NEG V				
NEG P				
GREEN EXTENSION				
YELLOW EXTENSION				
RED EXTENSION				

C + 0 + E = 125 E + E + FEATURE — CONFIG DATA PHASE

FEATURE		1	2	3	4	5	6	7	8
OVERLAP FL YEL	9								
EM VEH A	A								
EM VEH B	B								
EM VEH C	C								
EM VEH D	D								
EXTRA I	E	X		X		X			
IC SELECT	F		X						

C + 0 + E = 125 E + F + FEATURE — CONFIG DATA PHASE

FEATURE		1	2	3	4	5	6	7	8
PED 2P	5		X						
PED 6P	6						X		
PED 4P	7				X				
PED 8P	8								
FLASH YELLOW	9								
LOW PRIORITY A	A								
LOW PRIORITY B	B								
LOW PRIORITY C	C								
LOW PRIORITY D	D								
RESTRICT	E								
EXTRA 2 BITS	F								

C + 0 + F = 1 F + F + FEATURE — PHASE FUNCTIONS PHASE

FEATURE		1	2	3	4	5	6	7	8
PERMIT	0	X	X		X	X	X		X
RED LOCK	1								
YELLOW LOCK	2								
VEH RECALL	3								
PED RECALL	4		X		X		X		
REST IN WALK	6								
RED REST	7								
DOUBLE ENTRY	8								
MAX RECALL	9		X		X		X		X
SOFT RECALL	A								
~~MAX 2~~	B								
COND SERVICE	C								
EXT CONT. CALL	D								
YELLOW START UP	E								
FIRST PHASE GRN	F		X				X		

C + 0 + F = 2 F + F + FEATURE — PHASE FUNCTIONS PHASE

FEATURE		1	2	3	4	5	6	7	8
GREEN FLASH									
FLASH WALK									
ADVANCED WALK									
DELAYED WALK									

PREPARED BY: Asnake Negussie

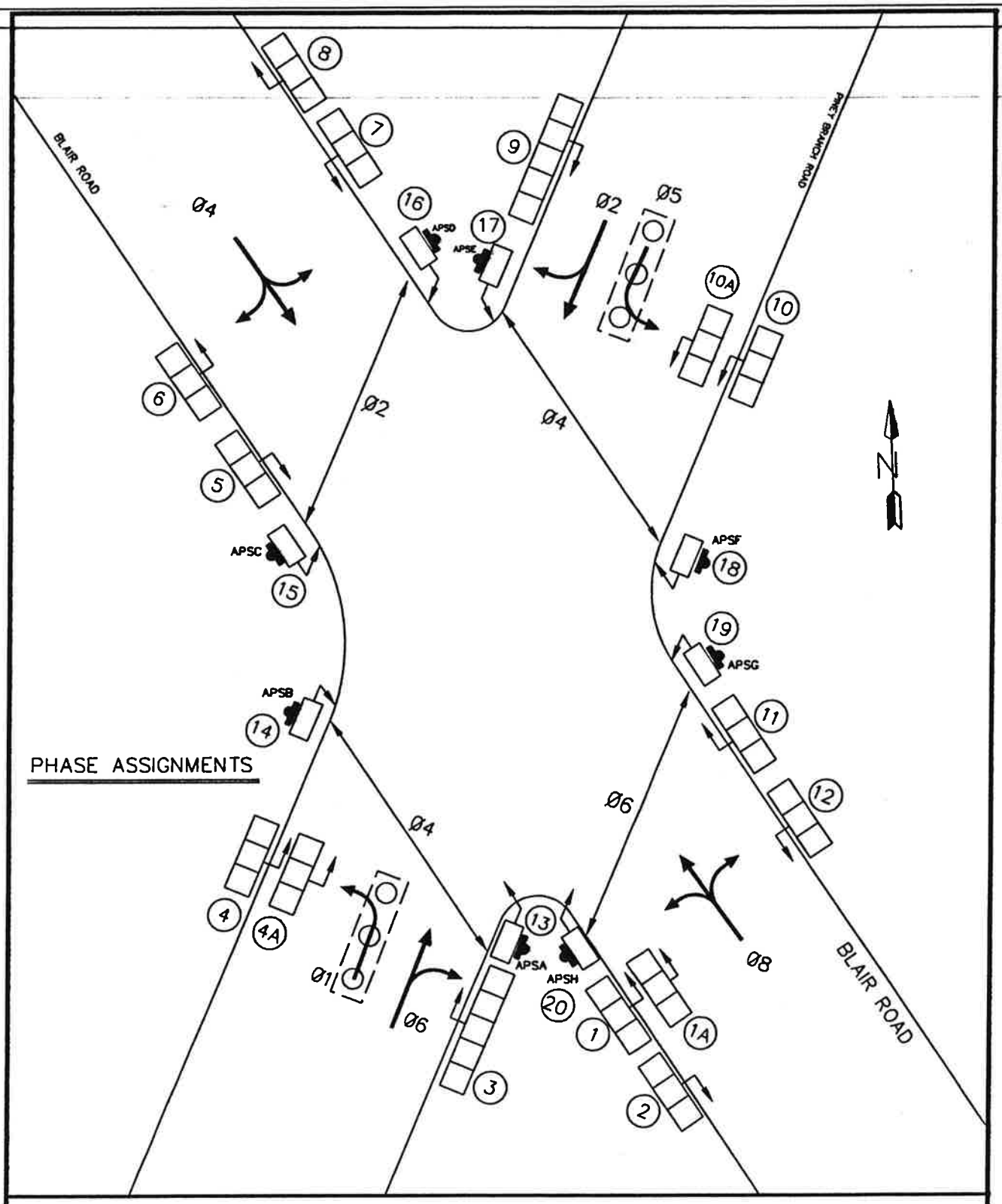
WORK/SHOP ORDER NO: Q-4033-B

APPROVED BY:

DATE INSTALLED:

INSTALLED BY:

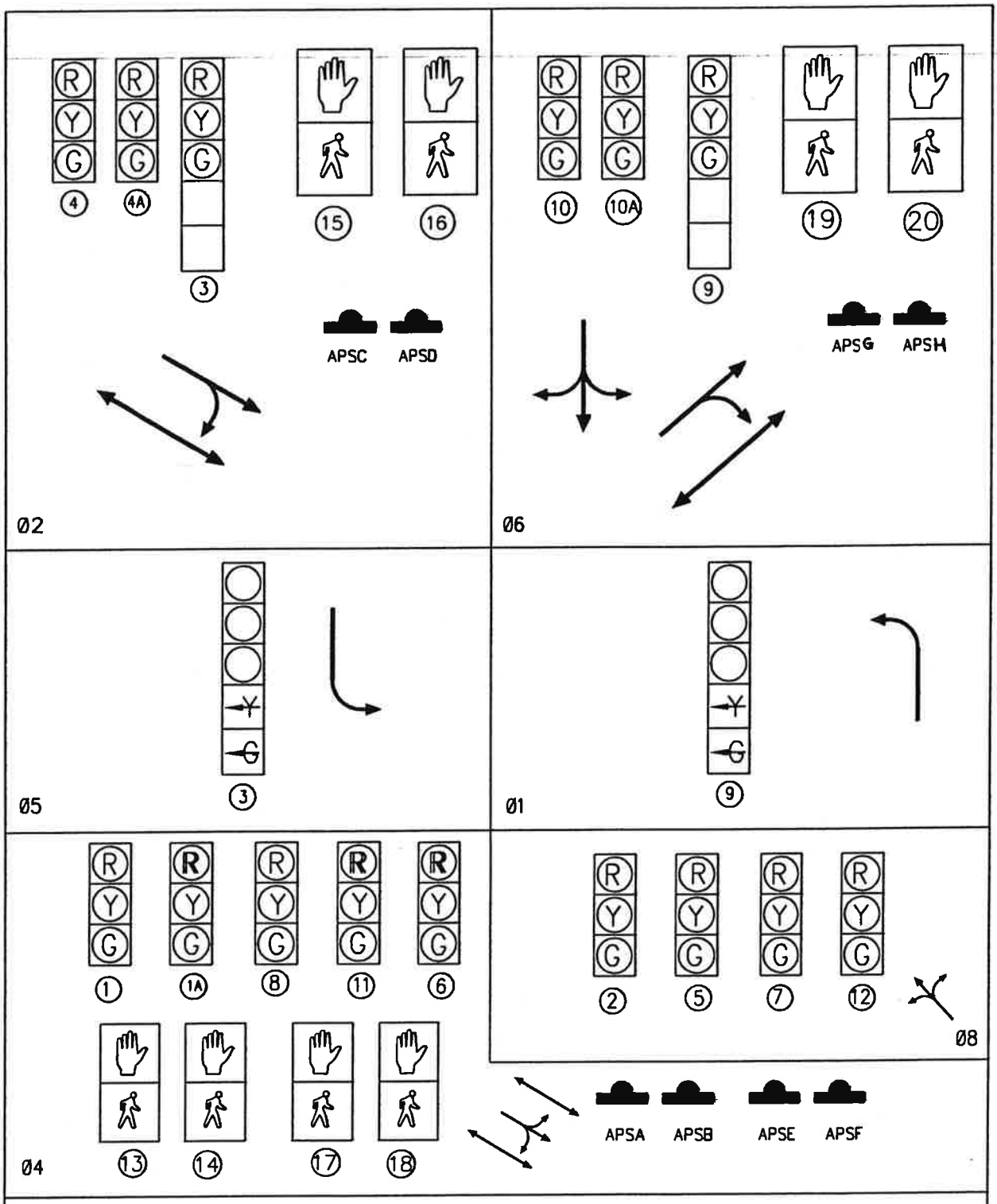
VEHICLE SIGNAL HEAD NO. 1A, 4A AND 10A ARE MOUNTED ON 8 FOOT LONG MAST ARMS



PINEY BRANCH ROAD AND BLAIR ROAD, N.W.

D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC OPERATIONS ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY: A. NEGUSSIE	T.S. 743-G
CHECK BY: DATE:	SUBMITTED BY: _____ CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: EW DATE:	APPROVED BY: William W. McGuirk 1/4/13 DIVISION CHIEF	1 OF 4
IN SERVICE: SCALE: NONE		

VEHICLE SIGNAL HEAD NO. 1A, 4A AND 10A ARE MOUNTED ON 8 FOOT LONG MAST ARMS

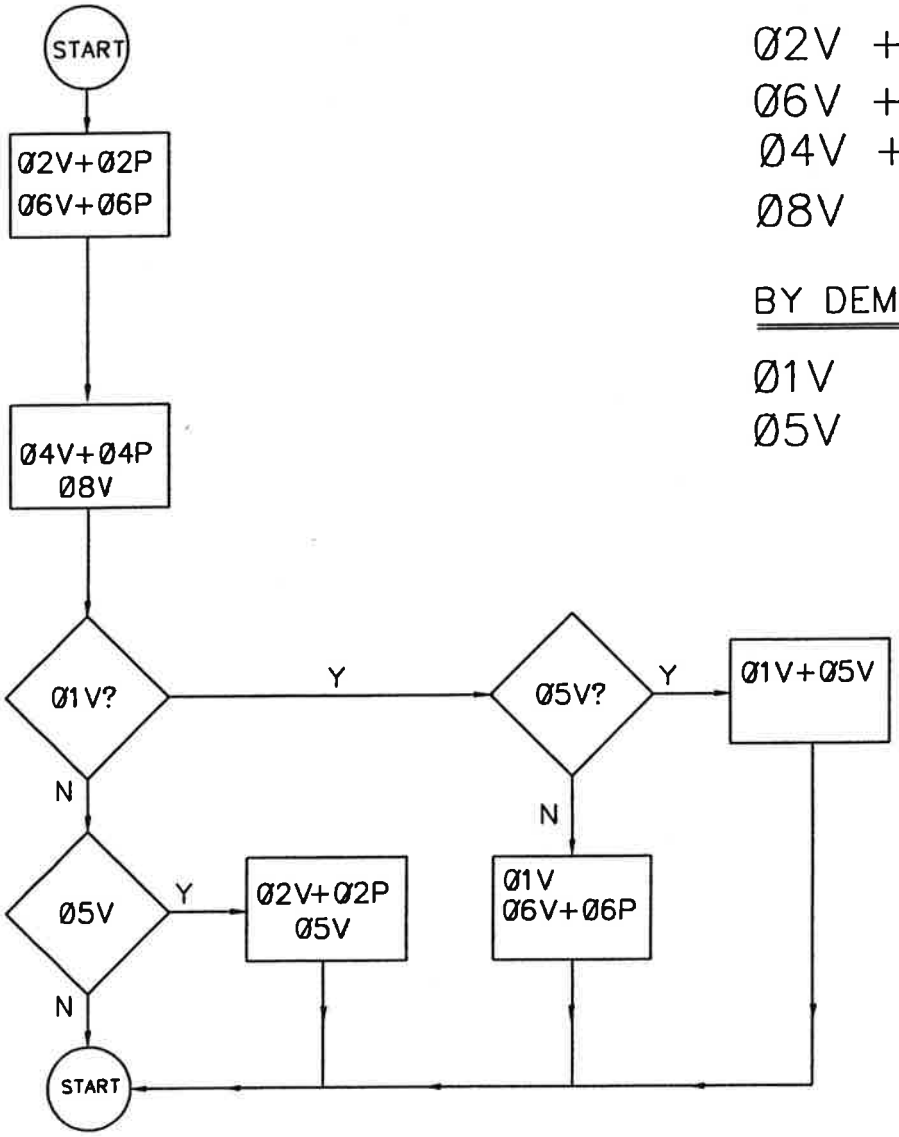


PINEY BRANCH ROAD AND BLAIR ROAD, N.W.

D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC OPERATIONS ADMINISTRATION	DESIGNED BY:	T.S.
	SUBMITTED BY: PROJECT ENGINEER – TEAM 1	743-G
CHECK BY: DATE:		
DRAWN BY: EW DATE:	APPROVED BY: CHIEF, TRANSPORTATION SAFETY, STANDARDS AND DATA ANALYSIS	2 OF 4
IN SERVICE: DATE:		

VEHICLE SIGNAL HEAD NO. 1A, 4A AND 10A ARE MOUNTED ON 8 FOOT LONG MAST ARMS

PHASE SEQUENCE



ON RECALL

Ø2V + Ø2P
Ø6V + Ø6P
Ø4V + Ø4P
Ø8V

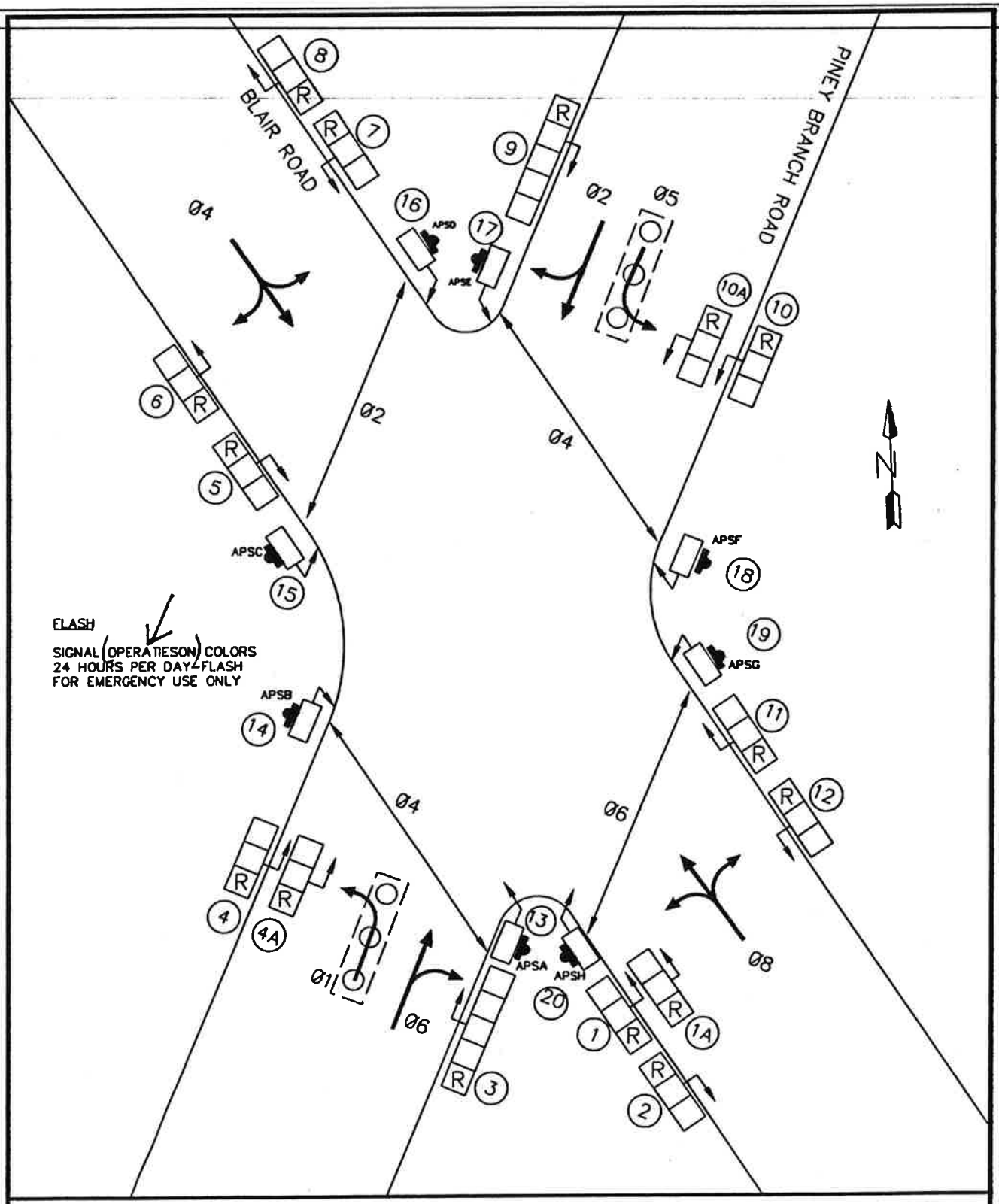
BY DEMAND ONLY

Ø1V
Ø5V

PINEY BRANCH ROAD AND BLAIR ROAD, N.W.

