Table of Contents – Final Report – Part II - Appendices

Pennsylvania Community Transportation Initiative (PCTI)
Oakland/CMU Pedestrian Safety Mobility Study

Scope of Work

Issue Defined:

The Oakland community has the highest concentration of academic and medical institutions in the region and state. It has a daytime population of over 100,000 workers, students and visitors mingling with over 60,000 automobiles passing through on its two main arterials – Fifth Avenue and Forbes Avenue. The Oakland Transportation Management Association (OTMA) and Carnegie Mellon University (CMU) recognize that a smart transportation system should consider the infrastructure necessary to support multi-modal access, including walking, bicycling, transit, and private automobiles. Safety and mobility for all pedestrians, motorists, transit users and bikers have been constant concerns in the Oakland community.

Scope of the Project:

1. Review and analyze Accident data
    a. PennDOT will supply 5 year accident data for GAI.
    (As Fifth Avenue is a city road and Forbes Avenue is a state road; PennDOT will request both city and state data).
    b. KAI will analyze the accident data and document patterns and trends, and identify target locations for potential modifications. GAI will review and confirm findings.
    c. GAI will submit information to add to the PCTI public comment website to solicit information from students, employees, and other interested parties regarding potential improvement locations and pedestrian needs within the study area.
2. Inventory University parking supply (number of spaces)document needs
    a. Carnegie Mellon University Parking and Transportation will provide an inventory of all on campus parking lots and spaces.
    b. The Pittsburgh Parking Authority will provide an inventory of on street metered parking spaces in the study area.
    c. GAI will identify all on-street non metered parking and restrictions in the study area (see the attached map). GAI will not identify legally and illegally parked vehicles, but GAI will identify locations where parked vehicles interfere with traffic flow of any mode.
    d. GAI will provide analysis of the current parking capacity and demand within the study area. Parking occupancy counts will be taken midday between 10 AM and 2 PM. CMU will provide commuting population figures for all undergraduate and graduate full time and part time enrolments.
    e. GAI will provide parking management recommendations for the approved future growth scenario provided by Ayers Saint Gross, the CMU master planning consulting team.

3. Identify campus destinations and bike/pedestrian corridors
    a. GAI and KAI will meet with University and Ayers Saint Gross to identify current pedestrian and bicycle corridors.
    b. GAI and KAI will interview members of the steering committee including CMU, OTMA and City of Pittsburgh staff to establish campus and community planning trends and land use patterns.
    c. GAI will provide an urban design analysis and will provide a land use analysis for the study area corridors.
4. Concept designs
    a. GAI will provide conceptual diagrams, in both plan and section, of possible Complete Street configurations within existing Rights-of way.
    b. GAI and KAI will create options and make recommendations on the configurations.
    c. GAI and KAI will provide analysis of impacts on capacity of recommended options.
    d. GAI will create detailed concept designs for improvements at each intersection, and typical "Complete Streets" sections for all connecting streets.
5. Counts and Data Gathering
    a. TWE will collect pedestrian and cyclist, through traffic and turning movement counts at the ten (10) intersections in the study area (see map).
    b. Counts will be made during peak hours (7:00am – 10:00am and 3:00pm – 6:00pm).
    c. Counts will be conducted on regular business days (Tuesday, Wednesday and Thursday).
    d. Counts will be conducted while classes are in session – the 2010/2011 school year begins on August 30, 2010.
    e. Counts will be summarized every 15min.
    f. CMU will explore the option of working with graduate level Civil and Environmental Engineering students to assist in conducting manual counts.
    g. KAI will provide capacity analysis and signal phasing and timing changes for the entire study area.
    h. GAI will obtain details on the recently completed bicycle plan component of the "Pittsburgh Plan" Comprehensive Plan, currently underway.
    i. GAI will obtain current Port Authority Bus routings and stops and planned changes to routings due in June and September of 2010, as available.
    j. GAI will document typical street cross sections within the ten (10) intersection study areas.
    k. GAI will identify existing ADA ramps and traffic signal related components within the ten (10) study area intersections only, which obviously do not comply with current standards and guidelines.

6. Meetings and Presentations
    a. GAI will attend bi-weekly with the Steering Committee provide progress updates and to gather input and authorization on next steps from the Committee, KAI will attend via phone.
    b. GAI and KAI will meet with Ayers Saint Gross on June 3, 2010 regarding coordination with the University's Master Plan
    c. GAI and KAI will conduct one half-day open workshop (date and time to be determined) for members of the campus and city community to participate in the planning process
    d. GAI and KAI will interview up to 10 individuals as identified by the steering committee
    e. GAI will present all findings and recommendations to the steering committee before November 30, 2010

Deliverables:

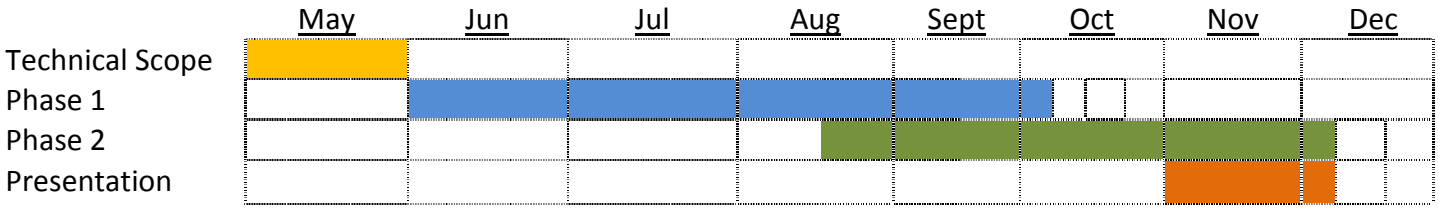
1. **Phase 1: A macro level report** to be used as an Appendix to the Carnegie Mellon University Institutional Master Plan 2010. This report will accomplish the following:
    a. Identify the major transportation, safety and mobility issues in the study area.
    b. Graphically represent accidents in the study corridor that provide detail about the type of accident, location and time of day.
    c. Provide a needs / demands assessment that includes an inventory of parking lots, number of spaces and overall capacity of the University's parking reservoir.
    d. Analyze current parking utilization and provide recommendations for future parking management and development strategies.
    e. Identify pedestrian and bicycle corridors and desired destinations.
    f. Provide an urban design and land use analysis for the study area that assesses the relationship between planning and transportation issues.
    g. Provide Draft concept designs and schematics for potential improvements. throughout the study area utilizing "Complete Streets" design theories and best practices.