D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC OPERATIONS ADMINISTRATION	DESIGNED BY:		T.S. 743-G
CHECK BY:	DATE:	SUBMITTED BY: PROJECT ENGINEER – TEAM 1	
DRAWN BY: EW	DATE:	APPROVED BY: CHIEF, TRANSPORTATION SAFETY, STANDARDS AND DATA ANALYSIS	3 OF 4
IN SERVICE:	DATE:		

VEHICLE SIGNAL HEAD NO. 1A, 4A AND 10A ARE MOUNTED ON 8 FOOT LONG MAST ARM



PINEY BRANCH ROAD AND BLAIR ROAD, N.W.

D.C. DEPARTMENT OF TRANSPORTATION TRAFFIC OPERATIONS ADMINISTRATION TRAFFIC SIGNAL SYSTEM DIVISION	DESIGNED BY:	T.S. 743-C
CHECK BY: DATE:	SUBMITTED BY: CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY: EW DATE:	APPROVED BY: DIVISION CHIEF	4 OF 4 FLASH
IN SERVICE: SCALE: NONE		

TIMING PLAN SCHEDULE			TS- 1492-B	EASTERN AVENUE AND PINEY BRANCH ROAD, N.W. LOCATION			
PLAN	PERIOD	DATE	DEPARTMENT OF TRANSPORTATION	S-DRAWING NO:	1855-A	SHEET:	1
1	OFF PEAK - 70		WASHINGTON, D.C.				
2	AM PEAK - 80		TRAFFIC SERVICES ADMINISTRATION				
3	PM PEAK - 80						
4	OFF PEAK - 100						
5	AM PEAK - 100						
6	PM PEAK - 100						
7	AM PEAK - 120						
8	PM PEAK - 120						
			CONTROLLER	ISNUM	ACISA		
			170	929	5164		

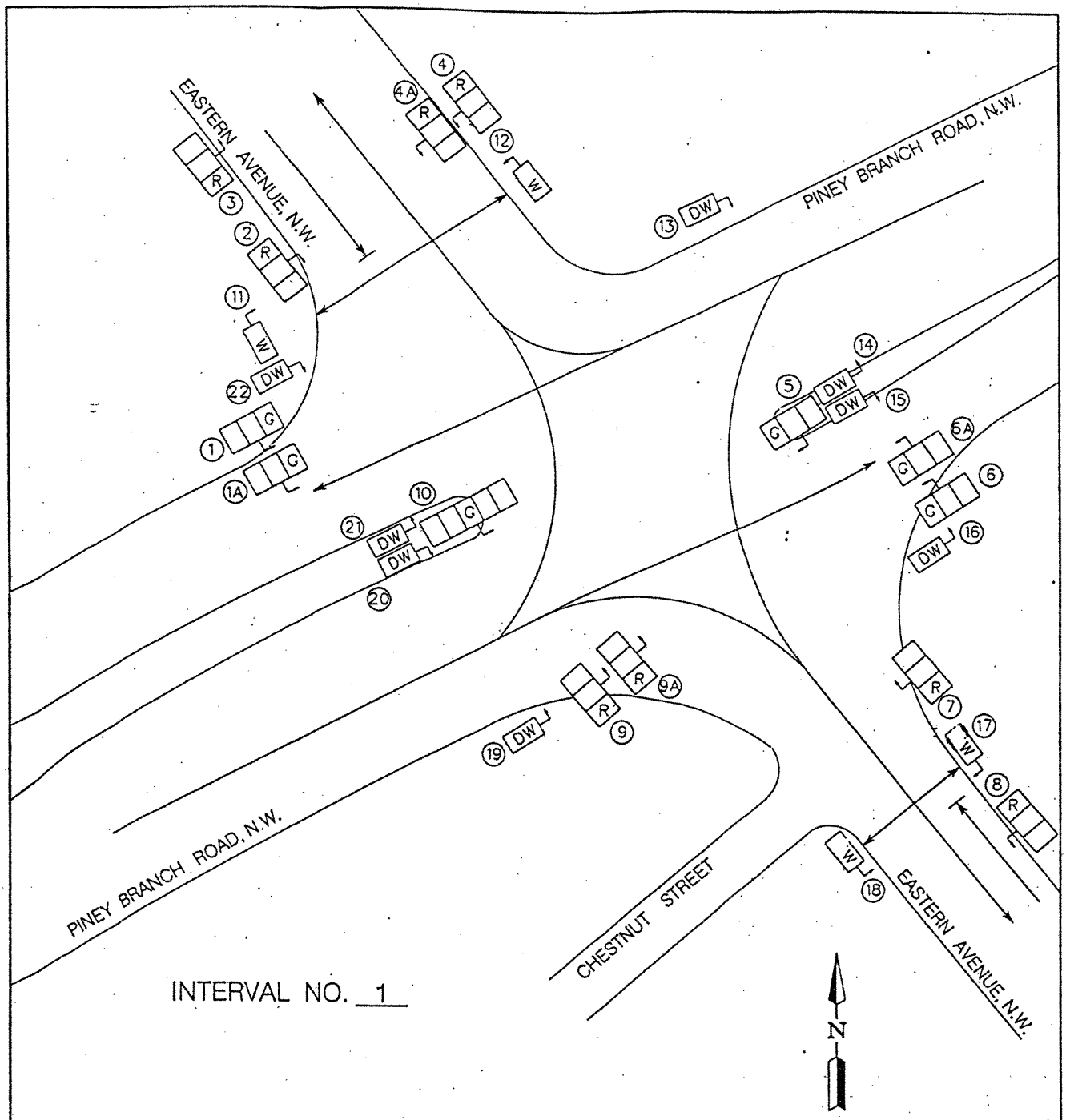
Int. Sketch

DESCRIPTION (INTERSECTION / STREET / DIRECTION)	INTERVAL TYPE	INTERVAL NUMBER	TIMING PLAN NUMBER 1 S	1 C	2 S	2 C	3 S	3 C	4 S	4 C	5 S	5 C	6 S	6 C	7 S	7 C	8 S	8 C	S	C	S	C
PINEY BRANCH ROAD NB GREEN, SB GREEN +W(ES,WS)	F	1	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6				
PINEY BRANCH ROAD NB GREEN, SB GREEN +W(ES,WS)	V	2	8	(14)	11	(17)	22	(28)	28	(34)	21	(27)	37	(43)	46	(52)	47	(53)				
PINEY BRANCH ROAD NB GREEN, SB GREEN +FW(ES), FDW(WS)	F	3	5	19	5	22	5	33	5	39	5	32	5	48	5	57	5	58				
PINEY BRANCH ROAD NB GREEN, SB GREEN +FDW(ES,WS)	F	4	5	24	5	27	5	38	5	44	5	37	5	53	5	62	5	63				
PINEY BRANCH ROAD NB YELLOW, SB YELLOW +DW(ES,WS)	F	5	4	28	4	31	4	42	4	48	4	41	4	57	4	66	4	67				
ALL RED + DW	F	6	2	30	2	33	2	44	2	50	2	43	2	59	2	68	2	69				
EASTERN AVENUE GREEN + W(WS,ES)	F	7	12	42	12	45	12	56	12	62	12	55	12	71	12	80	12	81				
EASTERN AVENUE GREEN + W(WS,ES)	V	8	3	(45)	6	(51)	2	(58)	13	(75)	16	(71)	7	(78)	11	(91)	17	(98)				
EASTERN AVENUE GREEN + FDW(WS,ES)	F	9	5	50	5	56	5	63	5	80	5	76	5	83	5	96	5	103				
EASTERN AVENUE YELLOW + DW(WS,ES)	F	10	4	54	4	60	4	67	4	84	4	80	4	87	4	100	4	107				
ALL RED + DW	F	11	2	56	2	62	2	69	2	86	2	82	2	89	2	102	2	109				
PINEY BRANCH ROAD NBR, SB GREEN ◄G +DW(ES), W(WS)	F	12	6	62	6	68	6	75	6	92	6	88	6	95	6	108	6	115				
PINEY BRANCH ROAD NBR, SB GREEN ◄G +DW(ES), W(WS)	V	13	4	(66)	8	(76)	1	(76)	4	(96)	8	(96)	1	(96)	8	(116)	1	(116)				
PINEY BRANCH ROAD NBR, SB GREEN ◄Y +DW(ES), W(WS)	F	14	4	70	4	80	4	80	4	100	4	100	4	100	4	120	4	120				
CYCLE LENGTH			70		80		80		100		100		100		120		120					
OFFSET			36		6		33		36		6		33		6		33					
PREPARED BY:			AN		AN		AN		AN		AN		AN		AN		AN					
DATE TO SHOP:																						
WORK OR SHOP ORDER NO.			Q-3394																			
APPROVED BY:			WWM		WWM		WWM		WWM		WWM		WWM		WWM		WWM					
DATE INSTALLED:																						
INSTALLED BY:																						

S=Seconds C=Cummulative secs F=Fixed interval V=Variable Interval ◯ = Force Off (circle the interval)

20010416

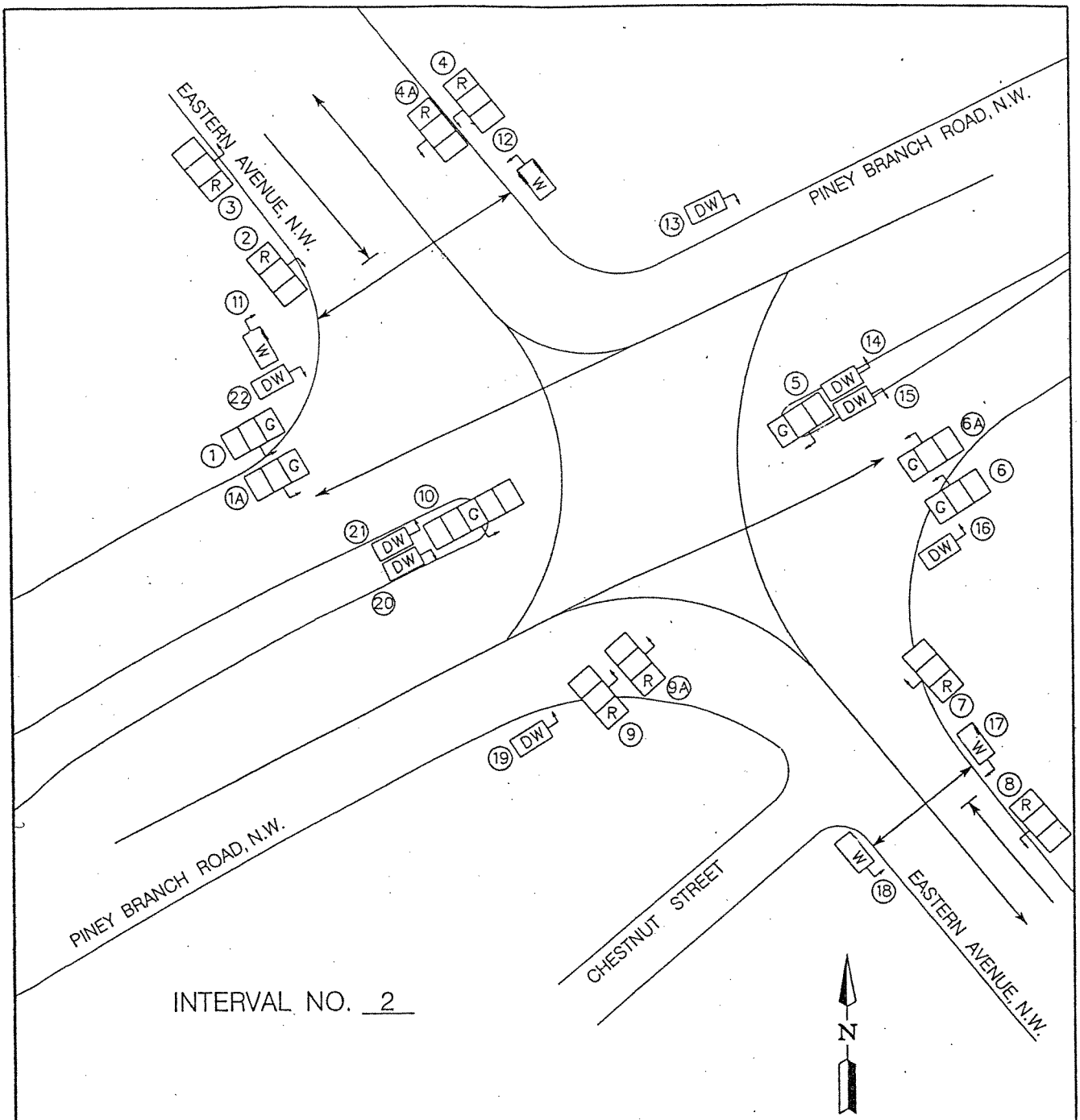
TRAFFIC SIGNAL HEADS 1A, 4A, 6A AND 9A ARE MOUNTED ON 8-FOOT MAST ARMS.



TRAFFIC SIGNAL DESIGN

EASTERN AVENUE AND PINEY BRANCH ROAD, N.W.

DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION	DESIGNED BY: Amanda Nguyen	T.S. 1492-B
CHECKED BY ____ DATE ____	SUBMITTED BY: ____ CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY AN DATE ____	APPROVED BY: William W. McQuirk 6/9/05 DIVISION CHIEF	1 OF 14
IN SERVICE ____ SCALE NONE		



TRAFFIC SIGNAL DESIGN

EASTERN AVENUE AND PINEY BRANCH ROAD, N.W.

DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION
TRAFFIC SERVICES ADMINISTRATION

CHECKED BY	DATE
DRAWN BY	DATE
IN SERVICE	SCALE NONE

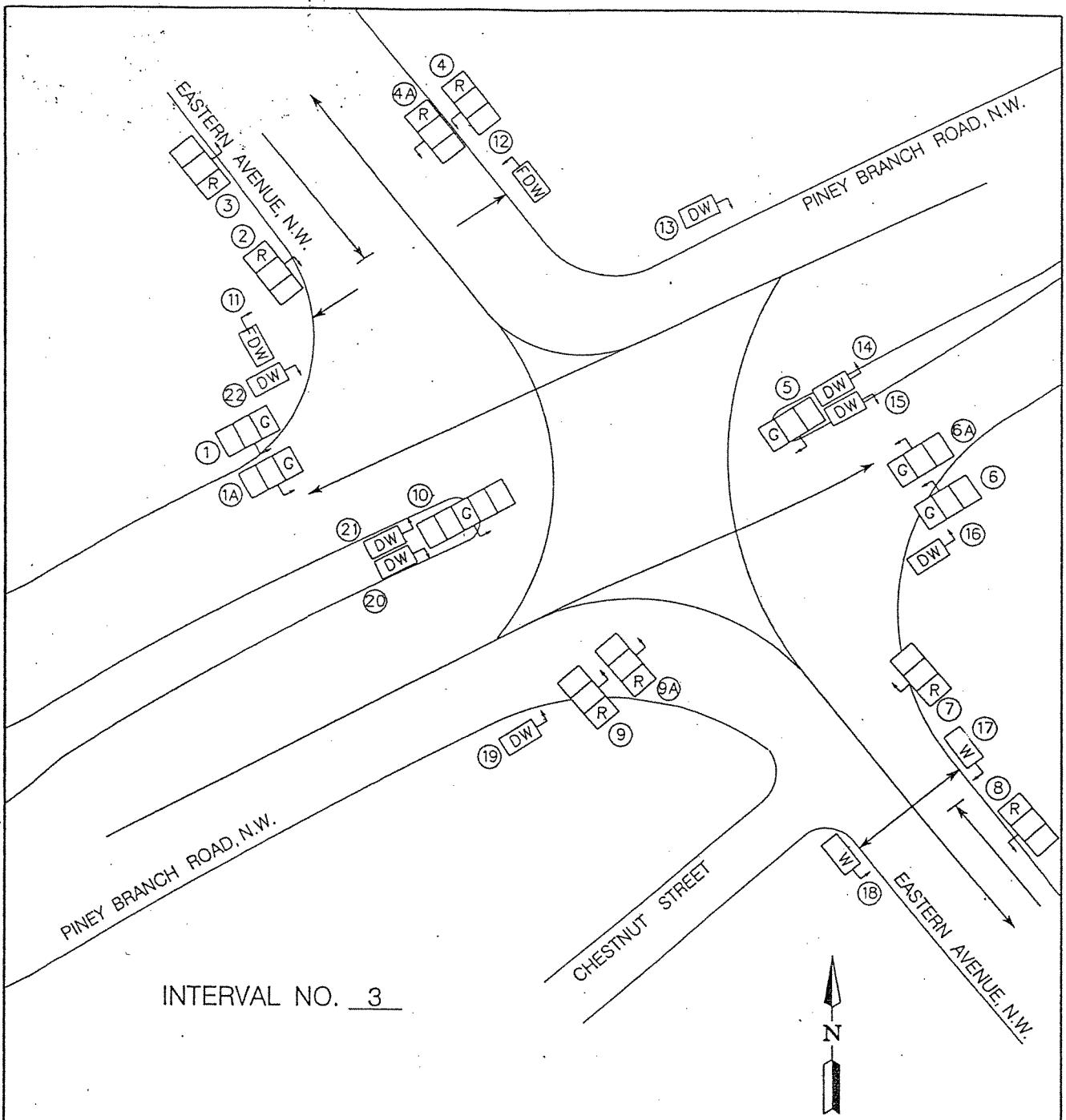
DESIGNED BY: _____

SUBMITTED BY: _____
CHIEF, SIGNAL DESIGN BRANCH

APPROVED BY: _____
DIVISION CHIEF

T.S.
1492-B

SHEET
2 OF 14



TRAFFIC SIGNAL DESIGN

EASTERN AVENUE AND PINEY BRANCH ROAD, N.W.

DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION
TRAFFIC SERVICES ADMINISTRATION

CHECKED BY	DATE
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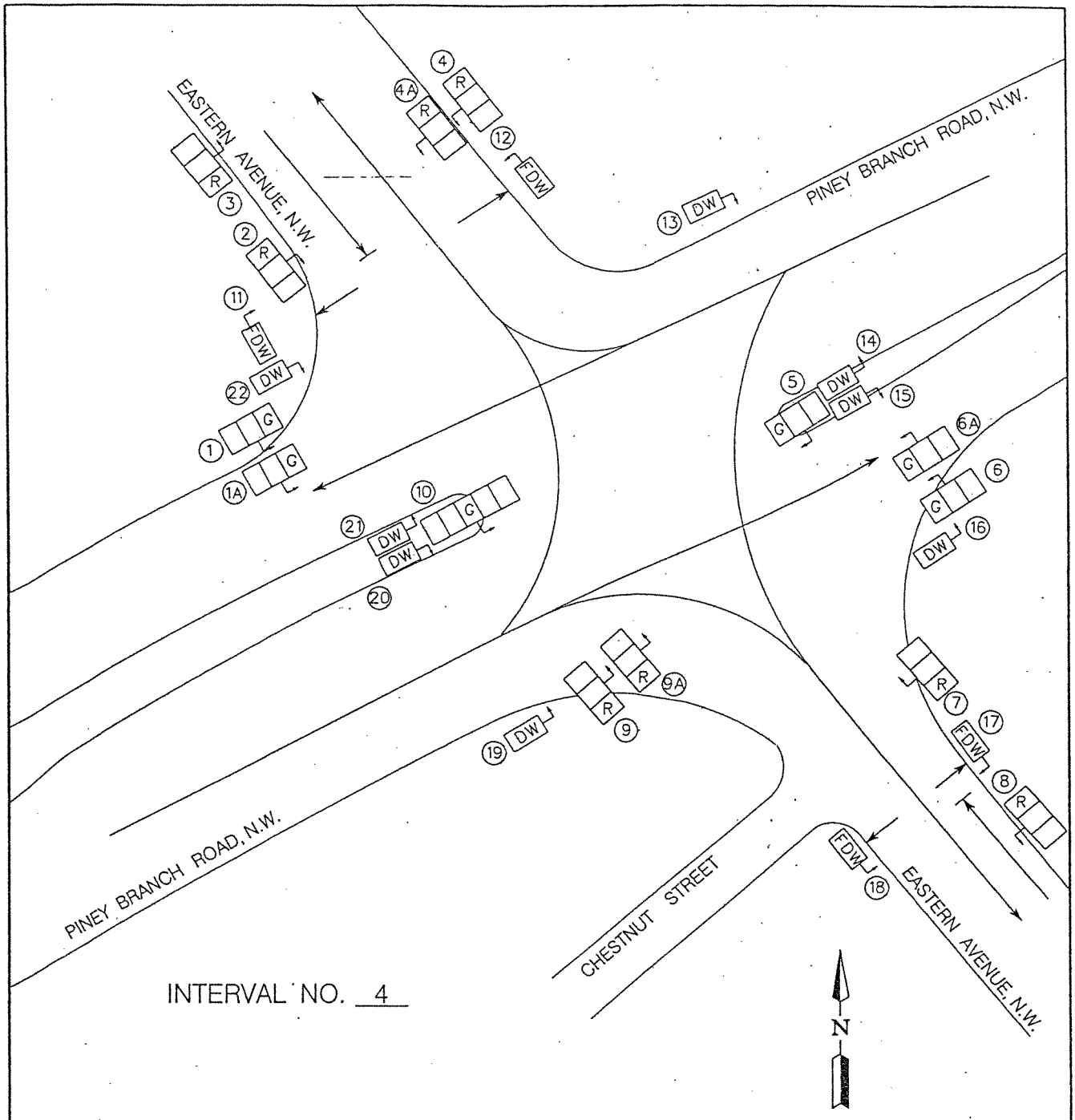
DESIGNED BY: _____

SUBMITTED BY: _____
CHIEF, SIGNAL DESIGN BRANCH

APPROVED BY: _____
DIVISION CHIEF

T.S. 1492-B

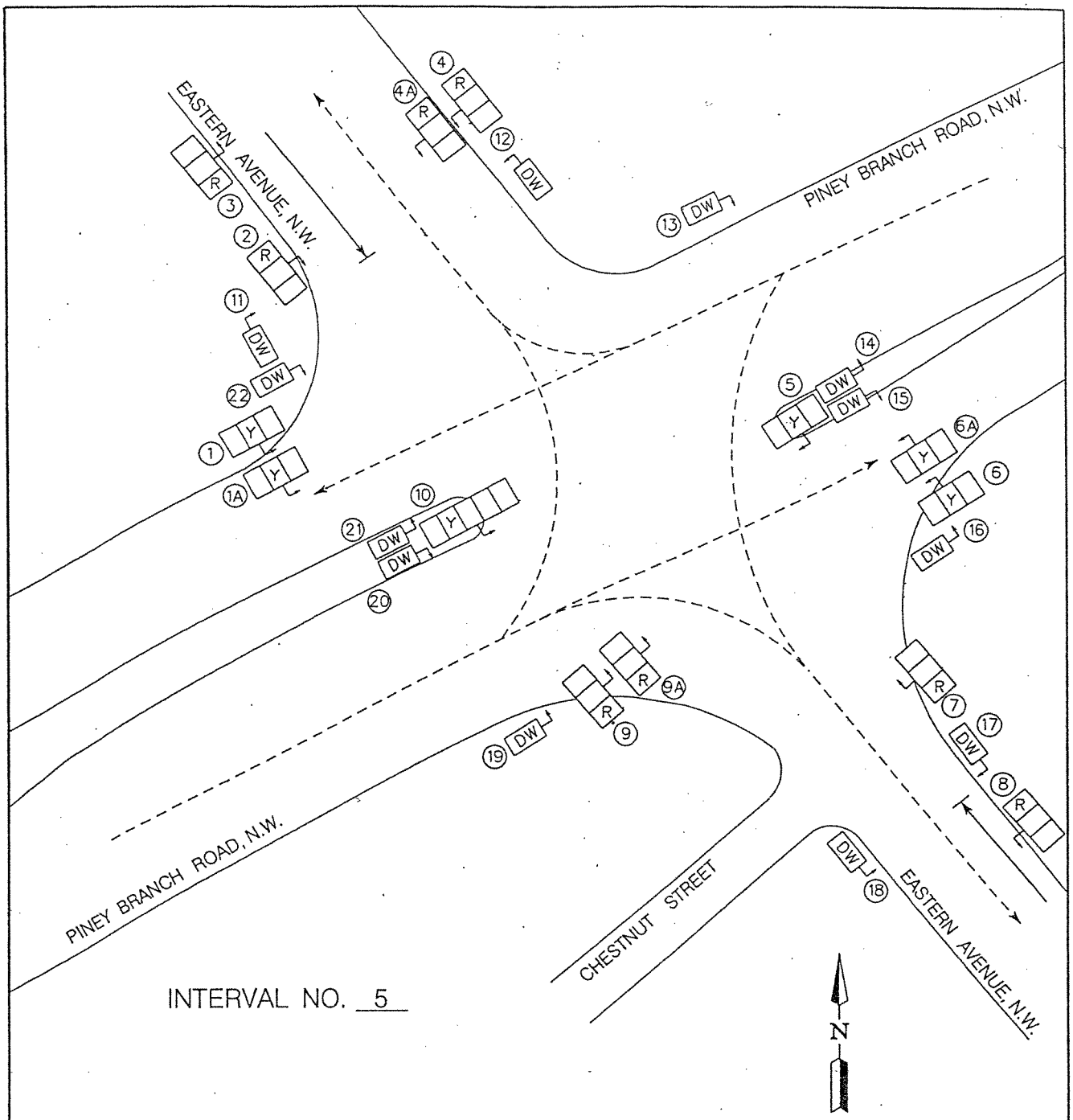
SHEET 3 OF 14



TRAFFIC SIGNAL DESIGN

EASTERN AVENUE AND PINEY BRANCH ROAD, N.W.

DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION	DESIGNED BY:	T.S. 1492-B
CHECKED BY DATE	SUBMITTED BY: CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY DATE	APPROVED BY: DIVISION CHIEF	4 OF 14
IN SERVICE SCALE NONE		



TRAFFIC SIGNAL DESIGN

EASTERN AVENUE AND PINEY BRANCH ROAD, N.W.

DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION
TRAFFIC SERVICES ADMINISTRATION

CHECKED BY	DATE	
DRAWN BY	DATE	
IN SERVICE	SCALE	NONE

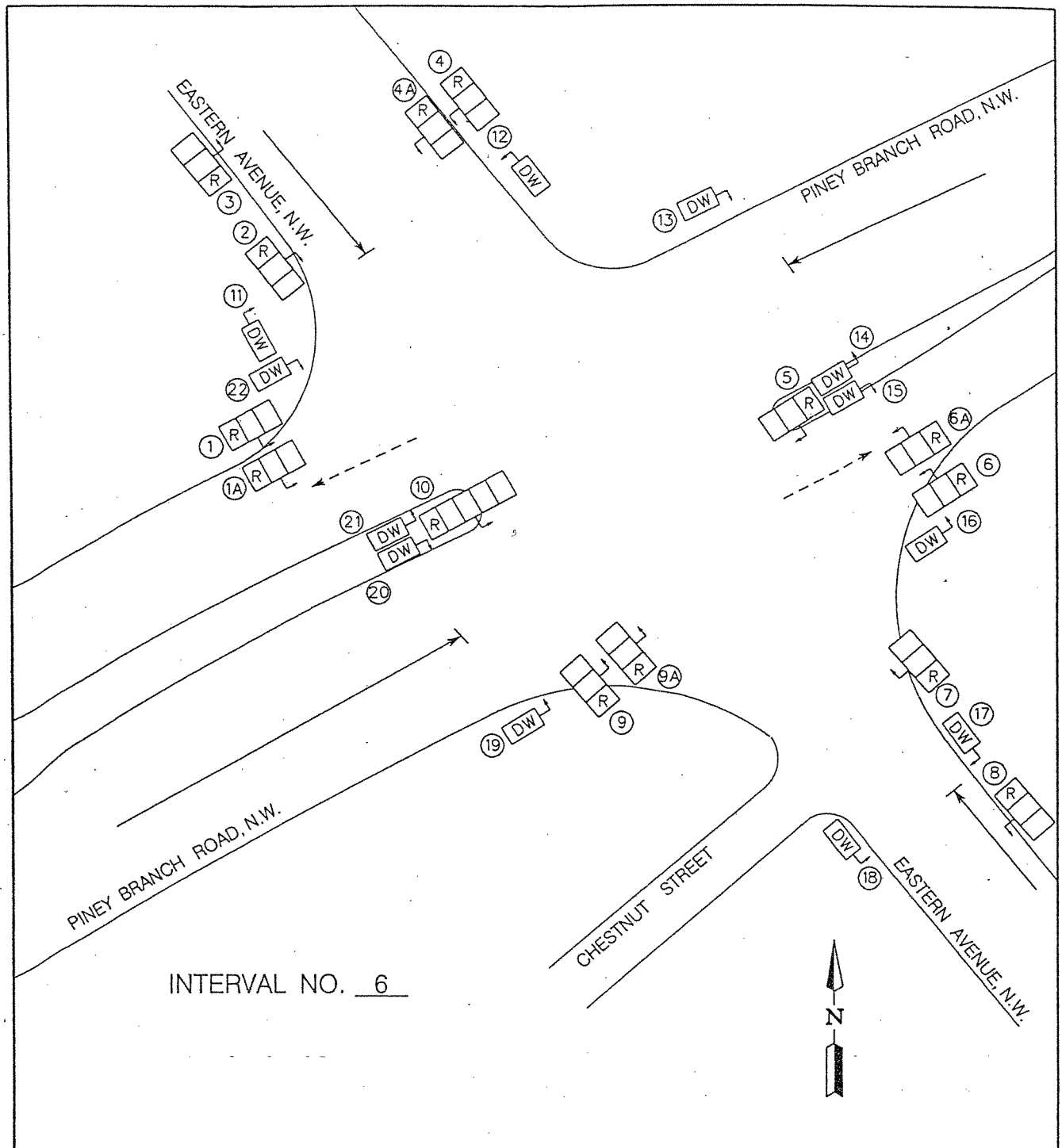
DESIGNED BY: _____

SUBMITTED BY: _____
CHIEF, SIGNAL DESIGN BRANCH

APPROVED BY: _____
DIVISION CHIEF

T.S.
1492-B

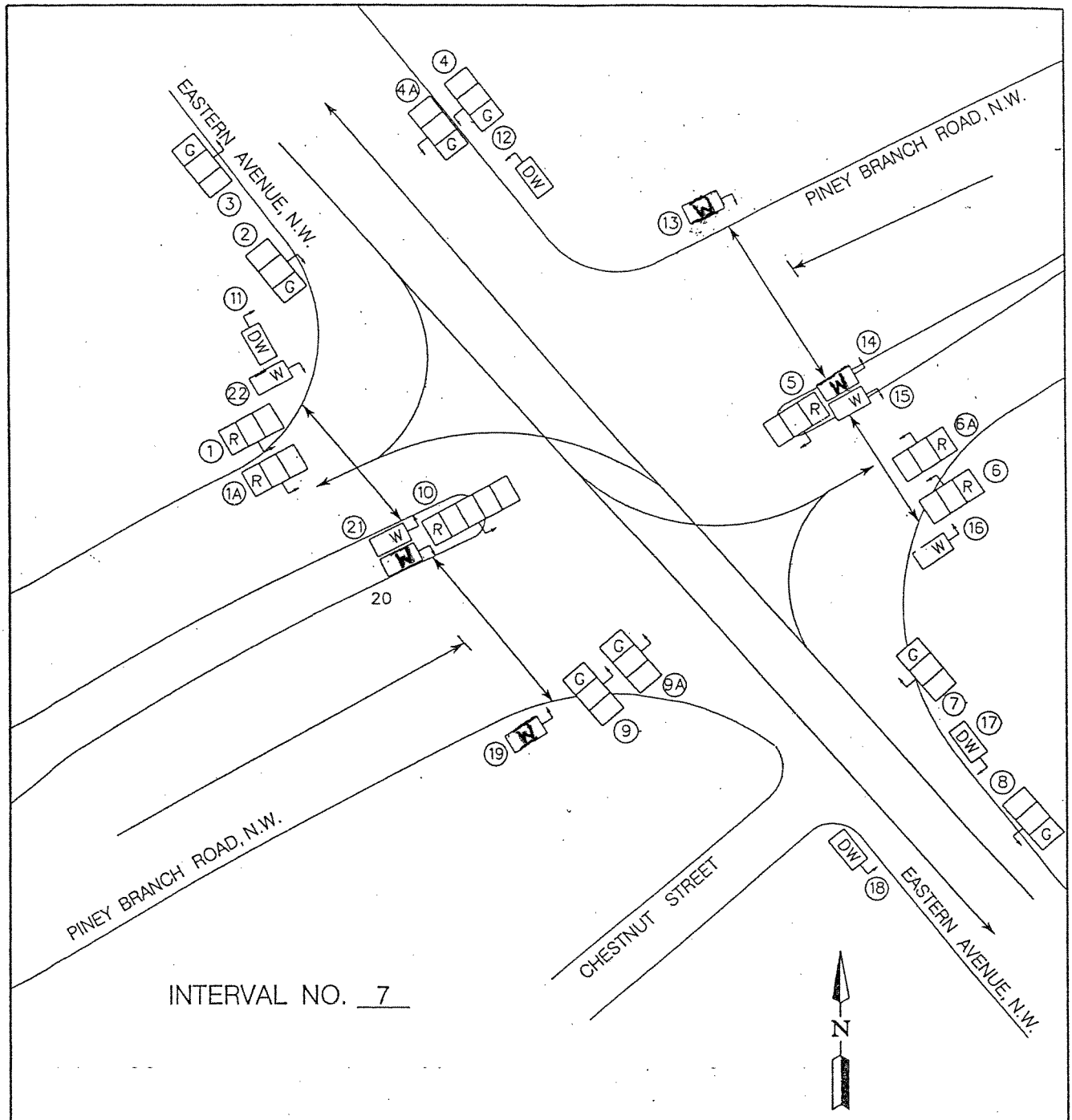
SHEET
5 OF 14



TRAFFIC SIGNAL DESIGN

EASTERN AVENUE AND PINEY BRANCH ROAD, N.W.

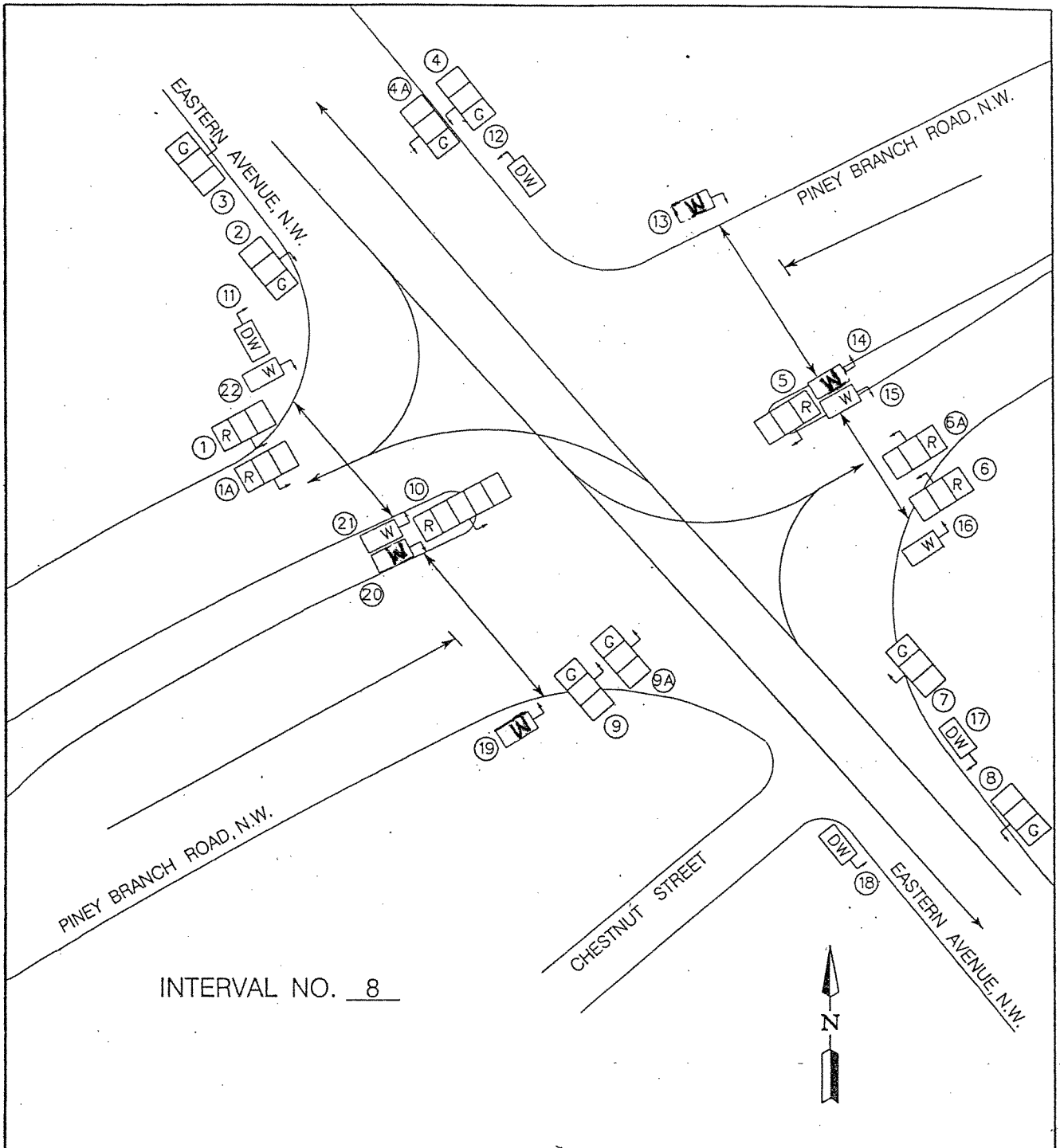
DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION	DESIGNED BY:	T.S. 1492-B
CHECKED BY DATE	SUBMITTED BY: CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY DATE	APPROVED BY: DIVISION CHIEF	6 OF 14
IN SERVICE SCALE NONE		



TRAFFIC SIGNAL DESIGN

EASTERN AVENUE AND PINEY BRANCH ROAD, N.W.

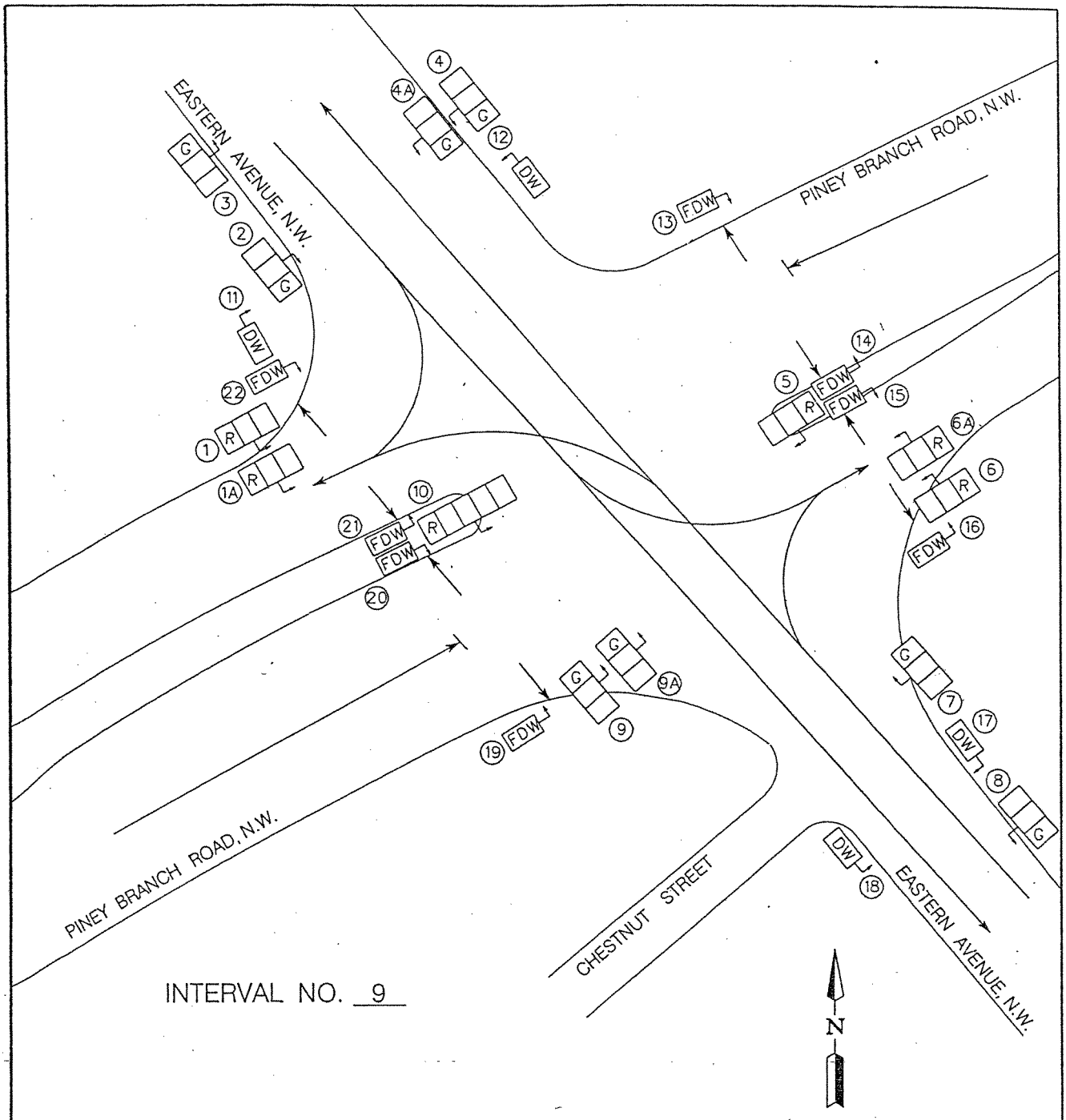
DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION	DESIGNED BY: _____	T.S. 1492-B
CHECKED BY _____ DATE _____	SUBMITTED BY: _____ CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY _____ DATE _____	APPROVED BY: _____ DIVISION CHIEF	7 OF 14
IN SERVICE _____ SCALE NONE		



TRAFFIC SIGNAL DESIGN

EASTERN AVENUE AND PINEY BRANCH ROAD, N.W.

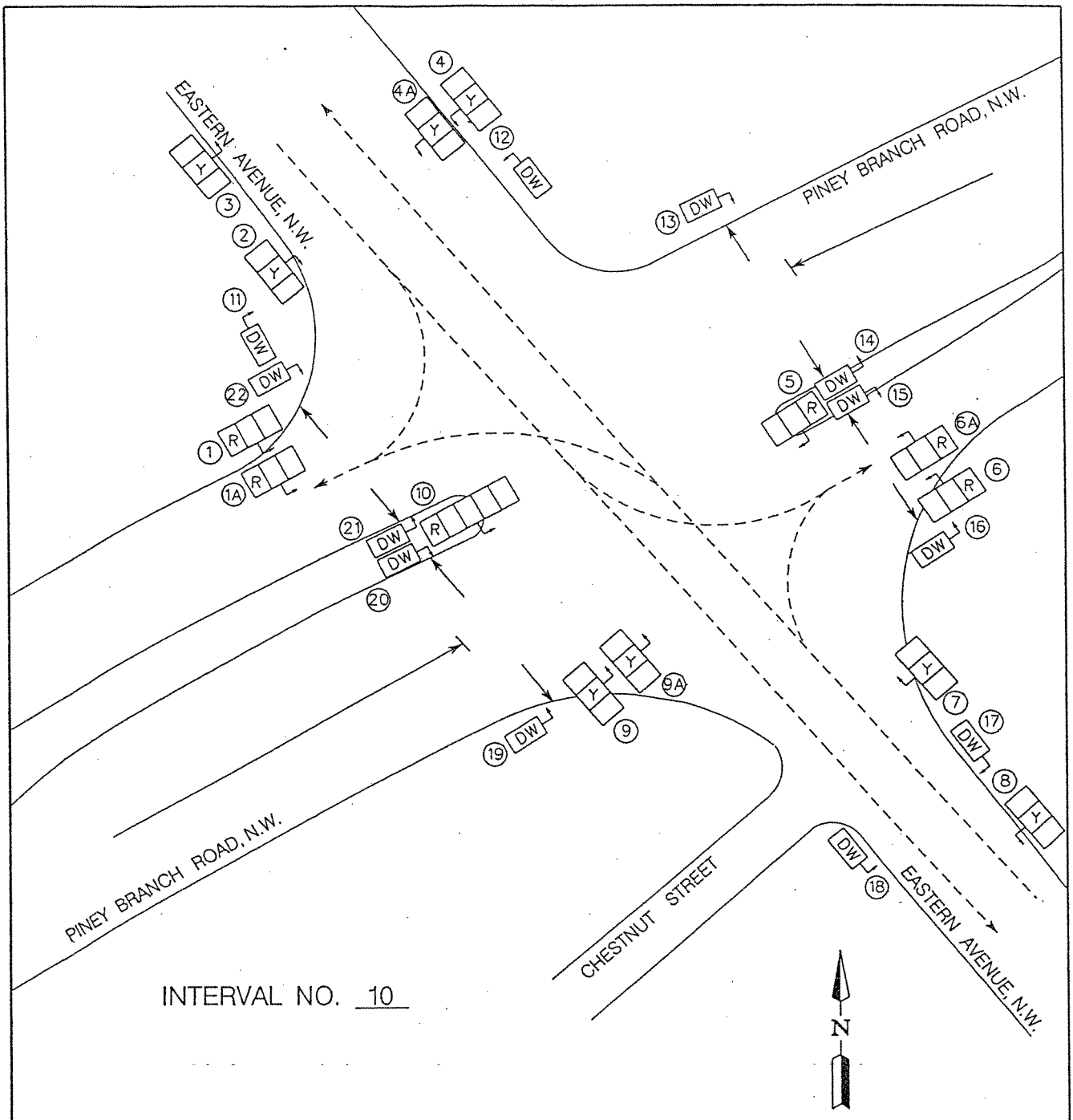
DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION	DESIGNED BY: _____ SUBMITTED BY: _____ CHIEF, SIGNAL DESIGN BRANCH APPROVED BY: _____ DIVISION CHIEF	T.S. 1492-B SHEET 8 OF 14
CHECKED BY DATE DRAWN BY DATE IN SERVICE SCALE NONE		



TRAFFIC SIGNAL DESIGN

EASTERN AVENUE AND PINEY BRANCH ROAD, N.W.

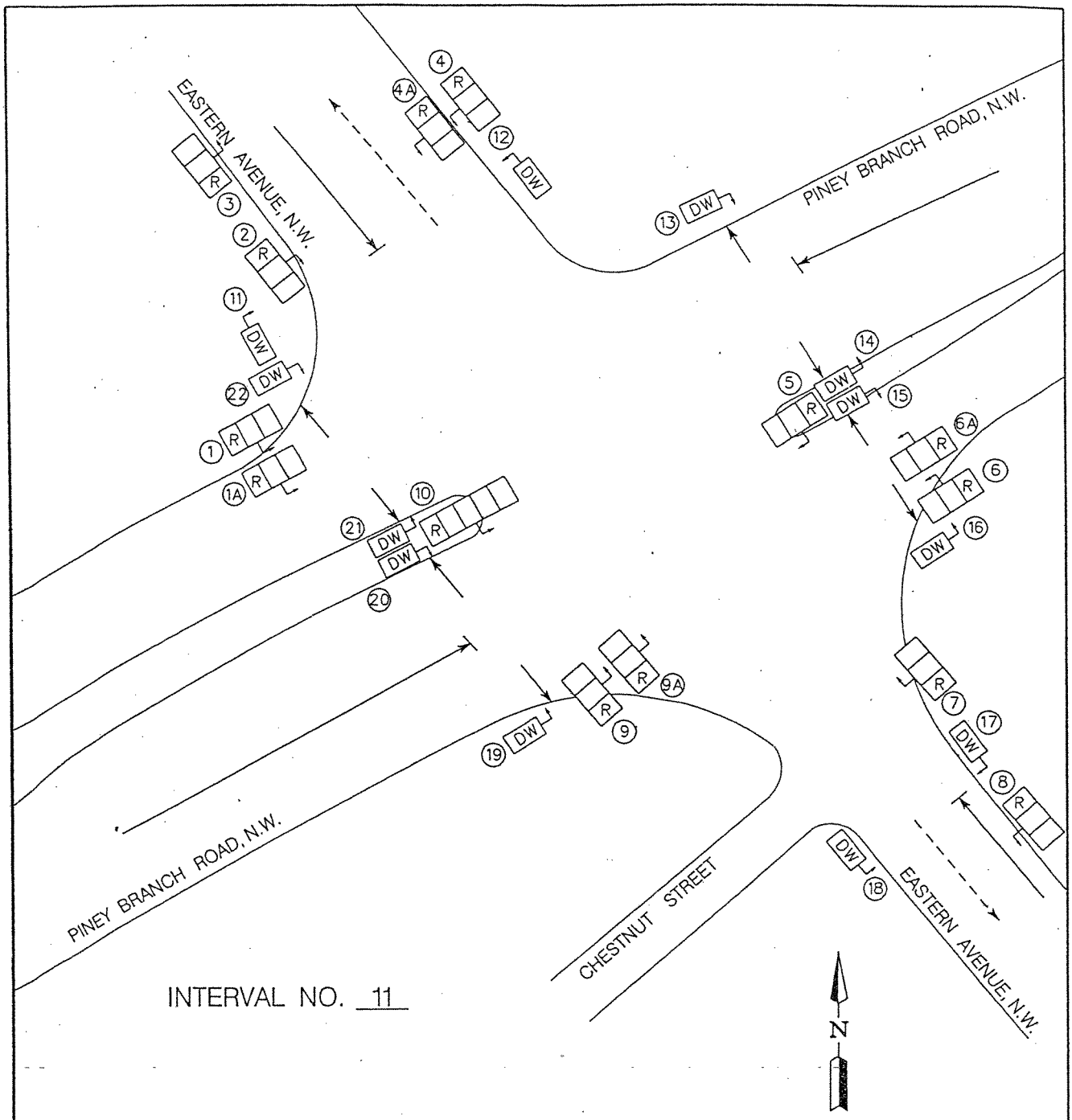
DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION	DESIGNED BY: _____ SUBMITTED BY: _____ CHIEF, SIGNAL DESIGN BRANCH APPROVED BY: _____ DIVISION CHIEF	T.S. 1492-B SHEET 9 OF 14
CHECKED BY DATE DRAWN BY DATE IN SERVICE SCALE NONE		



TRAFFIC SIGNAL DESIGN

EASTERN AVENUE AND PINEY BRANCH ROAD, N.W.