DUE DATE: October 5, 2010.

2. **Phase 2: A micro level report** to be used to guide future design and construction activities and to pursue funding for physical infrastructure improvements by the Oakland Transportation Management Association. This report will include the following items:
    a. Pedestrian and cyclist counts at each intersection and throughout the study area.
    b. Traffic counts at each intersection and throughout the corridors.
    c. Turning movements at each intersection.
    d. Capacity analysis and cycle changes of roadways.
    e. Options for corridor improvements to enhance safety, movement and aesthetics.
    f. Options for pedestrian enhancements.
    g. Options for improved bicycle facilities.
    h. Options for bus stop relocations or eliminations.
    i. Recommendations on proposed options and feasibility of options on two or three key project initiatives.
    j. Refine Concept designs and schematics for the two or three recommended improvements.

DUE DATE: December 3, 2010.

Schedule



Appendix B: Non-Motorized Safety Toolbox

Oakland / CMU Pedestrian Safety Mobility Study

The Toolbox of Potential Strategies contains descriptions and examples of possible pedestrian and bicycle improvements to implement in the area around Carnegie Mellon University. These tools are based on some of the best practices across the country and are applicable to many locations in the study area. The Carnegie Mellon University Pedestrian Safety study will focus on near-term improvements that can be implemented at specific locations. Additional future considerations are presented at the end of this section, intended to serve as guidance as development occurs and/or additional funding becomes available.

The strategies presented in this section serve as countermeasures to many of the deficiencies and challenges that exist in the area. While each strategy is only applicable in certain locations, the combination of systematic pedestrian improvements throughout a given area has been shown to create significant improvements to pedestrian safety. For instance, a study contained in the 2010 Transportation Research Record, entitled "Reduction of Pedestrian Fatalities, Injuries, Conflicts, and Other Surrogate Measures in Miami-Dade, Florida" (Reference 5), documents the positive impact of inexpensive pedestrian safety measures. Several small-scale pedestrian improvements were implemented on eight high-crash corridors, following a public education and enforcement program on pedestrian safety. The two years following the installation of improvements resulted in a 41 percent reduction in the number of crashes.

The strategies contained in the next few pages are low-cost pedestrian and bicycle improvements that could be implemented in the next 1 to 5 years, depending on available funding. Projects include new installations or changes to existing pedestrian crossings, minor signal timing changes, and additional amenities for pedestrians. The treatments presented on the following pages are organized into five categories:

- Bicycle Improvements – aimed facilitating safe cycling behavior as well as encouraging cycling by creating more comfortable facilities
- Signal Timing Changes – aimed at promoting safety at intersection by making various changes in signal phase lengths and signal amenities
- Pedestrian Crossing Improvements – aimed at improving safety at locations where pedestrians cross roadways, including intersections
- Comfort and Convenience – aimed at improving the pedestrian and bicyclist experience with improved amenities, as well as better orienting travelers toward area destinations
- Other Improvements

The treatments presented under the category Comfort and Convenience serve to encourage travel by foot and by bicycle, which, particularly in the case of bicyclists, can lead to improved safety through increased number of users.

The treatments described below are organized to address deficiencies that were documented during our field visit and a review of historical crashes. The specific treatments within each category represent options for improvements.

This information is intended to provide an overview of each treatment, with information on its intended application. Many of the summaries also provide one or more examples of a recommended project in the project study area. Each example in the study area provides additional context for the development of the complete recommendation list for this plan.

Each treatment is presented on a half page with the following basic information:

- Typical cost provided by the Pedestrian and Bicycle Information Center (Reference 6)
- Description
- Effectiveness
- Implementation considerations
- Compliance with standards contained in the Manual on Uniform Traffic Control Devices (MUTCD) and Public Rights-of-Way Accessibility Guidelines (PROWAG)
- Photo or graphic

For each of the treatments, there may be specific locations within the study area that are identified for possible application. However, there are a number of treatments presented here for which a specific application has not been identified. More specific location recommendations will be made in the fall pending further data collection and analysis.

Several references were used to compile the information in the following sections, including the *Desktop Reference for Crash Reduction Factors* (Reference 8), "Pedestrian Countdown Signals: Experience with an Extensive Pilot Installation" (Reference 9), *NCHRP Report 562: Improving Pedestrian Safety at Unsignalized Crossings* (Reference 10), *Designing Walkable Urban Thoroughfares: A Context Sensitive Approach* (Reference 11), and other references cited throughout this report.

Signal Timing Changes

Signal timing changes at intersections range from minor changes in the amount of time for crossing pedestrians to the addition of pedestrian signals and push-buttons. These intersection improvements provide walkers with the time and awareness to cross approaches of the intersection, increasing safety for pedestrians and drivers.

LEADING PEDESTRIAN INTERVAL

Cost: Minimal staff time for signal re-timing

Description: Pedestrians are allowed to begin crossing at the crosswalk before conflicting vehicles start moving. For example, right-turning vehicles may have a red light for 5 to 7 seconds while pedestrians and through vehicles are allowed to begin through the intersection.

Effectiveness: Pedestrians get a head start on vehicles in crossing the roadway, increasing the percentage of turning drivers yielding to pedestrians. Note that right-turn-on-red is often prohibited in conjunction with leading pedestrian intervals (5).

Implementation Considerations: Adding a leading pedestrian interval reduces the amount of green time available for conflicting vehicle movements.

Compliance with Standards: Pedestrian Walk intervals should be a minimum of 4 to 7 seconds in duration. The Flash Don't Walk phase, according to the 2009 MUTCD, is based on the amount of time it takes a pedestrian to cross with a walk speed of 3.5 feet per second.

Application in Study Area: Intersections with heavy turning volumes could benefit from leading pedestrian intervals. No specific locations identified at this time, but may be identified pending data collection and analysis.

PEDESTRIAN COUNTDOWN SIGNALS

Cost: $20,000 to $40,000 for all four legs

Description: All new pedestrian signal heads, contrasted with static Walk/Flash Don't Walk signals, inform pedestrians of the time remaining to cross the street with a countdown on the signal head.

Effectiveness: Fewer pedestrians crossing the street late in the countdown, as compared to signal heads with only the Flash Don't Walk light. Fewer pedestrians left in crosswalk in steady don't walk phase (9).

Implementation Considerations: Pedestrian signal heads should be clearly visible while pedestrians are waiting and crossing the street.

Compliance with Standards: The 2009 MUTCD requires all new pedestrian signals, and any retrofitted signals, to include countdown pedestrian signals. Per MUTCD guidance, the countdown should include enough time for pedestrians to cross the full width of the street or, in rare cases, reach a refuge island.

Application in Study Area: The highest priority locations are at intersections that lack pedestrian signal heads altogether, such as along Fifth Avenue. All other pedestrian signals should be considered for retrofit to become compliant under the new MUTCD guidelines.

PROHIBIT RIGHT-TURNS ON RED

Cost: $300 to $500 per sign; $1,000 to $3,000 for electronic signs

Description: Reduces conflicts between cars and pedestrians by prohibiting cars to turn right, into the path of crossing pedestrians. This treatment may be deployed on a full-time or restricted basis.

Effectiveness: Electronic NRTOR signs have been shown to decrease pedestrian/vehicle conflicts significantly (5). According to the forthcoming AASHTO Highway Safety Manual, NRTOR also significantly reduces pedestrian crashes.

Implementation Considerations: Restricting right-turns at an intersection may increase delay for drivers.

Compliance with Standards: Prohibiting right-turns at intersections during the red phase complies with MUTCD standards

Application in Study Area: A number of intersections in the study area currently make use of NRTOR signs. Additional applications TBD.

CYCLE LENGTH ADJUSTMENTS

Cost: Minimal

Description: Reduce the amount of green time, and therefore overall cycle length, at intersections to decrease the amount of time pedestrians wait to cross the street.

Effectiveness: By reducing the average amount of time pedestrians wait to cross the street, pedestrians are more likely to cross during the Walk phase.

Implementation Considerations: May reduce capacity for vehicles and require coordination with jurisdictions operating signals on a corridor

Compliance with Standards: Signal timing changes comply with MUTCD standards as long as the minimum Walk and clearance times for the intersection are met.

Application in Study Area: TBD

PUSH-BUTTON RETROFITS

Cost: $5,000 to $10,000 for all four legs

Description: Signs above the pedestrian push-button indicate direction of crossing. “Confirm” press buttons acknowledge activation through a light or sound after called by a pedestrian.

Effectiveness: Confirm press buttons have been shown to increase the number of pedestrians using the push-button, and more pedestrians wait for the Walk phase at the signal (5).

Implementation Considerations: New confirm press pedestrian push-buttons are easily exchanged with existing ones. New installations at intersections without existing push-buttons are more costly. Intersections with high pedestrian delay, such as where there is an exclusive pedestrian phase, can benefit from the increased wait tolerance induced by push-buttons.

Compliance with Standards: The MUTCD specifies that separate poles, located at least 10 feet apart, should be used for pedestrian push-buttons unless physical constraints make use of two poles impractical.

Application in Study Area: All locations without confirm press push-buttons are candidates for installation. Priority should be given to locations with high pedestrian volumes or existing trends of low compliance. For example, the Forbes Avenue/Morewood Avenue intersection should likely be outfitted with push-buttons. Other new pedestrian signal installations along Fifth Avenue should also include confirm press push-buttons.

Crossing Improvements

Crossing improvements include upgrading intersection and mid-block crosswalks, reducing crossing distances for pedestrians, and adding new crossings locations. The strategies contained in this section improve safety at pedestrian crossing by reducing the amount of time they are exposed to vehicle traffic. Several of the complete street principles identified in the Countywide Mater Plan relate to crossing improvements:

- Encourage medians as pedestrian refuge islands.
- Design turning radii to slow turning vehicles.
- Reduce crossing distances.
- Increase crossing opportunities.

HIGH VISIBILITY CROSSWALKS

Cost: $1,200 for all four legs

Description: High visibility crosswalks better warn motorists to expect pedestrian crossings and indicate preferred crossing locations.

Effectiveness: At non-intersection locations, crosswalks are safest on roadways with lower traffic volumes and where drivers might expect pedestrians.

Implementation Considerations: Marked crosswalks should be used in conjunction with other improvements that help physically reinforce crosswalks and reduce vehicle speeds, especially at uncontrolled locations and on multi-lane or high-volume roadways. It is important that maintenance and durability are considered to ensure that crosswalks retain visibility.

Compliance with Standards: The MUTCD allows for various crosswalk marking patterns, but the “international” (or “ladder”) markings are strongly preferred due to increased visibility.

Application in Study Area: When restriping faded crosswalks at intersections and other crossings in the study area, more visible crosswalk patterns and/or more durable striping technology can be implemented.

RAISED MEDIAN ISLANDS

Interim striping/flex-bollards cost: $1,300 to $2,000 per crossing;
full construction cost: $4,000 to $30,000 per crossing

Description: Provide a protected area in the middle of a crosswalk for pedestrians to stop while crossing. Interim islands consist of striping on the pavement to identify pedestrian space, while fully constructed islands typically include curbs and signs notifying drivers to avoid the location.

Effectiveness: Installing raised medians have been shown to reduce the number of crashes at marked and unmarked crosswalks, as documented in the *Desktop Reference for Crash Reduction Factors* (8).

Implementation Considerations: Raised islands should notify crossing pedestrians that they are exiting a safe place by including detectable warning surfaces or changes in direction (for example, directing pedestrians towards oncoming traffic) in the design.

Compliance with Standards: At a minimum, raised islands should be 6 feet wide to accommodate persons in wheelchairs. Wider islands are often preferred, particularly when included on multilane facilities.

Application in Study Area: Refuge islands could be used in conjunction with a road diet and other pedestrian crossing improvements along Forbes Avenue and other roadway segments where the addition of a signalized intersection is impractical.

IN-STREET "YIELD FOR PEDESTRIANS" SIGNS

Cost: $300 to $500 per sign

Description: Signs placed in the middle of crosswalks to increase driver awareness of pedestrians and the legal responsibility to yield right-of-way to pedestrians in crosswalks

Effectiveness: Increases the number of drivers that yield to pedestrians in the crosswalk (10).

Implementation Considerations: Signs are placed in the middle of the roadway and are subject to possible damage from cars and trucks. In-street signs usually require more maintenance due to more frequent replacement.

Compliance with Standards: Signs comply with the latest guidance contained in the MUTCD.

Application in Study Area: A sign could be used in conjunction with other improvements, such as high-visibility crosswalk markings, beacons, or a hybrid signal at the midblock crossing on Forbes Avenue in front of the Hamburg building.