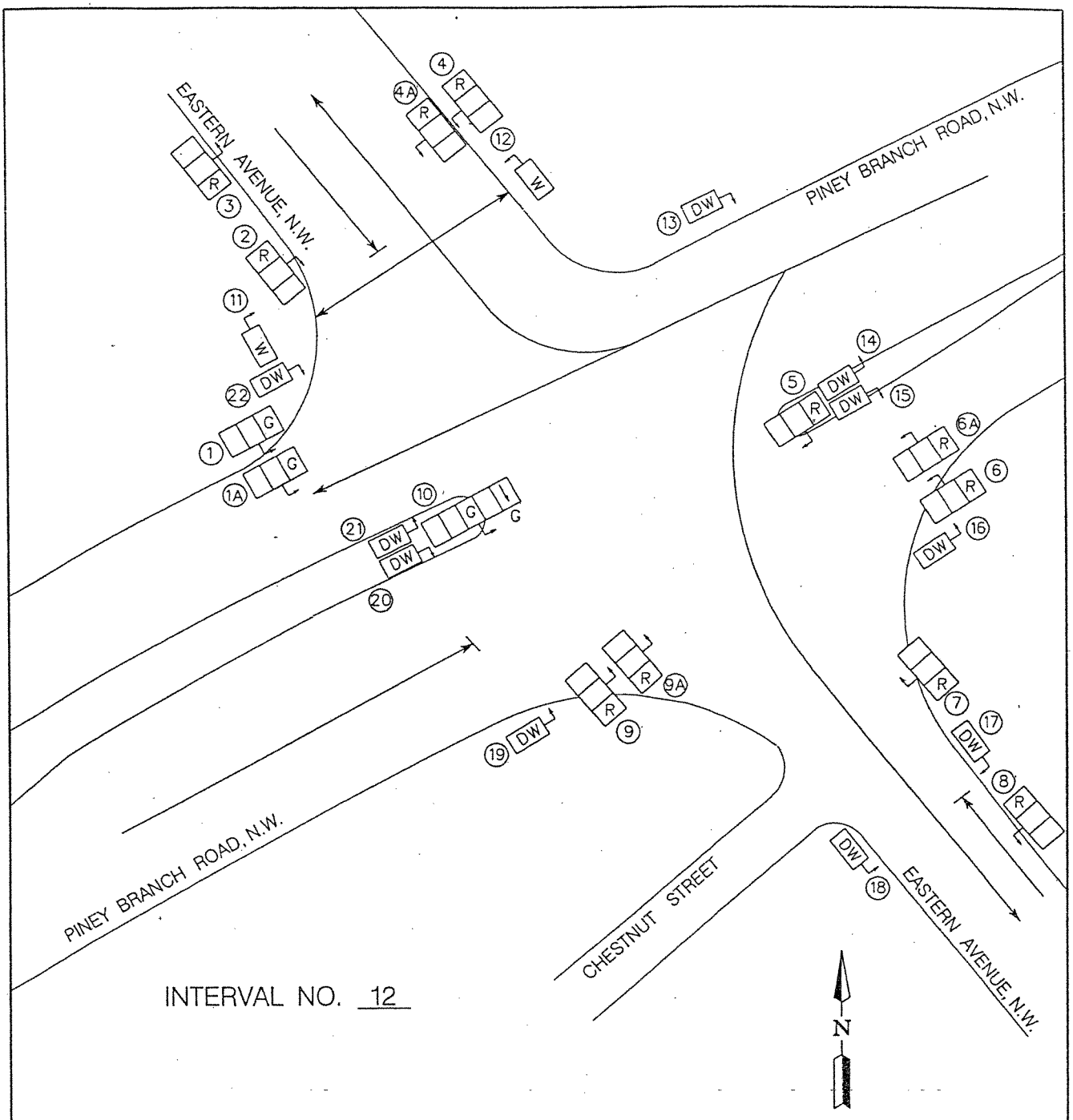
DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION	DESIGNED BY: _____	T.S. 1492-B
CHECKED BY _____ DATE _____	SUBMITTED BY: _____ CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY _____ DATE _____	APPROVED BY: _____ DIVISION CHIEF	10 OF 14
IN SERVICE _____ SCALE NONE		



TRAFFIC SIGNAL DESIGN

EASTERN AVENUE AND PINEY BRANCH ROAD, N.W.

DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION	DESIGNED BY:	T.S. 1492-B
CHECKED BY DATE	SUBMITTED BY: CHIEF, SIGNAL DESIGN BRANCH	SHEET
DRAWN BY DATE	APPROVED BY: DIVISION CHIEF	11 OF 14
IN SERVICE SCALE NONE		

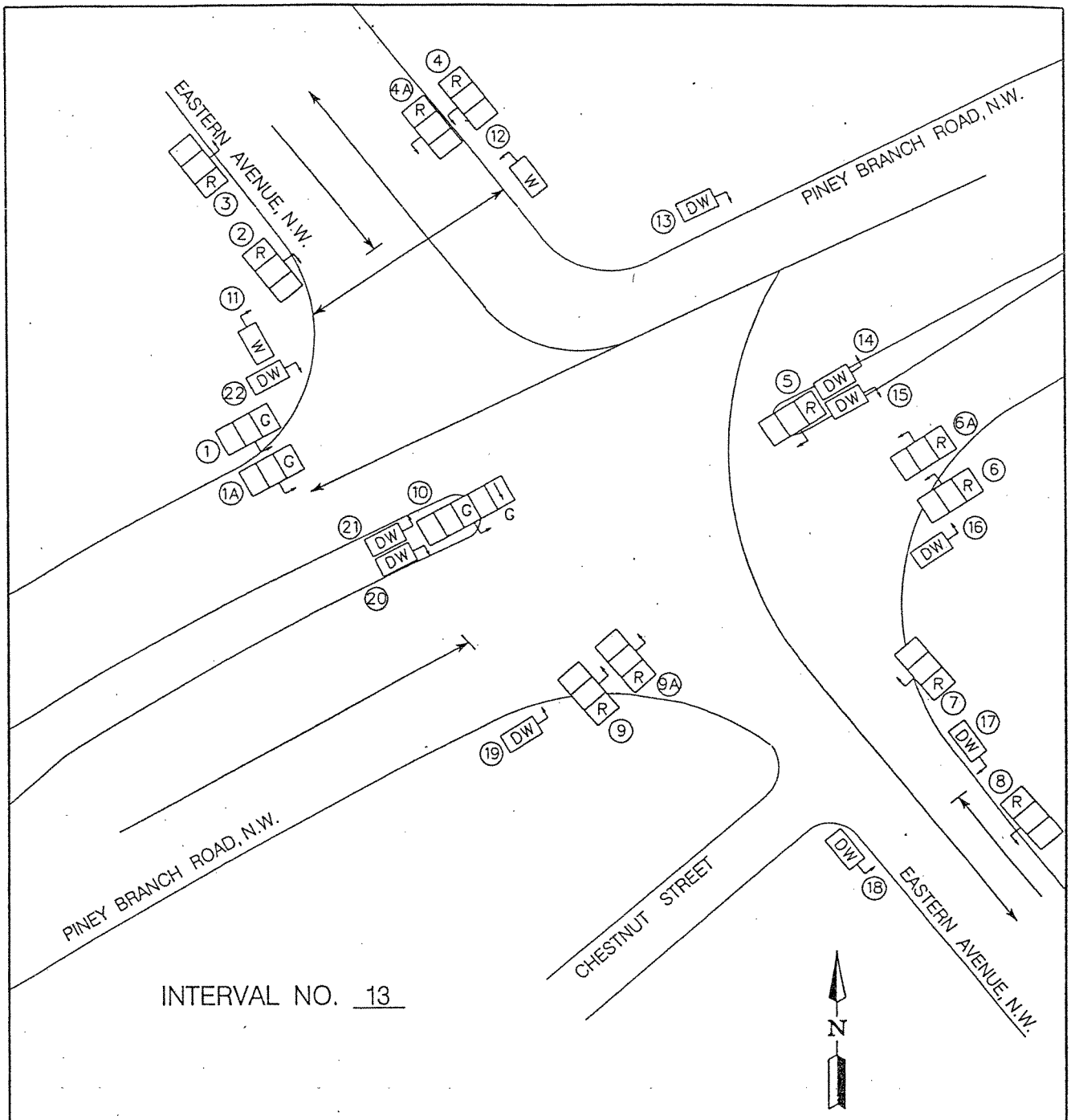


INTERVAL NO. 12

TRAFFIC SIGNAL DESIGN

EASTERN AVENUE AND PINEY BRANCH ROAD, N.W.

DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION TRAFFIC SERVICES ADMINISTRATION	DESIGNED BY: _____ SUBMITTED BY: _____ CHIEF, SIGNAL DESIGN BRANCH APPROVED BY: _____ DIVISION CHIEF	T.S. 1492-B
CHECKED BY DATE DRAWN BY DATE IN SERVICE SCALE NONE		SHEET 12 OF 14



TRAFFIC SIGNAL DESIGN

EASTERN AVENUE AND PINEY BRANCH ROAD, N.W.

DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION
TRAFFIC SERVICES ADMINISTRATION

CHECKED BY	DATE	
DRAWN BY	DATE	
IN SERVICE	SCALE	NONE

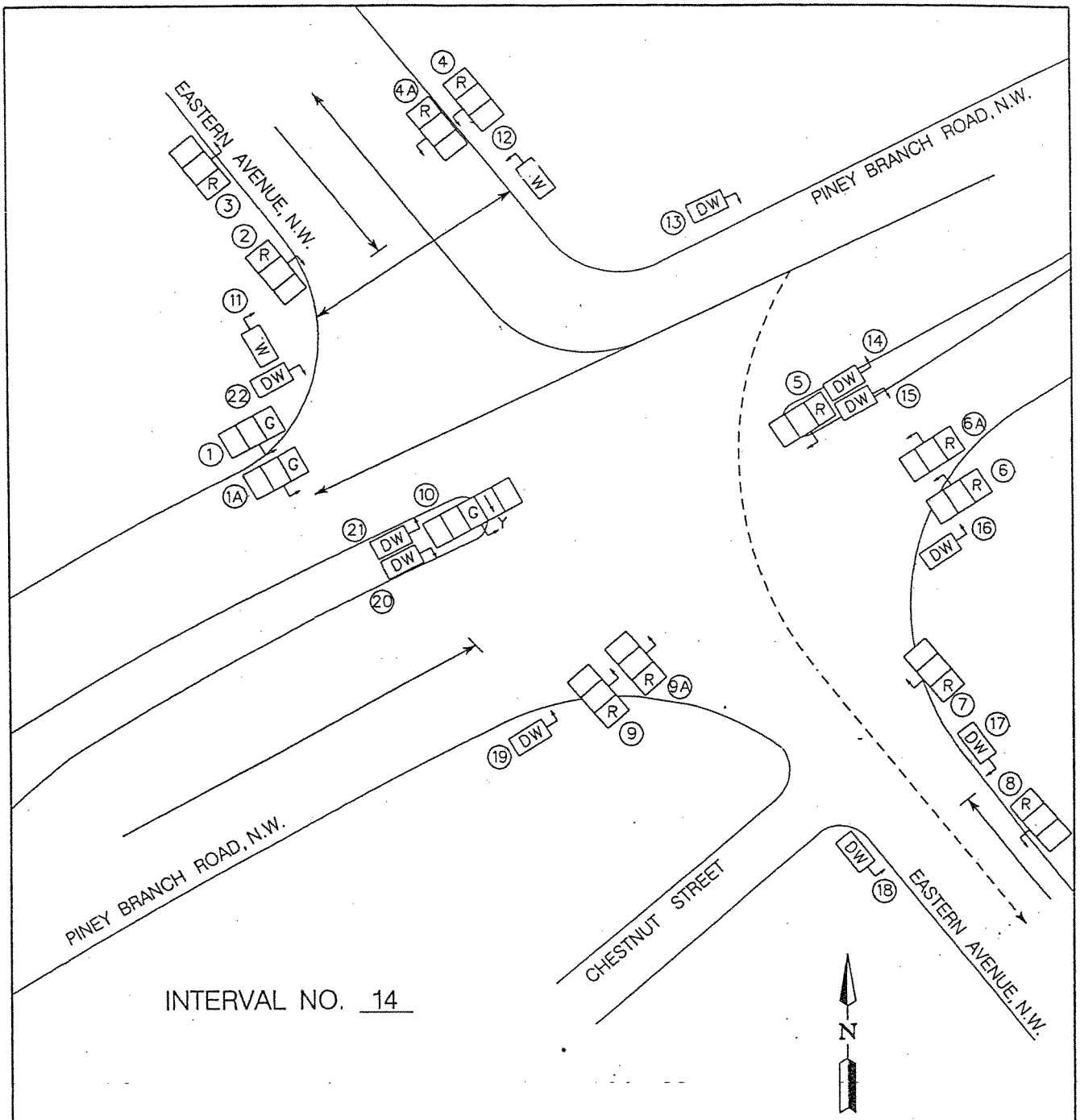
DESIGNED BY: _____

SUBMITTED BY: _____
CHIEF, SIGNAL DESIGN BRANCH

APPROVED BY: _____
DIVISION CHIEF

T.S. 1492-B

SHEET 13 OF 14



TRAFFIC SIGNAL DESIGN

EASTERN AVENUE AND PINEY BRANCH ROAD, N.W.

DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION
TRAFFIC SERVICES ADMINISTRATION

CHECKED BY	DATE
DRAWN BY	DATE
IN SERVICE	SCALE NONE

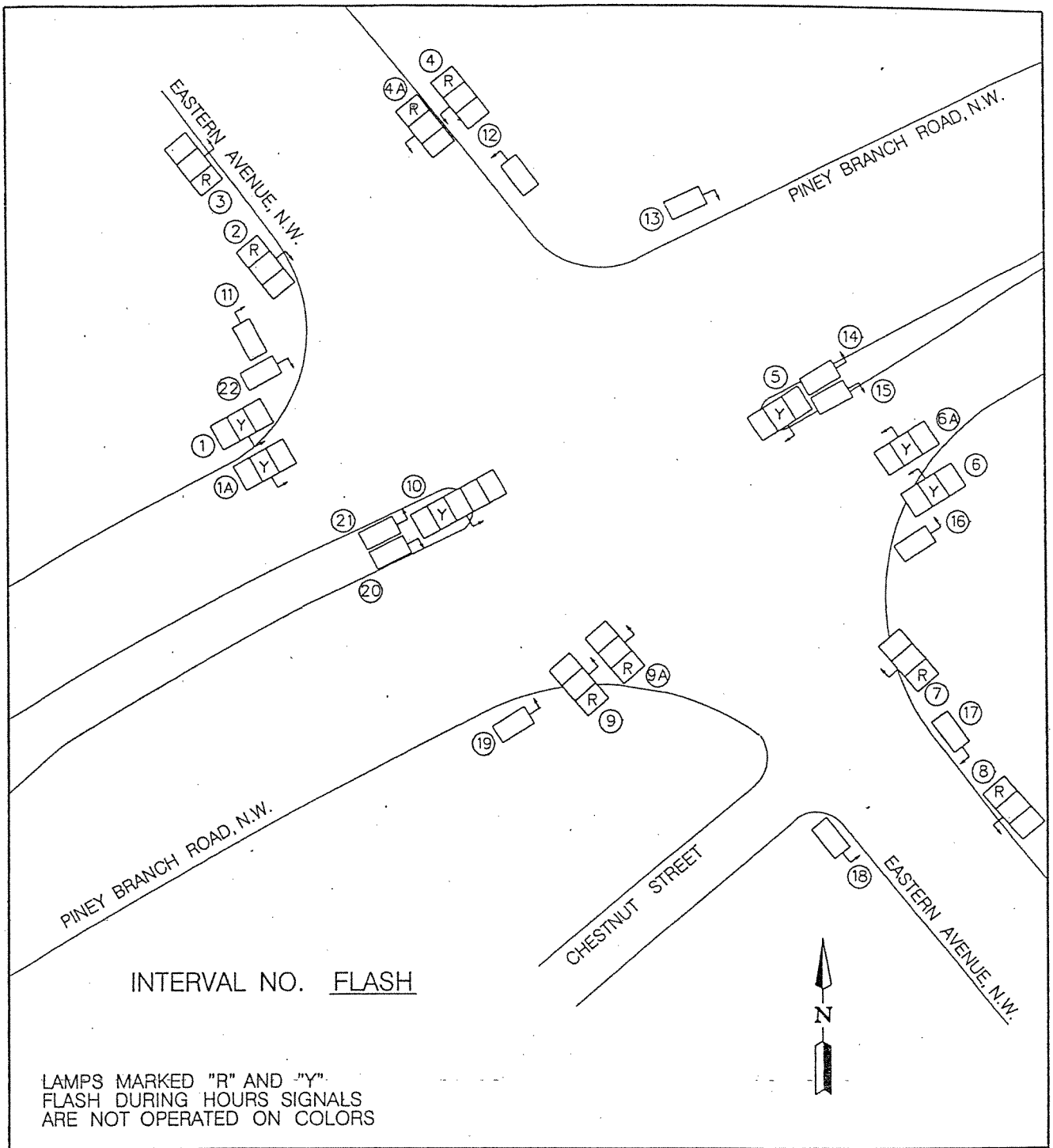
DESIGNED BY: _____

SUBMITTED BY: _____
CHIEF, SIGNAL DESIGN BRANCH

APPROVED BY: _____
DIVISION CHIEF

T.S. 1492-B

SHEET 14 OF 14



TRAFFIC SIGNAL DESIGN

EASTERN AVENUE AND PINEY BRANCH ROAD, N.W.

DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION
TRAFFIC SERVICES ADMINISTRATION

CHECKED BY	DATE	
DRAWN BY	DATE	
IN SERVICE	SCALE	NONE

DESIGNED BY: _____

SUBMITTED BY: _____
CHIEF, SIGNAL DESIGN BRANCH

APPROVED BY: _____
DIVISION CHIEF

T.S.
1492-B

SHEET
FLASH
OF

Appendix C

Detailed VISSIM Analysis Results

Existing AM

1.Eastern Ave and Piney Branch Rd (Signalized)	Eastern Ave						Piney Branch Rd					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	46.8	30.5	31.9	39.5	29.1	31.3	30.1	29.1	15.7	18.0	16.2	15.2
Movement LOS	D	C	C	D	C	C	C	C	B	B	B	B
Approach Delay (sec/veh)	31.9			30.9			19.4			16.4		
Approach LOS	C			C			B			B		
Average Queue (ft)	166	166	166	229	229	229	99	99	99	282	282	282
95th Percentile Queue (ft)	312	312	312	454	454	454	218	218	218	492	492	492
							Intersection Delay (sec/veh)				23.2	C

2.Eastern Ave and Holly Ave (Un-signalized)	Eastern Ave						Holly Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	2.9	0.4			2.1	1.0				12.9		13.5
Movement LOS	A	A			A	A				B		B
Approach Delay (sec/veh)	0.6			2.1						13.1		
Approach LOS	A			A						B		
Average Queue (ft)	4	1			9	9				21		21
95th Percentile Queue (ft)	-	-			-	-				51		51
							Intersection Delay (sec/veh)				13.5	B

3.Eastern Ave and Kiss & Ride (Un-signalized)	Eastern Ave						Kiss & Ride Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)		0.5	1.0	2.3	0.3		13.8		9.3			
Movement LOS		A	A	A	A		B		A			
Approach Delay (sec/veh)	0.6			0.5			12.4					
Approach LOS	A			A			B					
Average Queue (ft)		0	3	7	3		23		23			
95th Percentile Queue (ft)		-	-	-	-		51		51			
							Intersection Delay (sec/veh)				13.8	B

4.Eastern Ave and Bus Access (Un-signalized)	Eastern Ave						Bus Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)		1.6	0.3		0.3		25.6		28.3			
Movement LOS		A	A		A		D		D			
Approach Delay (sec/veh)	1.6			0.3			26.5					
Approach LOS	A			A			D					
Average Queue (ft)		0	1		0		7		7			
95th Percentile Queue (ft)		-	-		-		46		46			
							Intersection Delay (sec/veh)				28.3	D

5.Eastern Ave and Cedar Ave (Un-signalized)	Eastern Ave						Cedar Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)			9.8				15.6	0.5				7.5
Movement LOS			A				C	A				A
Approach Delay (sec/veh)	9.8						14.9			7.5		
Approach LOS	A						B			A		
Average Queue (ft)			60				73	0				17
95th Percentile Queue (ft)			144				158	-				42
							Intersection Delay (sec/veh)				15.6	C

6.Carroll St and Cedar Ave (Signalized)	Carroll St						Cedar Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	5.2	1.2			29.1	25.3				46.9		24.1
Movement LOS	A	A			C	C				D		C
Approach Delay (sec/veh)	1.6			27.7						38.6		
Approach LOS	A			C						D		
Average Queue (ft)	12	12			394	394				101		101
95th Percentile Queue (ft)	55	55			990	990				200		200
							Intersection Delay (sec/veh)				24.5	C

7.Carroll St and Bus Access (Un-signalized)	Carroll St						Bus Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	7.2	0.3			0.8	0.8				27.9		26.2
Movement LOS	A	A			A	A				D		D
Approach Delay (sec/veh)	0.4			0.8						27.4		
Approach LOS	A			A						D		
Average Queue (ft)	3	1			0	0				31		30
95th Percentile Queue (ft)	-	-			-	-				-		-
							Intersection Delay (sec/veh)				27.9	D

Existing AM

8.Cedar St, Blair Rd and 4th St (Signalized)	Cedar St						Blair Rd						4th St		
	Eastbound			Westbound			Eastbound			Westbound			Northbound		
	EBL	EBT	EBR	WBL	WBT	WBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Movement Delay (sec/veh)	26.0	29.0	28.7	20.9	16.3	20.5	52.5	42.4	39.9	76.0	63.7	62.2	55.0	51.8	48.9
Movement LOS	C	C	C	C	B	C	D	D	D	E	E	E	D	D	D
Approach Delay (sec/veh)	28.8			18.4			44.0			63.7			50.5		
Approach LOS	C			B			D			E			D		
Average Queue (ft)	91	91	91	154	154	154	329	329	329	245	245	245	79	79	79
95th Percentile Queue (ft)	165	165	165	269	269	269	840	840	840	528	528	528	163	163	163
										Intersection Delay (sec/veh)			37.8		D

9.Piney Branch Rd and Blair Rd (Signalized)	Blair Rd						Piney Branch Rd					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	84.2	56.7	58.1	90.5	76.3	77.4	25.72	14.95	16.56	14.78	17.66	17.22
Movement LOS	F	E	E	F	E	E	C	B	B	B	B	B
Approach Delay (sec/veh)	57.5			76.6			17.8			17.1		
Approach LOS	E			E			B			B		
Average Queue (ft)	369	369	369	476	476	476	28	81	2	238	238	238
95th Percentile Queue (ft)	782	782	782	863	863	863	76	190	17	479	479	479
							Intersection Delay (sec/veh)				38.8	D

Existing PM

1.Eastern Ave and Piney Branch Rd (Signalized)	Eastern Ave						Piney Branch Rd					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	75.3	58.4	59.1	65.5	54.4	54.9	15.4	54.4	11.0	24.3	9.4	8.9
Movement LOS	E	E	E	E	D	D	B	D	B	C	A	A
Approach Delay (sec/veh)	58.9			55.5			11.4			12.7		
Approach LOS	E			E			B			B		
Average Queue (ft)	320	320	320	326	326	326	146	146	146	86	86	86
95th Percentile Queue (ft)	590	590	590	591	591	591	277	277	277	209	209	209
							Intersection Delay (sec/veh)				27.8	C

2.Eastern Ave and Holly Ave (Un-signalized)	Eastern Ave						Holly Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	4.2	1.2			4.9	2.4				14.5		14.7
Movement LOS	A	A			A	A				B		B
Approach Delay (sec/veh)	1.6			4.7						14.6		
Approach LOS	A			A						B		
Average Queue (ft)	15	8			19	19				15		15
95th Percentile Queue (ft)	-	-			-	-				25		25
							Intersection Delay (sec/veh)				14.7	B

3.Eastern Ave and Kiss & Ride (Un-signalized)	Eastern Ave						Kiss & Ride Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)		0.9	0.9	4.8	1.0		18.0		13.4			
Movement LOS		A	A	A	A		C		B			
Approach Delay (sec/veh)	0.9			1.5			16.6					
Approach LOS	A			A			C					
Average Queue (ft)		1	2	19	10		32		32			
95th Percentile Queue (ft)		-	-	-	-		75		75			
							Intersection Delay (sec/veh)				18.0	C

4.Eastern Ave and Bus Access (Un-signalized)	Eastern Ave						Bus Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)		3.6	1.3		0.5		27.4		27.7			
Movement LOS		A	A		A		D		D			
Approach Delay (sec/veh)	3.6			0.5			27.5					
Approach LOS	A			A			D					
Average Queue (ft)		5	9		1		8		8			
95th Percentile Queue (ft)		-	-		-		46		46			
							Intersection Delay (sec/veh)				27.7	D

5.Eastern Ave and Cedar Ave (Un-signalized)	Eastern Ave						Cedar Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)			10.6				15.6	0.6				7.2
Movement LOS			B				C	A				A
Approach Delay (sec/veh)	10.6						14.0			7.2		
Approach LOS	B						B			A		
Average Queue (ft)			85				73	0				21
95th Percentile Queue (ft)			211				179	-				51
							Intersection Delay (sec/veh)				15.6	C

6.Carroll St and Cedar Ave (Signalized)	Carroll St						Cedar Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	8.4	4.2			47.1	38.8				44.7		12.6
Movement LOS	A	A			D	D				D		B
Approach Delay (sec/veh)	5.1			43.9						37.2		
Approach LOS	A			D						D		
Average Queue (ft)	69	69			324	324				133		133
95th Percentile Queue (ft)	161	161			688	688				276		276
							Intersection Delay (sec/veh)				29.3	C

7.Carroll St and Bus Access (Un-signalized)	Carroll St						Bus Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	1.1	1.3			0.7	0.6				27.8		27.9
Movement LOS	A	A			A	A				D		D
Approach Delay (sec/veh)	1.3			0.7						27.8		
Approach LOS	A			A						D		
Average Queue (ft)	3	1			0	0				73		72
95th Percentile Queue (ft)	-	-			-	-				-		-
							Intersection Delay (sec/veh)				27.9	D

Existing PM

8.Cedar St, Blair Rd and 4th St (Signalized)	Cedar St						Blair Rd						4th St		
	Eastbound			Westbound			Eastbound			Westbound			Northbound		
	EBL	EBT	EBR	WBL	WBT	WBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Movement Delay (sec/veh)	-	46.9	47.8	34.5	13.2	24.5	63.5	51.0	-	103.6	117.6	109.0	52.0	57.8	53.6
Movement LOS	-	D	D	C	B	C	E	D	-	F	F	F	D	E	D
Approach Delay (sec/veh)	47.2			23.1			53.8			116.0			55.9		
Approach LOS	D			C			D			F			E		
Average Queue (ft)	148	148	148	92	92	92	353	353	353	444	444	444	103	103	103
95th Percentile Queue (ft)	273	273	273	177	177	177	540	540	540	1114	1114	1114	207	207	207
										Intersection Delay (sec/veh)			62.3		E

9.Piney Branch Rd and Blair Rd (Signalized)	Blair Rd						Piney Branch Rd					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	86.1	64.9	68.3	124.7	113.4	113.9	41.42	38.92	38.36	32.35	11.40	11.44
Movement LOS	F	E	E	F	F	F	D	D	D	C	B	B
Approach Delay (sec/veh)	65.7			113.6			39.2			16.6		
Approach LOS	E			F			D			B		
Average Queue (ft)	490	490	490	797	797	797	46	632	2	96	96	96
95th Percentile Queue (ft)	887	887	887	1093	1093	1093	80	1136	20	189	189	189
							Intersection Delay (sec/veh)				55.7	E

2020 No-Build AM Scenario 1 - No Signal Timing Optimization

1.Eastern Ave and Piney Branch Rd (Signalized)	Eastern Ave						Piney Branch Rd					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	53.8	34.6	34.8	45.9	35.0	37.0	46.4	35.0	17.2	23.9	22.7	21.6
Movement LOS	D	C	C	D	D	D	D	D	B	C	C	C
Approach Delay (sec/veh)	35.6			36.8			26.6			22.8		
Approach LOS	D			D			C			C		
Average Queue (ft)	207	207	207	300	300	300	127	127	127	391	391	391
95th Percentile Queue (ft)	396	396	396	590	590	590	300	300	300	780	780	780
							Intersection Delay (sec/veh)				29.1	C

2.Eastern Ave and Holly Ave (Un-signalized)	Eastern Ave						Holly Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	4.2	0.7			3.9	1.8				19.1		15.3
Movement LOS	A	A			A	A				C		C
Approach Delay (sec/veh)	0.9			3.8						18.3		
Approach LOS	A			A						C		
Average Queue (ft)	8	4			20	20				24		24
95th Percentile Queue (ft)	-	-			-	-				53		53
							Intersection Delay (sec/veh)				19.1	C

3.Eastern Ave and Kiss & Ride (Un-signalized)	Eastern Ave						Kiss & Ride Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)		0.6	1.1	2.7	0.5		16.4		11.4			
Movement LOS		A	A	A	A		C		B			
Approach Delay (sec/veh)	0.7			0.8			14.9					
Approach LOS	A			A			B					
Average Queue (ft)		1	4	9	3		26		26			
95th Percentile Queue (ft)		-	-	-	-		53		53			
							Intersection Delay (sec/veh)				16.4	C

4.Eastern Ave and Bus Access (Un-signalized)	Eastern Ave						Bus Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)		2.2	1.4		0.3		25.1		28.2			
Movement LOS		A	A		A		D		D			
Approach Delay (sec/veh)	2.2			0.3			26.1					
Approach LOS	A			A			D					
Average Queue (ft)		2	3		0		7		7			
95th Percentile Queue (ft)		-	-		-		46		46			
							Intersection Delay (sec/veh)				28.2	D

5.Eastern Ave and Cedar Ave (Un-signalized)	Eastern Ave						Cedar Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)			10.7				19.5	0.4				8.0
Movement LOS			B				C	A				A
Approach Delay (sec/veh)	10.7						18.6			8.0		
Approach LOS	B						C			A		
Average Queue (ft)			70				95	0				20
95th Percentile Queue (ft)			173				230	-				50
							Intersection Delay (sec/veh)				19.5	C

6.Carroll St and Cedar Ave (Signalized)	Carroll St						Cedar Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	5.9	1.5			97.6	93.1				51.5		24.7
Movement LOS	A	A			F	F				D		C
Approach Delay (sec/veh)	2.0			96.0						41.6		
Approach LOS	A			F						D		
Average Queue (ft)	18	18			1402	1402				117		117
95th Percentile Queue (ft)	76	76			1512	1512				239		239
							Intersection Delay (sec/veh)				68.9	E

7.Carroll St and Bus Access (Un-signalized)	Carroll St						Bus Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	9.6	0.5			0.9	0.8				28.8		27.1
Movement LOS	A	A			A	A				D		D
Approach Delay (sec/veh)	0.6			0.9						28.3		
Approach LOS	A			A						D		
Average Queue (ft)	4	2			0	0				30		30
95th Percentile Queue (ft)	-	-			-	-				-		-
							Intersection Delay (sec/veh)				28.8	D

2020 No-Build AM Scenario 1 - No Signal Timing Optimization

8.Cedar St, Blair Rd and 4th St (Signalized)	Cedar St						Blair Rd						4th St		
	Eastbound			Westbound			Eastbound			Westbound			Northbound		
	EBL	EBT	EBR	WBL	WBT	WBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Movement Delay (sec/veh)	49.2	29.7	28.7	20.9	16.6	38.2	97.1	87.8	82.2	417.0	423.2	422.6	74.7	84.3	70.8
Movement LOS	D	C	C	C	B	D	F	F	F	F	F	F	E	F	E
Approach Delay (sec/veh)	30.4			23.3			88.9			423.0			77.3		
Approach LOS	C			C			F			F			E		
Average Queue (ft)	104	104	104	169	169	169	732	732	732	1110	1110	1110	112	112	112
95th Percentile Queue (ft)	188	188	188	290	290	290	886	886	886	1121	1121	1121	264	264	264
										Intersection Delay (sec/veh)			112.7		F

9.Piney Branch Rd and Blair Rd (Signalized)	Blair Rd						Piney Branch Rd					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	297.6	274.0	270.0	164.5	138.4	140.6	39.65	15.52	18.48	28.51	24.79	25.07
Movement LOS	F	F	F	F	F	F	D	B	B	C	C	C
Approach Delay (sec/veh)	274.4			138.9			22.1			25.5		
Approach LOS	F			F			C			C		
Average Queue (ft)	1425	1425	1425	853	853	853	49	96	2	392	392	392
95th Percentile Queue (ft)	1456	1456	1456	1099	1099	1099	133	218	18	895	895	895
							Intersection Delay (sec/veh)				100.9	F

2020 No-Build PM Scenario 1 - No Signal Timing Optimization

1.Eastern Ave and Piney Branch Rd (Signalized)	Eastern Ave						Piney Branch Rd					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	121.7	117.9	117.0	91.1	79.1	80.1	11.8	79.1	11.0	30.9	12.0	13.1
Movement LOS	F	F	F	F	E	F	B	E	B	C	B	B
Approach Delay (sec/veh)	117.7			80.4			10.4			16.2		
Approach LOS	F			F			B			B		
Average Queue (ft)	537	537	537	576	576	576	145	145	145	118	118	118
95th Percentile Queue (ft)	599	599	599	908	908	908	246	246	246	293	293	293
							Intersection Delay (sec/veh)				43.8	D

2.Eastern Ave and Holly Ave (Un-signalized)	Eastern Ave						Holly Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	9.7	3.3			25.0	15.0				62.4		37.2
Movement LOS	A	A			C	B				F		E
Approach Delay (sec/veh)	4.2			24.1						51.3		
Approach LOS	A			C						F		
Average Queue (ft)	41	30			130	130				24		24
95th Percentile Queue (ft)	-	-			-	-				64		64
							Intersection Delay (sec/veh)				62.4	F