RECTANGULAR RAPID FLASH BEACON

Cost: $10,000 to $15,000 for both directions

Description: Signs with a pedestrian-activated "strobe-light" flashing pattern attracts attention and notifies the driver that pedestrians are at the crosswalk.

Effectiveness: RRFBs on the side of the road increase driver yielding behavior significantly (to around 80% typically). Additional signs can be included on a center island or median, although these have a lower marginal benefit as compared to roadside signs (10).

Implementation Considerations: Flashing pattern can be activated with manual push-buttons or automated passive (e.g., video or infrared) pedestrian detection, and should be unlit when not activated.

Compliance with Standards: The MUTCD gave interim approval to RRFBs for optional use in limited circumstances in July 2008. The interim approval allows for usage as a warning beacon to supplement standard pedestrian crossing warning signs and markings at either a pedestrian or school crossing, where the crosswalk approach is not controlled by a YIELD sign, STOP sign, traffic-control signal, or at a roundabout.

Application in Study Area: A Rectangular Rapid Flash Beacon should be considered at the midblock crossing on Forbes Avenue in front of the Hamburg building to increase pedestrian visibility and remind drivers to stop for crossing pedestrians.

PEDESTRIAN HYBRID SIGNAL

Cost: $50,000 to $75,000 per installation

Description: The pedestrian activated signal (also known as a HAWK signal), unlit when not in use, begins with a flashing yellow light altering drivers to slow. A solid red light requires drivers to stop while pedestrians have the right-of-way to cross the street. While the pedestrian signal is in the Flash Don't Walk Phase, the overhead signal flashes red, and drivers may proceed if the crosswalk is clear.

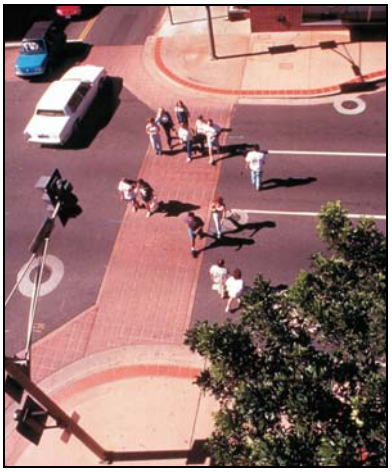
Effectiveness: Studies show that hybrid signals result in over 95 percent of drivers yielding to pedestrians. Moreover, drivers experience less delay at hybrid signals compared to other signalized intersections (10).

Implementation Considerations: Pedestrian Hybrid Signals should only be installed at marked crosswalk locations with additional signs to warn drivers about the pedestrian crossing. Maintenance is similar to a full signal.

Compliance with Standards: Included in the 2009 MUTCD

Application in Study Area: The long distances between intersection crossings on Forbes Avenue and Fifth Avenue could be reduced with the installation of a pedestrian hybrid signal.

CURB EXTENSIONS



Interim striping cost: $1,300 to $2,000 per corner;
full construction cost: $5,000 to $25,000 per curb

Description: Extend the sidewalk into the street (typically a parking lane) to create additional space for pedestrians

Effectiveness: Allow pedestrians and vehicles to see each other at the crosswalk. Curb extensions (or pedestrian bulb-outs) also reduce crossing distance for pedestrians, reducing the amount of exposure to traffic.

Implementation Considerations: Curb extensions are more easily installed along roadways with on-street parking since not all lanes are used for through traffic. They may be installed at intersections or mid-block crossings.

Compliance with Standards: Curb extensions comply with the MUTCD and PROWAG. Note that PROWAG provides design specifications associated with curb ramps (at curb extensions and elsewhere).

Application in Study Area: Curb extensions should be considered along roadways in the study area that have on-street parking, such as S Craig Street and portions of Fifth Avenue.

REDUCED CURB RADII

Interim striping cost: $2,500 to $4,000 per corner; **full construction cost:** $5,000 to $25,000 per curb

Description: Reconstructing a street corner with a smaller radius to reduce vehicle speeds while turning.

Effectiveness: Smaller curb radii can improve the safety for pedestrians at intersections by reducing crossing width, providing additional space for pedestrians to wait before crossing, and slowing turning vehicles.

Implementation Considerations: The design of the curb radius is a function of the angle between the intersecting streets, typical size of vehicles at the intersection, and maintenance. For example, intersections with several large trucks may need to have a slightly larger curb radius than local streets, typically 15 to 25 feet. However, streets with on-street parking or bicycle lanes can have smaller radii since vehicles have more space to negotiate turns.

Compliance with Standards: Curb radius modifications comply with the MUTCD and PROWAG. Note that PROWAG provides design specifications associated with curb ramps (at curb extensions and elsewhere).

Application in Study Area: Most of the intersections along Fifth Avenue would benefit from reduced curb radii and/or curb extensions. The Forbes Avenue/Morewood Avenue intersection is also recommended for a curb radii reduction and accompanying crosswalk realignment.

Comfort and Convenience

Strategies to improve comfort and convenience for pedestrians enhance the pedestrian environment, encouraging people to walk between destinations. Types of improvements include pedestrian-scaled amenities such as wayfinding signs, parks, lighting, and benches. The strategies contained in this section focus on creating a comfortable and safe pedestrian environment that increases the number of pedestrians in the area. These strategies primarily fulfill needs to "Encourage pedestrian-scaled land use and urban design," as included in the Countywide Master Plan of Transportation.

IMPROVED WAYFINDING

Cost: $500 for signs, more for complete network

Description: Signs directing pedestrians towards destinations in the area, typically including distances or average walk times.

Effectiveness: Wayfinding signs make it easier for residents and visitors to navigate the station area.

Implementation Considerations: Signing should be uniform and consistent through the area, and should complement existing wayfinding signs implemented by other agencies.

Compliance with Standards: Pedestrian wayfinding is not covered by the MUTCD. The MUTCD provides standard guidance signs for bicycle wayfinding applications.

Application in Study Area: Provide guidance along major pedestrian routes for reaching area attractions including university facilities. Complement wayfinding signs for drivers with cyclist-oriented information.

LANDSCAPING

Cost: Wide range based on treatment

Description: Landscaping treatments range from planted strips on roadways to small "pocket" parks on corners to improve aesthetics.

Effectiveness: Not applicable

Implementation Considerations: Depending on the application, landscaping costs vary substantially based on the type of amenities provided. The amount of space available for landscaping will influence the extents. Landscaping such as shrubs, trees, and flowers should be regularly maintained to preserve the quality of public space.

Compliance with Standards: Landscaping is not a traffic control device, and is not covered by the MUTCD.

Application in Study Area: The sidewalk along Forbes Avenue west of Morewood Avenue could be made more comfortable by scaling back the landscaping.

LIGHTING

Cost: $10,000 to $15,000 per light

Description: Pedestrian-scaled lighting along sidewalks and pathways

Effectiveness: Street lighting enhances pedestrian safety and security by lighting areas at night, making walkers visible to drivers and others. Lighting is particularly beneficial in commercial districts or frequently traveled routes.

Implementation Considerations: The physical structure (pole) should not obstruct sidewalks and all pathways, particularly crosswalks, should be well lit. Lighting levels should be uniform as to not distract drivers on the roadway.

Compliance with Standards: The Illuminating Engineering Society of North America provides specific guidance for walkways and bikeways (12).

Application in Study Area: TBD

BENCHES AND TRASH RECEPTACLES

Cost: $500 to $1,500 for benches and $500 to $1,000 for trash receptacles

Description: Benches are typically placed along sidewalks or multiuse pathways for pedestrians to rest, while trash receptacles provide a location for waste along frequented paths.

Effectiveness: Benches enhance pedestrian areas, particularly commercial districts, by allowing people to socialize and linger.

Implementation Considerations: These investments should be made where there is currently, or expected, heavy pedestrian activity. In order to preserve park and open spaces, trash cans should be provided to reduce the likelihood of littering in these more sensitive areas. Trash cans need to be emptied regularly to prevent overflowing.

Compliance with Standards: Street furniture should not reduce the minimum clear distances required for adjacent pedestrian walkways.

Application in Study Area: Both treatments are recommended throughout the study area.

Bicycle Improvements

Bicycle improvements include a range of treatments that can be installed along sections of roadway or at intersections in order to foster safe bicyclist behavior and to improve visibility of bicycle users among other roadway users. The treatments contained in this section focus on using existing roadway space for bicyclists. On-street facilities can also be combined with other mentioned treatments, such as improved wayfinding.

BIKE LANE MARKINGS

Cost: $1,000 to $5,000 per mile

Description: Bike lanes are the area of a roadway designated for non-motorized bicycle use, separated from vehicles by pavement markings.

Effectiveness: Bike lanes improve safety and comfort by increasing visibility and awareness of cyclists, in addition to providing adequate facilities for biking.

Implementation Considerations: Bike lanes are typically 5 feet or wider on roadways with a curb and gutter. Consideration should be given for a wider bike lane depending on the amount space consumed by existing gutters and other obstructions.

Compliance with Standards: The AASHTO Guide for the Development of Bicycle Facilities recommends a minimum width of 5 feet for bike lanes adjacent to parking, curbs, or guardrails (6).

Application in Study Area: Bike lanes could incorporated into a road diet along Forbes Avenue.

BICYCLE SHARROWS

Cost: $200 to $300 per stencil

Description: A shared-lane marking, or sharrow, is a pavement marking that can be used where space does not allow for a bike lane. Sharrows remind motorists of the presence of bicycles and indicate to cyclists where to safely ride within the roadway.

Effectiveness: Studies in San Francisco and in Florida have found that sharrows significantly reduce wrong-way and sidewalk riding, as well as improve cyclist positioning in the roadway.

Implementation Considerations: Sharrow are placed inside of a travel lane and should be located so as to position riders safely outside of the "door zone." Sharrows can be useful on busier roads when speeds are not too high.

Compliance with Standards: Included in the 2009 MUTCD.

Application in Study Area: Craig Street may be a good candidate for sharrows.

ENHANCED SHARROWS

Cost: Uncertain; $10,000 to $50,000 per mile

Description: An enhanced sharrrow combines the sharrow marking with a colored stripe that further emphasizes the presence and likely riding location of cyclists.

Effectiveness: Enhanced sharrows can theoretically further the benefits provided by normal sharrows.

Implementation Considerations: Same as for sharrows. Enhanced sharrows have been installed in only a few locations. Ongoing costs to maintain color may be a concern.

Compliance with Standards: Like colored bike lanes, enhanced sharrows are not yet MUTCD compliant.

Application in Study Area: Enhanced sharrows could be used in areas where sharrows work to add extra visibility and awareness. Craig Street may be a good candidate for sharrows or enhanced sharrows.

BIKE BOX

Cost: Varies based on materials and related signage or signal needs. Up to $10,000 or more per box.

Description: A bike box is a marked area in front of the stop bar at a signalized intersection that allows cyclists to correctly position themselves for turning movements during the red signal phase by pulling ahead of the queue.

Effectiveness: Bike boxes have been shown to decrease conflicts and accidents between cars and bicycles. They have been found to be most effective when combined with a colored bike lane that continues straight into the intersection.

Implementation Considerations: Bike boxes should be located in a right-hand lane where on-street bike treatments exist. A bike box should be implemented in conjunction with a No Right Turn On Red sign and regulation. On-going costs to maintain color may be a concern.

Compliance with Standards: Not yet MUTCD compliant.

Application in Study Area: TBD

Other Improvements

This last type of treatments included in this section are improvements that include installing new walkways, consolidating or relocating bus stops to improve transit times, and establishing waiting space for transit riders at stops. The strategies contained in this section improve pedestrian comfort and safety by defining space for walkers, while improving access to transit.

BUS STOP CONSOLIDATION / RELOCATION

Cost: minimal cost to remove existing stops; new shelters cost $10,000 to $15,000

Description: Bus stops located close to one another can be consolidated into a single stop, reducing the total number of stops the bus has to make and concentrating boardings/alightings at one location. Bus stops can also be relocated to improve access to existing sidewalks, crosswalks, or destinations.

Effectiveness: Reducing the number of stops from 10 per mile to 8 per mile increases average bus speeds by 1.5 minutes/mile or more, depending on average dwell time at stops.

Implementation Considerations: The placement of bus stops depends on the existing transit network and operator. Coordination with The Port Authority is necessary to determine if or where potential stops could be moved. Consideration should also be given to the available right-of-way and/or willingness of adjacent property owners to have stop amenities on their property.

Compliance with Standards: N/A

Application in Study Area: TBD

MULTIUSE PATHWAYS

Cost: $11 to $15 per square foot

Description: Sidewalks and multiuse pathways are the primary facilities for pedestrians to travel and provide mobility to various destinations. They can also serve as additional facilities for bicyclists.

Effectiveness: Safe and comfortable walkways have been shown to increase pedestrian use.