3.Eastern Ave and Kiss & Ride (Un-signalized)	Eastern Ave						Kiss & Ride Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)		1.4	1.2	8.0	7.9		78.7		60.9			
Movement LOS		A	A	A	A		F		F			
Approach Delay (sec/veh)	1.4			7.9			73.3					
Approach LOS	A			A			F					
Average Queue (ft)		2	6	53	39		89		89			
95th Percentile Queue (ft)		-	-	-	-		233		233			
							Intersection Delay (sec/veh)				78.7	F

4.Eastern Ave and Bus Access (Un-signalized)	Eastern Ave						Bus Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)		5.1	1.2		2.4		32.7		38.8			
Movement LOS		A	A		A		D		E			
Approach Delay (sec/veh)	5.1			2.4			34.4					
Approach LOS	A			A			D					
Average Queue (ft)		12	18		9		9		9			
95th Percentile Queue (ft)		-	-		-		46		46			
							Intersection Delay (sec/veh)				38.8	E

5.Eastern Ave and Cedar Ave (Un-signalized)	Eastern Ave						Cedar Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)			12.0				19.1	0.8				8.1
Movement LOS			B				C	A				A
Approach Delay (sec/veh)	12.0						17.2			8.1		
Approach LOS	B						C			A		
Average Queue (ft)			111				98	0				24
95th Percentile Queue (ft)			294				208	-				52
							Intersection Delay (sec/veh)				19.1	C

6.Carroll St and Cedar Ave (Signalized)	Carroll St						Cedar Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	8.7	4.6			147.7	139.6				60.1		16.2
Movement LOS	A	A			F	F				E		B
Approach Delay (sec/veh)	5.6			144.5						49.9		
Approach LOS	A			F						D		
Average Queue (ft)	79	79			957	957				183		183
95th Percentile Queue (ft)	183	183			1508	1508				322		322
							Intersection Delay (sec/veh)				74.5	E

7.Carroll St and Bus Access (Un-signalized)	Carroll St						Bus Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	1.0	1.7			1.0	0.6				30.2		28.4
Movement LOS	A	A			A	A				D		D
Approach Delay (sec/veh)	1.7			1.0						29.5		
Approach LOS	A			A						D		
Average Queue (ft)	4	3			0	0				63		63
95th Percentile Queue (ft)	-	-			-	-				-		-
							Intersection Delay (sec/veh)				30.2	D

2020 No-Build PM Scenario 1 - No Signal Timing Optimization

8.Cedar St, Blair Rd and 4th St (Signalized)	Cedar St						Blair Rd						4th St		
	Eastbound			Westbound			Eastbound			Westbound			Northbound		
	EBL	EBT	EBR	WBL	WBT	WBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Movement Delay (sec/veh)	-	55.0	55.0	51.6	14.4	33.2	65.7	54.8	-	321.8	352.6	327.6	65.4	76.5	66.1
Movement LOS	-	D	D	D	B	C	E	D	-	F	F	F	E	E	E
Approach Delay (sec/veh)	54.9			32.2			57.8			348.4			71.8		
Approach LOS	D			C			E			F			E		
Average Queue (ft)	182	182	182	118	118	118	409	409	409	1112	1112	1112	134	134	134
95th Percentile Queue (ft)	342	342	342	251	251	251	641	641	641	1123	1123	1123	266	266	266
										Intersection Delay (sec/veh)			118.4		F

9.Piney Branch Rd and Blair Rd (Signalized)	Blair Rd						Piney Branch Rd					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	245.1	230.2	232.0	157.0	141.2	141.4	79.60	72.80	73.60	40.84	11.52	10.90
Movement LOS	F	F	F	F	F	F	E	E	E	D	B	B
Approach Delay (sec/veh)	230.8			141.4			73.7			18.5		
Approach LOS	F			F			E			B		
Average Queue (ft)	1430	1430	1430	1000	1000	1000	88	1136	3	110	110	110
95th Percentile Queue (ft)	1460	1460	1460	1099	1099	1099	255	1142	21	211	211	211
							Intersection Delay (sec/veh)				108.4	F

2020 No-Build AM Scenario 2 - Signal Timing Optimization - 100s Cycle

1.Eastern Ave and Piney Branch Rd (Signalized)	Eastern Ave						Piney Branch Rd					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	93.2	71.6	84.2	63.5	37.8	39.9	47.2	37.8	15.3	60.1	63.7	48.5
Movement LOS	F	E	F	E	D	D	D	D	B	E	E	D
Approach Delay (sec/veh)	78.0			41.7			26.7			63.3		
Approach LOS	E			D			C			E		
Average Queue (ft)	325	325	325	332	332	332	148	148	148	739	739	739
95th Percentile Queue (ft)	598	598	598	688	688	688	327	327	327	1639	1639	1639
							Intersection Delay (sec/veh)				54.2	D

2.Eastern Ave and Holly Ave (Un-signalized)	Eastern Ave						Holly Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	4.3	0.7			5.2	2.4				23.2		18.9
Movement LOS	A	A			A	A				C		C
Approach Delay (sec/veh)	1.0			5.1						22.3		
Approach LOS	A			A						C		
Average Queue (ft)	9	4			29	29				26		26
95th Percentile Queue (ft)	-	-			-	-				55		55
							Intersection Delay (sec/veh)				23.2	C

3.Eastern Ave and Kiss & Ride (Un-signalized)	Eastern Ave						Kiss & Ride Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)		0.7	1.1	3.2	0.8		17.6		10.7			
Movement LOS		A	A	A	A		C		B			
Approach Delay (sec/veh)	0.8			1.1			15.5					
Approach LOS	A			A			C					
Average Queue (ft)		1	5	13	6		26		26			
95th Percentile Queue (ft)		-	-	-	-		53		53			
							Intersection Delay (sec/veh)				17.6	C

4.Eastern Ave and Bus Access (Un-signalized)	Eastern Ave						Bus Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)		2.3	0.4		0.4		25.7		24.5			
Movement LOS		A	A		A		D		C			
Approach Delay (sec/veh)	2.3			0.4			25.3					
Approach LOS	A			A			D					
Average Queue (ft)		2	3		0		7		7			
95th Percentile Queue (ft)		-	-		-		46		46			
							Intersection Delay (sec/veh)				25.7	D

5.Eastern Ave and Cedar Ave (Un-signalized)	Eastern Ave						Cedar Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)			10.8				20.1	0.4				8.0
Movement LOS			B				C	A				A
Approach Delay (sec/veh)	10.8						19.1			8.0		
Approach LOS	B						C			A		
Average Queue (ft)			67				100	0				20
95th Percentile Queue (ft)			164				228	-				50
							Intersection Delay (sec/veh)				20.1	C

6.Carroll St and Cedar Ave (Signalized)	Carroll St						Cedar Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	5.2	0.8			64.5	60.5				65.2		29.2
Movement LOS	A	A			E	E				E		C
Approach Delay (sec/veh)	1.3			63.1						51.7		
Approach LOS	A			E						D		
Average Queue (ft)	12	12			1006	1006				128		128
95th Percentile Queue (ft)	63	63			1508	1508				271		271
							Intersection Delay (sec/veh)				49.2	D

7.Carroll St and Bus Access (Un-signalized)	Carroll St						Bus Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	7.0	0.4			1.4	1.0				29.8		27.8
Movement LOS	A	A			A	A				D		D
Approach Delay (sec/veh)	0.5			1.4						29.2		
Approach LOS	A			A						D		
Average Queue (ft)	3	1			2	2				32		32
95th Percentile Queue (ft)	-	-			-	-				-		-
							Intersection Delay (sec/veh)				29.8	D

2020 No-Build AM Scenario 2 - Signal Timing Optimization - 100s Cycle

8.Cedar St, Blair Rd and 4th St (Signalized)	Cedar St						Blair Rd						4th St		
	Eastbound			Westbound			Eastbound			Westbound			Northbound		
	EBL	EBT	EBR	WBL	WBT	WBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Movement Delay (sec/veh)	50.8	40.0	40.3	35.6	24.1	33.5	31.8	20.8	20.6	74.9	67.3	66.2	57.3	62.1	57.5
Movement LOS	D	D	D	D	C	C	C	C	C	E	E	E	E	E	E
Approach Delay (sec/veh)	40.7			29.1			22.6			67.3			59.6		
Approach LOS	D			C			C			E			E		
Average Queue (ft)	121	121	121	206	206	206	188	188	188	296	296	296	101	101	101
95th Percentile Queue (ft)	217	217	217	341	341	341	547	547	547	938	938	938	207	207	207
										Intersection Delay (sec/veh)				37.8	D

9.Piney Branch Rd and Blair Rd (Signalized)	Blair Rd						Piney Branch Rd					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	93.8	54.2	55.1	84.8	76.3	75.1	48.77	18.80	15.60	52.58	56.46	57.70
Movement LOS	F	D	E	F	E	E	D	B	B	D	E	E
Approach Delay (sec/veh)	55.3			76.3			26.8			55.8		
Approach LOS	E			E			C			E		
Average Queue (ft)	429	429	429	591	591	591	60	108	2	816	816	816
95th Percentile Queue (ft)	925	925	925	1087	1087	1087	213	249	18	941	941	941
							Intersection Delay (sec/veh)				55.5	E

2020 No-Build PM Scenario 2 - Signal Timing Optimization - 100s Cycle

1.Eastern Ave and Piney Branch Rd (Signalized)	Eastern Ave						Piney Branch Rd					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	57.2	40.2	41.0	50.7	35.1	36.7	36.5	35.1	29.3	33.9	15.0	15.0
Movement LOS	E	D	D	D	D	D	D	D	C	C	B	B
Approach Delay (sec/veh)	40.8			36.9			29.8			19.3		
Approach LOS	D			D			C			B		
Average Queue (ft)	272	272	272	274	274	274	395	395	395	149	149	149
95th Percentile Queue (ft)	586	586	586	569	569	569	856	856	856	304	304	304
							Intersection Delay (sec/veh)				30.9	C

2.Eastern Ave and Holly Ave (Un-signalized)	Eastern Ave						Holly Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	4.5	1.4			3.2	1.8				15.2		17.5
Movement LOS	A	A			A	A				C		C
Approach Delay (sec/veh)	1.8			3.1						16.2		
Approach LOS	A			A						C		
Average Queue (ft)	21	12			18	18				17		17
95th Percentile Queue (ft)	-	-			-	-				45		45
							Intersection Delay (sec/veh)				17.5	C

3.Eastern Ave and Kiss & Ride (Un-signalized)	Eastern Ave						Kiss & Ride Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)		1.4	1.1	5.4	1.1		23.6		17.7			
Movement LOS		A	A	A	A		C		C			
Approach Delay (sec/veh)	1.3			1.8			21.8					
Approach LOS	A			A			C					
Average Queue (ft)		1	4	21	12		41		41			
95th Percentile Queue (ft)		-	-	-	-		105		105			
							Intersection Delay (sec/veh)				23.6	C

4.Eastern Ave and Bus Access (Un-signalized)	Eastern Ave						Bus Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)		5.1	1.3		0.8		28.3		34.9			
Movement LOS		A	A		A		D		D			
Approach Delay (sec/veh)	5.1			0.8			30.2					
Approach LOS	A			A			D					
Average Queue (ft)		12	18		2		9		9			
95th Percentile Queue (ft)		-	-		-		46		46			
							Intersection Delay (sec/veh)				34.9	D

5.Eastern Ave and Cedar Ave (Un-signalized)	Eastern Ave						Cedar Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)			11.9				17.4	0.8				7.8
Movement LOS			B				C	A				A
Approach Delay (sec/veh)	11.9						15.6			7.8		
Approach LOS	B						C			A		
Average Queue (ft)			106				84	0				24
95th Percentile Queue (ft)			286				198	-				52
							Intersection Delay (sec/veh)				17.4	C

6.Carroll St and Cedar Ave (Signalized)	Carroll St						Cedar Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	10.3	5.5			31.8	27.9				53.8		26.6
Movement LOS	B	A			C	C				D		C
Approach Delay (sec/veh)	6.6			30.3						47.4		
Approach LOS	A			C						D		
Average Queue (ft)	89	89			270	270				178		178
95th Percentile Queue (ft)	189	189			773	773				319		319
							Intersection Delay (sec/veh)				27.0	C

7.Carroll St and Bus Access (Un-signalized)	Carroll St						Bus Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	1.3	1.9			7.4	3.0				29.5		27.6
Movement LOS	A	A			A	A				D		D
Approach Delay (sec/veh)	1.9			7.2						28.8		
Approach LOS	A			A						D		
Average Queue (ft)	4	2			11	11				72		71
95th Percentile Queue (ft)	-	-			-	-				-		-
							Intersection Delay (sec/veh)				29.5	D

2020 No-Build PM Scenario 2 - Signal Timing Optimization - 100s Cycle

8.Cedar St, Blair Rd and 4th St (Signalized)	Cedar St						Blair Rd						4th St		
	Eastbound			Westbound			Eastbound			Westbound			Northbound		
	EBL	EBT	EBR	WBL	WBT	WBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Movement Delay (sec/veh)	-	51.1	51.0	106.6	29.3	51.8	72.6	61.8	-	283.2	302.0	277.1	68.9	77.9	72.3
Movement LOS	-	D	D	F	C	D	E	E	-	F	F	F	E	E	E
Approach Delay (sec/veh)	51.0			61.7			64.2			298.3			75.3		
Approach LOS	D			E			E			F			E		
Average Queue (ft)	175	175	175	188	188	188	465	465	465	1082	1082	1082	142	142	142
95th Percentile Queue (ft)	322	322	322	481	481	481	760	760	760	1125	1125	1125	277	277	277
										Intersection Delay (sec/veh)			119.1		F

9.Piney Branch Rd and Blair Rd (Signalized)	Blair Rd						Piney Branch Rd					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	184.6	157.8	158.7	146.8	128.9	128.6	85.36	82.24	81.50	44.40	14.65	15.18
Movement LOS	F	F	F	F	F	F	F	F	F	D	B	B
Approach Delay (sec/veh)	158.7			129.0			82.6			21.9		
Approach LOS	F			F			F			C		
Average Queue (ft)	1111	1111	1111	989	989	989	81	1136	3	133	133	133
95th Percentile Queue (ft)	1456	1456	1456	1099	1099	1099	175	1146	21	264	264	264
							Intersection Delay (sec/veh)				96.0	F

2020 No-Build AM Scenario 3 - Adjust Lane Configurations - 100s Cycle

1.Eastern Ave and Piney Branch Rd (Signalized)	Eastern Ave						Piney Branch Rd					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	64.8	45.4	50.9	60.2	38.8	40.4	37.3	12.8	10.1	57.2	58.0	46.1
Movement LOS	E	D	D	E	D	D	D	B	B	E	E	D
Approach Delay (sec/veh)	48.7			42.1			19.4			57.8		
Approach LOS	D			D			B			E		
Average Queue (ft)	241	241	241	339	339	339	106	106	106	695	695	695
95th Percentile Queue (ft)	521	521	521	683	683	683	192	192	192	1639	1639	1639
							Intersection Delay (sec/veh)				45.5	D

2.Eastern Ave and Holly Ave (Un-signalized)	Eastern Ave						Holly Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	4.1	0.6			5.1	2.4				24.3		21.3
Movement LOS	A	A			A	A				C		C
Approach Delay (sec/veh)	0.8			5.0						23.7		
Approach LOS	A			A						C		
Average Queue (ft)	7	3			28	28				27		27
95th Percentile Queue (ft)	-	-			-	-				66		66
							Intersection Delay (sec/veh)				24.3	C

3.Eastern Ave and Kiss & Ride (Un-signalized)	Eastern Ave						Kiss & Ride Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)		0.6	1.0	2.5	0.8		17.8		12.5			
Movement LOS		A	A	A	A		C		B			
Approach Delay (sec/veh)	0.7			0.9			16.2					
Approach LOS	A			A			C					
Average Queue (ft)		1	4	11	4		27		27			
95th Percentile Queue (ft)		-	-	-	-		52		52			
							Intersection Delay (sec/veh)				17.8	C

4.Eastern Ave and Bus Access (Un-signalized)	Eastern Ave						Bus Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)		2.2	0.3		0.3		27.1		33.2			
Movement LOS		A	A		A		D		D			
Approach Delay (sec/veh)	2.2			0.3			29.1					
Approach LOS	A			A			D					
Average Queue (ft)		1	2		0		7		7			
95th Percentile Queue (ft)		-	-		-		46		46			
							Intersection Delay (sec/veh)				33.2	D

5.Eastern Ave and Cedar Ave (Un-signalized)	Eastern Ave						Cedar Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)			10.8				23.8	0.7				8.1
Movement LOS			B				C	A				A
Approach Delay (sec/veh)	10.8						22.7			8.1		
Approach LOS	B						C			A		
Average Queue (ft)			69				115	0				20
95th Percentile Queue (ft)			166				312	-				50
							Intersection Delay (sec/veh)				23.8	C

6.Carroll St and Cedar Ave (Signalized)	Carroll St						Cedar Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	7.0	1.0			11.3	14.2				64.7		28.6
Movement LOS	A	A			B	B				E		C
Approach Delay (sec/veh)	1.7			12.3						51.2		
Approach LOS	A			B						D		
Average Queue (ft)	14	14			166	166				130		130
95th Percentile Queue (ft)	68	68			426	426				276		276
							Intersection Delay (sec/veh)				16.7	B