Implementation Considerations: Walkways should be part of every new roadway and retrofitted in locations without them to complete a network of pedestrian facilities. Where possible, a buffer (4 to 6 feet) should be provided to separate pedestrians from vehicle traffic.

Compliance with Standards: For ADA compliance, the minimum clear width of a sidewalk is 4 feet, but the FHWA and the Institute of Transportation Engineers (ITE) recommend a 5-foot minimum for pedestrians to pass one another or walk side-by-side.

Application in Study Area: No specific locations identified.

ACCESS MANAGEMENT

Cost: N/A

Description: Access management represents a long-term strategy focused on reducing conflicts at access points Excessive curb cuts along sidewalks contribute to an uncomfortable and unsafe pedestrian environment.

Effectiveness: N/A

Implementation Considerations: As redevelopment and reconstruction occurs, driveway access should be consolidated among properties where possible and curb cuts should be reduced to the minimum distance needed for safe ingress/egress.

Compliance with Standards: N/A

Application in Study Area: Several driveways with full or partial access exist along Forbes Road. As redevelopment opportunities arise, driveways should be consolidated and/or shrunk to minimize conflicts between turning vehicles and pedestrians. Where feasible, building accesses should be on minor streets or in the rear of buildings to improve pedestrian safety.

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Appendix A

CMU Pedestrian Safety Mobility Public Workshop
November 17, 2010

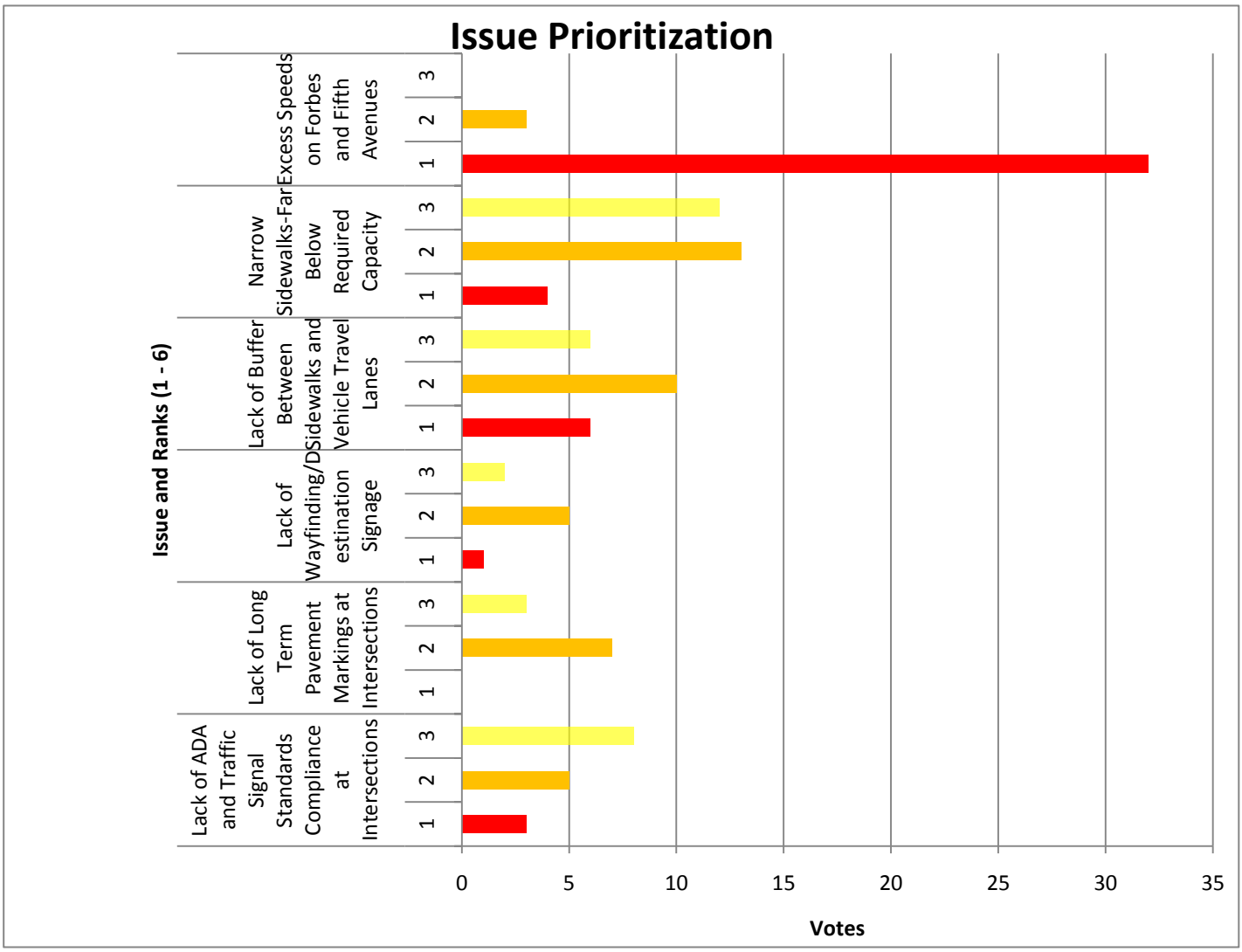
Summary of Feedback and Public Comments

Issue Prioritization

Attendees were asked to rank the top three priorities to be addressed of the following six:

- Lack of ADA and Traffic Signal Standards
- Lack of Long Term Pavement Markings at Intersections
- Lack of Wayfinding/Destination Signage
- Lack of Buffer Between Sidewalks and Vehicle Travel Lanes
- Narrow Sidewalks-Far Below Required Capacity
- Excess Speeds on Forbes and Fifth Avenues

The following chart presents the results of the issue prioritization exercise.



Issue Prioritization Analysis

- "Excess speeds on Forbes and Fifth Avenues" was ranked as the most important issue by 32 of the attendees.
- "Lack of Buffer Between Sidewalks and Vehicle Travel Lanes" was ranked as the most important issue by 6 attendees, and was ranked as the second or third most important issue by 16 attendees.
- "Narrow Sidewalks - Far Below Required Capacity" was ranked as the most important issue by only four attendees, but 25 attendees ranked it second or third.
- "Lack of ADA and Traffic Signal Standards," "Lack of Long Term Pavement Markings at Intersections," and "Lack of Wayfinding/Destination Signage" were ranked as the most important issue by 3, 0, and 1 attendees, respectively. These issues were given lower priority rankings, if they were ranked at all.

Comments – Overview

Forty-nine (49) attendees provided written comments on the feedback sheets. Overwhelmingly, the inclusion and consideration of bike lanes and bike traffic was the most discussed topic. The following bullets summarize attendees' comments:

- Attendees named the lack of safe, adequate bike lanes as the biggest issue
- Attendees felt that adding bike lanes would slow traffic and would be safer for pedestrians
- Busses entering the bike lanes and bike safety at intersections were two major issues discussed
- Other issues included concern about high-speed traffic and pedestrian safety, lack of adequate parking, lack of adequate signage, and the importance of public transportation

Comments – Details – As Direct Quotes by the Attendees

- Comments on specific concepts

    - I like #14 (Forbes Ave. Bike Lane) with median trees.
    - As a bicyclist I like the Morewood Ave. sidewalk alternative concept. 8' is plenty for cyclists to pass each other and the sidewalk way off the street is wonderful. The Fifth Ave. bike lane alternative concept Figure # 15 is the best way to go.
    - The Forbes Ave bike lane alternative concept figure #14 has long been needed.
    - Figure 6- There needs to be an expansion of bike racks on the academic mall.
    - Figure 10- On street biking routes differ little in practical terms to cautionary bike routes. There are no dedicated lanes and the automotive traffic is hostile. Dedicated bike lanes which are culturally separated from the auto lanes is absolutely necessary to ensure the safety of bikers.
    - Figure 13- The alternative concept elects a bush more important than including bike lanes. Additionally, the bush separates lanes of traffic instead of pedestrian and automotive.
    - Figure 14-Second concept needs bike lanes with the sidewalk traffic.
    - Figure 17- This concept has most promise, only change should be separated bike lanes.
    - Of the 4 scenarios presented for Forbes, the bike lane alt. concept is by far the best. But, why is the median so large? Two smaller medians, one between each bike lane and the traffic would be better. Cars turning across the bike lanes without looking first is a huge concern. Where's the bus stop? Turning left from Morewood onto Forbes and then entering CMU campus (up the sidewalk by bike) needs consideration.
    - Forbes Ave bike lane alternative concept- best of the four presented. Is the 6' median for bus passengers?
    - Morewood- Sidewalk alternative looks great. My bike route home continues up Morewood into the 1-way section, so to avoid crossing I would use the road when going north, trail for south.
    - Fifth- Bike lane alt looks great.
    - Love the bike lanes on Fifth. Much better use of the real estate than parking cars on it.
    - Forbes: Would like to see a hybrid of them with 2 5' bike lanes and 3 10' auto lanes for a total of 40'. Do not want to see the bike lanes pushed out of this. Separated bike paths are great and all but they also require a dedicated level of maintenance that simple paint wouldn't do (plowing, sweeping, etc)

- The plans proposed for Fifth Ave and Morewood look helpful. I worry that the bike trail on Morewood might not be wide enough, especially for 2-way traffic- there is a lot of bike traffic on that street. As far as Forbes, a problem with separating the bike track is that left turns for cyclists would be made trickier. Another concern I have about Forbes Ave is that there is a lot of bus traffic and busses would be pulled into the bike lanes frequently, causing problems for cyclists needing to merge into a single traffic lane to go around busses.
- Can a single side of the road bike trail be developed in the study area (figure 17) beyond Morewood Avenue, for example, on Forbes Ave?
- DO NOT LINE BIKE PATHS WITH CURBS. Dangerous to bikes.

- <u>Bike lane issues</u>

  - No bike lanes. Having two lanes on either side is unnecessary. They could easily be eliminated to make way for bike lanes.
  - Safe bicycle circulation on streets.
  - The CMU campus as such has always (40 years in my personal experience) done a good job of accommodating both bicycle and pedestrian circulation on wide walkways. However, west of campus (pretty much everything except Schenley Park) is consistently a nightmare.
  - Providing a safe facility for bicyclists thus enhancing their safety.
  - Lack of bike lanes most important.
  - Please place the highest priority on establishing bicycle lanes throughout the Oakland corridor, as well as bike boxes to prevent right hooks at intersections.
  - Biking access/bike lanes.- Why isn't this on your list? You've obviously thought about giving the bikeways in some of the alternative plans.
  - Please consider how this planning fits into larger scale planning in the city. As a cyclist, I appreciate the marked bike lanes, but a REAL commitment to cycling as an alternative includes the kind of dedicated and SEPERATED bikeways shown in some of the alternatives.
  - Lack of safe bike lanes, adequate bike parking and good public transportation.
  - Bike lanes will reduce automobile traffic.
  - Strongly in favor of bike lane additions as a calming influence on Forbes Ave.
  - Wider sidewalk on Forbes Ave. bridge
  - In order to encourage a more sustainable future, I would suggest bike lanes on Fifth and Forbes. The public might be slow to accept them, but if bike lanes are

postponed indefinitely, then almost no one new will take up bike commuting and the streets will get more and more crowded.

- Bicycle circulation at nearby streets.
- Lack of bike lanes needs addressed.
- I like the idea of a bike lane separated by a median. East Liberty Blvd. has a nice bike lane, but it is frequently used as a drive lane (at passing speeds). A median would provide for safer cycling and encourage students to use alternative transit.
- More bike lanes please.
- Bikes should be a part of any design.
- The biggest problem bikes have is at intersections. Need improvements here not just bike lanes mid-block.
- "Bike boxes" is great idea.
- Also, pedestrian crossings take too long to stop the traffic.
- Advanced stop lights for bikes work well at intersections- right turn on red is not permitted and bikes are allowed to stop near lights ahead of the cars. This lets bikes exit the intersection faster before the cars move on.
- Need bicycle lanes, esp. on Morewood, but also on Forbes and 5th.
- Bike lanes would be such an important addition to this development. The number of cyclists in Pittsburgh is growing; both residents and students commute by bike. Bike lanes make sense and they provide safety for everyone- cyclists and motorists.
- BIKE LANES! More space for bikes make more space on sidewalks. Less lanes slows traffic.
- Lack of dedicated east-west dedicated bike lanes. Fifth is a major artery, as is Forbes
- My highest priority is installing bike infrastructure. On Forbes, there should be a bike lane (not separated) on the downhill side and a lane or separated path on the uphill side. Increase bike lanes.
- Bike paths needed.
- Concern about busses
    - If there is a way to route bikes AROUND THE BUS STOPS, that would be great.
    - If you were to build bike lanes, the busses would most definitely jump into the bike lane to pick up passengers.