7.Carroll St and Bus Access (Un-signalized)	Carroll St						Bus Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	14.0	0.6			1.4	1.0				34.1		27.4
Movement LOS	B	A			A	A				D		D
Approach Delay (sec/veh)	0.8			1.4						31.9		
Approach LOS	A			A						D		
Average Queue (ft)	6	4			1	1				35		35
95th Percentile Queue (ft)	-	-			-	-				-		-
							Intersection Delay (sec/veh)				34.1	D

2020 No-Build AM Scenario 3 - Adjust Lane Configurations - 100s Cycle

8.Cedar St, Blair Rd and 4th St (Signalized)	Cedar St						Blair Rd						4th St		
	Eastbound			Westbound			Eastbound			Westbound			Northbound		
	EBL	EBT	EBR	WBL	WBT	WBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Movement Delay (sec/veh)	49.9	39.9	40.5	37.7	25.5	34.5	32.8	21.3	22.0	67.1	56.4	55.3	56.0	60.4	56.9
Movement LOS	D	D	D	D	C	C	C	C	C	E	E	E	E	E	E
Approach Delay (sec/veh)	40.7			30.5			23.1			56.5			58.5		
Approach LOS	D			C			C			E			E		
Average Queue (ft)	121	121	121	221	221	221	194	194	194	258	258	258	100	100	100
95th Percentile Queue (ft)	217	217	217	335	335	335	567	567	567	581	581	581	192	192	192
										Intersection Delay (sec/veh)				36.2	D

9.Piney Branch Rd and Blair Rd (Signalized)	Blair Rd						Piney Branch Rd					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	93.1	54.4	55.0	82.3	72.7	74.1	46.69	16.80	16.51	46.68	52.39	54.61
Movement LOS	F	D	E	F	E	E	D	B	B	D	D	D
Approach Delay (sec/veh)	55.5			82.3			24.8			51.4		
Approach LOS	E			F			C			D		
Average Queue (ft)	430	430	430	571	571	571	53	59	59	773	773	773
95th Percentile Queue (ft)	931	931	931	1088	1088	1088	156	106	106	920	920	920
							Intersection Delay (sec/veh)				52.7	D

2020 No-Build PM Scenario 3 - Adjust Lane Configurations - 100s Cycle

1.Eastern Ave and Piney Branch Rd (Signalized)	Eastern Ave						Piney Branch Rd					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	55.6	40.8	41.4	49.9	34.4	37.0	47.4	45.1	44.5	40.4	18.6	14.6
Movement LOS	E	D	D	D	C	D	D	D	D	D	B	B
Approach Delay (sec/veh)	41.3			36.5			45.5			23.4		
Approach LOS	D			D			D			C		
Average Queue (ft)	269	269	269	257	257	257	495	495	495	182	182	182
95th Percentile Queue (ft)	571	571	571	550	550	550	554	554	554	434	434	434
							Intersection Delay (sec/veh)				38.8	D

2.Eastern Ave and Holly Ave (Un-signalized)	Eastern Ave						Holly Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	4.9	1.5			3.5	1.9				14.9		15.8
Movement LOS	A	A			A	A				B		C
Approach Delay (sec/veh)	2.0			3.3						15.3		
Approach LOS	A			A						C		
Average Queue (ft)	28	18			17	17				17		17
95th Percentile Queue (ft)	-	-			-	-				42		42
							Intersection Delay (sec/veh)				15.8	C

3.Eastern Ave and Kiss & Ride (Un-signalized)	Eastern Ave						Kiss & Ride Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)		1.3	1.1	4.2	0.9		22.1		16.8			
Movement LOS		A	A	A	A		C		C			
Approach Delay (sec/veh)	1.2			1.4			20.5					
Approach LOS	A			A			C					
Average Queue (ft)		2	5	18	9		41		41			
95th Percentile Queue (ft)		-	-	-	-		93		93			
							Intersection Delay (sec/veh)				22.1	C

4.Eastern Ave and Bus Access (Un-signalized)	Eastern Ave						Bus Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)		4.8	1.9		0.5		31.4		27.3			
Movement LOS		A	A		A		D		D			
Approach Delay (sec/veh)	4.8			0.5			30.3					
Approach LOS	A			A			D					
Average Queue (ft)		11	16		1		9		9			
95th Percentile Queue (ft)		-	-		-		46		46			
							Intersection Delay (sec/veh)				31.4	D

5.Eastern Ave and Cedar Ave (Un-signalized)	Eastern Ave						Cedar Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)			11.6				18.8	0.7				7.7
Movement LOS			B				C	A				A
Approach Delay (sec/veh)	11.6						16.9			7.7		
Approach LOS	B						C			A		
Average Queue (ft)			108				92	0				24
95th Percentile Queue (ft)			260				225	-				52
							Intersection Delay (sec/veh)				18.8	C

6.Carroll St and Cedar Ave (Signalized)	Carroll St						Cedar Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	11.3	6.8			31.9	31.8				30.5		14.5
Movement LOS	B	A			C	C				C		B
Approach Delay (sec/veh)	7.9			31.9						26.8		
Approach LOS	A			C						C		
Average Queue (ft)	102	102			209	209				141		141
95th Percentile Queue (ft)	238	238			663	663				243		243
							Intersection Delay (sec/veh)				22.6	C

7.Carroll St and Bus Access (Un-signalized)	Carroll St						Bus Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	2.3	2.7			7.7	3.5				33.3		28.5
Movement LOS	A	A			A	A				D		D
Approach Delay (sec/veh)	2.7			7.5						31.5		
Approach LOS	A			A						D		
Average Queue (ft)	11	8			14	14				72		72
95th Percentile Queue (ft)	-	-			-	-				-		-
							Intersection Delay (sec/veh)				33.3	D

2020 No-Build PM Scenario 3 - Adjust Lane Configurations - 100s Cycle

8.Cedar St, Blair Rd and 4th St (Signalized)	Cedar St						Blair Rd						4th St		
	Eastbound			Westbound			Eastbound			Westbound			Northbound		
	EBL	EBT	EBR	WBL	WBT	WBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Movement Delay (sec/veh)	-	51.3	51.5	103.0	25.7	21.6	90.3	74.3	-	50.3	42.5	43.9	65.6	61.8	65.6
Movement LOS	-	D	D	F	C	C	F	E	-	D	D	D	E	E	E
Approach Delay (sec/veh)	51.2			52.3			78.5			42.9			63.5		
Approach LOS	D			D			E			D			E		
Average Queue (ft)	175	175	175	191	191	191	564	564	564	293	293	293	132	132	132
95th Percentile Queue (ft)	329	329	329	515	515	515	887	887	887	547	547	547	253	253	253
										Intersection Delay (sec/veh)			58.7		E

9.Piney Branch Rd and Blair Rd (Signalized)	Blair Rd						Piney Branch Rd					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	101.5	76.6	72.3	59.2	31.1	31.5	49.74	44.63	59.00	60.93	33.83	34.35
Movement LOS	F	E	E	E	C	C	D	D	E	E	C	C
Approach Delay (sec/veh)	77.1			59.2			45.5			40.4		
Approach LOS	E			E			D			D		
Average Queue (ft)	641	641	641	331	331	331	93	616	616	283	283	283
95th Percentile Queue (ft)	1449	1449	1449	823	823	823	303	1136	1136	542	542	542
							Intersection Delay (sec/veh)				48.3	D

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1.Eastern Ave and Piney Branch Rd (Signalized)	Eastern Ave						Piney Branch Rd					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	50.4	31.1	34.7	49.2	33.4	33.6	41.1	10.4	10.0	75.0	76.0	62.5
Movement LOS	D	C	C	D	C	C	D	B	A	E	E	E
Approach Delay (sec/veh)	33.5			35.6			18.8			75.8		
Approach LOS	C			D			B			E		
Average Queue (ft)	197	197	197	337	337	337	77	77	77	878	878	878
95th Percentile Queue (ft)	387	387	387	666	666	666	163	163	163	1639	1639	1639
							Intersection Delay (sec/veh)				48.0	D

2.Eastern Ave and Holly Ave (Un-signalized)	Eastern Ave						Holly Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	6.3	1.1			4.0	1.2				30.2		25.0
Movement LOS	A	A			A	A				D		D
Approach Delay (sec/veh)	1.5			3.8						29.1		
Approach LOS	A			A						D		
Average Queue (ft)	12	6			27	27				29		29
95th Percentile Queue (ft)	-	-			-	-				71		71
							Intersection Delay (sec/veh)				30.2	D

3.Eastern Ave and Kiss & Ride (Un-signalized)	Eastern Ave						Kiss & Ride Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)		0.5	0.6	3.0	2.1		32.0		13.7			
Movement LOS		A	A	A	A		D		B			
Approach Delay (sec/veh)	0.5			2.2			27.4					
Approach LOS	A			A			D					
Average Queue (ft)		0	2	18	11		34		34			
95th Percentile Queue (ft)		-	-	-	-		82		82			
							Intersection Delay (sec/veh)				32.0	D

4.Eastern Ave and Bus Access (Un-signalized)	Eastern Ave						Bus Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)		2.9	1.7		0.3		25.3		34.7			
Movement LOS		A	A		A		D		D			
Approach Delay (sec/veh)	2.9			0.3			28.4					
Approach LOS	A			A			D					
Average Queue (ft)		2	3		0		7		7			
95th Percentile Queue (ft)		-	-		-		46		46			
							Intersection Delay (sec/veh)				34.7	D

5.Eastern Ave and Cedar Ave (Un-signalized)	Eastern Ave						Cedar Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)			10.4				24.8	0.9				8.0
Movement LOS			B				C	A				A
Approach Delay (sec/veh)	10.4						23.7			8.0		
Approach LOS	B						C			A		
Average Queue (ft)			66				121	0				20
95th Percentile Queue (ft)			157				305	-				49
							Intersection Delay (sec/veh)				24.8	C

6.Carroll St and Cedar Ave (Signalized)	Carroll St						Cedar Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	6.2	1.0			11.6	14.5				68.3		29.5
Movement LOS	A	A			B	B				E		C
Approach Delay (sec/veh)	1.6			12.6						53.7		
Approach LOS	A			B						D		
Average Queue (ft)	15	15			171	171				138		138
95th Percentile Queue (ft)	67	67			453	453				283		283
							Intersection Delay (sec/veh)				17.4	B

7.Carroll St and Bus Access (Un-signalized)	Carroll St						Bus Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	14.0	0.6			1.5	1.1				34.5		27.2
Movement LOS	B	A			A	A				D		D
Approach Delay (sec/veh)	0.8			1.5						32.1		
Approach LOS	A			A						D		
Average Queue (ft)	6	3			2	2				35		35
95th Percentile Queue (ft)	-	-			-	-				-		-
							Intersection Delay (sec/veh)				34.5	D

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8.Cedar St, Blair Rd and 4th St (Signalized)	Cedar St						Blair Rd						4th St		
	Eastbound			Westbound			Eastbound			Westbound			Northbound		
	EBL	EBT	EBR	WBL	WBT	WBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Movement Delay (sec/veh)	51.7	40.1	40.5	36.1	26.1	34.9	33.5	22.6	20.3	74.3	63.2	61.1	55.4	60.9	56.6
Movement LOS	D	D	D	D	C	C	C	C	C	E	E	E	E	E	E
Approach Delay (sec/veh)	40.9			30.6			23.9			63.1			58.6		
Approach LOS	D			C			C			E			E		
Average Queue (ft)	122	122	122	221	221	221	203	203	203	280	280	280	100	100	100
95th Percentile Queue (ft)	218	218	218	339	339	339	597	597	597	742	742	742	191	191	191
										Intersection Delay (sec/veh)				37.8	D

9.Piney Branch Rd and Blair Rd (Signalized)	Blair Rd						Piney Branch Rd					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	88.1	51.7	53.2	87.4	76.0	77.0	47.36	16.83	16.51	45.36	51.59	52.72
Movement LOS	F	D	D	F	E	E	D	B	B	D	D	D
Approach Delay (sec/veh)	52.7			87.4			25.0			50.5		
Approach LOS	D			F			C			D		
Average Queue (ft)	414	414	414	590	590	590	54	59	59	770	770	770
95th Percentile Queue (ft)	868	868	868	1088	1088	1088	156	106	106	901	901	901
							Intersection Delay (sec/veh)				52.5	D

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1.Eastern Ave and Piney Branch Rd (Signalized)	Eastern Ave						Piney Branch Rd					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	56.3	42.9	42.8	48.5	36.5	38.9	47.4	45.2	44.7	43.4	21.1	19.2
Movement LOS	E	D	D	D	D	D	D	D	D	D	C	B
Approach Delay (sec/veh)	43.1			38.2			45.6			26.3		
Approach LOS	D			D			D			C		
Average Queue (ft)	287	287	287	282	282	282	495	495	495	199	199	199
95th Percentile Queue (ft)	591	591	591	610	610	610	558	558	558	470	470	470
							Intersection Delay (sec/veh)				40.0	D

2.Eastern Ave and Holly Ave (Un-signalized)	Eastern Ave						Holly Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	5.7	2.3			2.9	1.2				15.6		18.1
Movement LOS	A	A			A	A				C		C
Approach Delay (sec/veh)	2.7			2.8						16.7		
Approach LOS	A			A						C		
Average Queue (ft)	33	23			19	19				18		18
95th Percentile Queue (ft)	-	-			-	-				47		47
							Intersection Delay (sec/veh)				18.1	C

3.Eastern Ave and Kiss & Ride (Un-signalized)	Eastern Ave						Kiss & Ride Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)		0.9	0.6	4.3	1.7		27.7		14.6			
Movement LOS		A	A	A	A		D		B			
Approach Delay (sec/veh)	0.9			2.2			23.6					
Approach LOS	A			A			C					
Average Queue (ft)		0	2	24	12		44		44			
95th Percentile Queue (ft)		-	-	-	-		143		143			
							Intersection Delay (sec/veh)				27.7	D

4.Eastern Ave and Bus Access (Un-signalized)	Eastern Ave						Bus Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)		6.3	3.5		0.4		29.5		28.7			
Movement LOS		A	A		A		D		D			
Approach Delay (sec/veh)	6.3			0.4			29.3					
Approach LOS	A			A			D					
Average Queue (ft)		11	15		0		9		9			
95th Percentile Queue (ft)		-	-		-		46		46			
							Intersection Delay (sec/veh)				29.5	D

5.Eastern Ave and Cedar Ave (Un-signalized)	Eastern Ave						Cedar Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)			11.3				19.0	0.7				7.8
Movement LOS			B				C	A				A
Approach Delay (sec/veh)	11.3						17.2			7.8		
Approach LOS	B						C			A		
Average Queue (ft)			93				97	0				25
95th Percentile Queue (ft)			235				234	-				52
							Intersection Delay (sec/veh)				19.0	C

6.Carroll St and Cedar Ave (Signalized)	Carroll St						Cedar Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	11.2	6.8			24.9	26.0				30.0		13.5
Movement LOS	B	A			C	C				C		B
Approach Delay (sec/veh)	7.8			25.3						26.1		
Approach LOS	A			C						C		
Average Queue (ft)	104	104			177	177				140		140
95th Percentile Queue (ft)	232	232			497	497				243		243
							Intersection Delay (sec/veh)				19.8	B

7.Carroll St and Bus Access (Un-signalized)	Carroll St						Bus Access					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	1.8	2.6			6.4	3.4				34.1		28.6
Movement LOS	A	A			A	A				D		D
Approach Delay (sec/veh)	2.6			6.3						32.0		
Approach LOS	A			A						D		
Average Queue (ft)	10	7			9	9				72		72
95th Percentile Queue (ft)	-	-			-	-				-		-
							Intersection Delay (sec/veh)				34.1	D

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8.Cedar St, Blair Rd and 4th St (Signalized)	Cedar St						Blair Rd						4th St		
	Eastbound			Westbound			Eastbound			Westbound			Northbound		
	EBL	EBT	EBR	WBL	WBT	WBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Movement Delay (sec/veh)	-	50.8	51.0	104.1	26.0	22.5	89.3	74.3	-	49.7	42.7	44.0	66.5	61.8	66.2
Movement LOS	-	D	D	F	C	C	F	E	-	D	D	D	E	E	E
Approach Delay (sec/veh)	50.8			52.9			77.5			43.1			63.8		
Approach LOS	D			D			E			D			E		
Average Queue (ft)	174	174	174	191	191	191	560	560	560	293	293	293	133	133	133
95th Percentile Queue (ft)	325	325	325	399	399	399	884	884	884	547	547	547	260	260	260
										Intersection Delay (sec/veh)			58.6		E

9.Piney Branch Rd and Blair Rd (Signalized)	Blair Rd						Piney Branch Rd					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement Delay (sec/veh)	98.5	75.5	72.3	64.1	31.4	30.9	48.08	43.48	54.02	60.51	33.55	33.49
Movement LOS	F	E	E	E	C	C	D	D	D	E	C	C
Approach Delay (sec/veh)	76.0			64.1			44.2			40.1		
Approach LOS	E			E			D			D		
Average Queue (ft)	635	635	635	329	329	329	83	592	592	280	280	280
95th Percentile Queue (ft)	1448	1448	1448	870	870	870	209	1136	1136	553	553	553
							Intersection Delay (sec/veh)				47.5	D