- Pedestrian traffic issues

    - Lack of facilities separating bicycles from pedestrians. Bike lanes will enhance pedestrian safety.
    - A major complaint I hear all the time from pedestrians in Oakland is that there are too many bicyclists riding on the sidewalk and jeopardizing their safety. However, without proper on-street facilities, some bicyclists currently feel safer riding on sidewalks. We need to lanes in order to 1. Get more cyclists onto the streets and off the sidewalks 2.

- Traffic and high-speed issues

    - If vehicle capacity on Forbes is reduced, what will be the effect on other roads i.e. through Schenley Park?
    - Put a buffer between the sidewalks and fast moving vehicle travel lanes.
    - Traffic control to help with speed.
    - Space, especially on 5th is so limited so making traffic of all kind as efficient as possible is essential.
    - Parked at Daugherty Lot, had to run across Forbes as cars sped by. It felt like the cars TRIED to hit the pedestrians.
    - Frew Street is like a freeway. Motorist travel at high rates of speed on a street that connects to the Oakland business district.
    - Excess speeds on Forbes and Fifth is not an issue near CMU campus, only Pitt.
    - I like idea of slowing traffic on Forbes and creating signage prior to intersections.
    - Consider speed tables, possibly combined with cross walks, for speed control on Forbes and Fifth
    - I feel that a 25 mph speed limit through a pedestrian area is still too fast.
    - Constricting the flow of traffic eastbound on Fifth from 2 to 1 lane seems unlikely to succeed because of how much it will increase congestion. In this same vein, if any of the sections of Forbes and Fifth that currently serve 2 lanes are reduces to 1, where will the busses stop? Either: Traffic will have to stop (unpopular, problematic, increases congestion) or the buses will need dedicated pull-aside areas (needs a lot of planning and how could these be made to interact safely with the bike lanes?)

- Signal and lane issues

    - Be sure traffic signals will sense bicyclists.
    - Blinking light as you exit U.C. onto Forbes.
    - Consider surrounding areas- if 5th/Forbes reduced to fewer lanes but further down is still 3 lanes?
    - Lack of long term pavement markings at intersections- particularly "bike boxes" as used in Portland Oregon.
    - Lack of wayfinding/destination signage- especially planned bicycle route signage.
    - Lack of turn lanes.
    - Do not support the "median" concept on Forbes Ave.
    - Sidewalks on Negley

- Communication issues

    - More notice for meetings/comments.
    - I would love to get involved as someone who lives in Oakland. I am a student looking to make a big impact on the City of Pittsburgh. Please contact me for more input. bplarkin@andrew.cmu.edu

- Parking

    - More parking! The lots are not convenient to the Tepper building, forcing staff and students to park at the meters. The meters are old and broken and most staff park at the meters for 8+ hours, limiting availability.
    - Lots are full=recheck the numbers! Garage is NOT always available during events, fairs, alum events etc. Also garage parking is expensive =Daugherty More wood $80 a month, Sorority = $95 a month, Fine Arts=$110 a month, cars are trying to find parking on street causing unsafe driving conditions.

- Public Transportation

    - Figure 9- Bus stops completely lack posted bus schedules, most lack the “text for schedule” service and the couple “text for schedule” are not compliant with the Port Authority website schedules or with the actual buses.
    - Keep bus transit to Oakland alive.

- Access

    - You are missing one major crossing of Forbes, Devonshire IS a point of access to the campus. Devon is used by many from Shadyside as an access to campus.

Appendix B

Traffic Counts

The traffic counts were obtained by T.W. Engineering Inc. during the week of September 12, 2010. The counts were not performed per the original schedule to accommodate a variety of conditions. We chose the week of September 12, 2010 as full fall enrollment at Carnegie Mellon University, the University of Pittsburgh, Chatham University, and Carlow University was not achieved until the week of September 5, 2010. An additional factor was the major Jewish religious holiday of Rosh Hashanah which occurred over the period of September 9th through September 12, 2010.

Therefore full counting did not begin until September 14, 2010 and was performed using video counting units, by Microvision Technologies, Inc. Data reduction and tabulations were completed in October, 2010.

This data presented herein was utilized to determine existing capacities of the intersections, and determine effects of the proposed options, such as road diets, on intersection capacities in the corridors considered in this study. The analyses are presented in Appendix C. This data will also be used as resource data to provide guidance for future improvements with regard to accommodation of pedestrians during design development and construction.

Full video recordings of all counts are available upon request.

Study Name: Oakland/CMU - Fifth Ave and Bellefield Ave
Start Date: 09/14/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Bellefield Ave Southbound			Westbound Street - Fifth Ave Westbound			Northbound Street - Bellefield Ave Northbound			Eastbound Street - Fifth Ave Eastbound			Intersection Totals
Start Time	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	
7:00 AM	7	2	9	0	3	3	1	8	9	3	1	4	25
7:15 AM	14	2	16	0	0	0	5	8	13	0	0	0	29
7:30 AM	22	3	25	0	0	0	2	12	14	8	2	10	49
7:45 AM	27	7	34	0	0	0	6	9	15	10	3	13	62
8:00 AM	19	11	30	3	3	6	14	7	21	7	1	8	65
8:15 AM	20	15	35	2	6	8	7	19	26	7	7	14	83
8:30 AM	45	16	61	1	4	5	7	22	29	16	1	17	112
8:45 AM	53	10	63	0	6	6	11	35	46	8	14	22	137
9:00 AM	43	9	52	2	7	9	3	33	36	37	13	50	147
9:15 AM	47	5	52	3	0	3	11	43	54	33	9	42	151
9:30 AM	22	5	27	1	11	12	10	34	44	11	9	20	103
9:45 AM	26	10	36	2	2	4	8	29	37	28	16	44	121
3:00 PM	27	20	47	1	1	2	16	30	46	25	16	41	136
3:15 PM	17	29	46	1	2	3	18	29	47	10	11	21	117
3:30 PM	14	19	33	4	0	4	15	20	35	13	11	24	96
3:45 PM	20	36	56	0	0	0	32	33	65	38	34	72	193
4:00 PM	22	27	49	11	2	13	23	19	42	23	23	46	150
4:15 PM	13	23	36	6	2	8	24	24	48	18	29	47	139
4:30 PM	19	33	52	5	0	5	23	16	39	16	20	36	132
4:45 PM	18	37	55	5	2	7	43	19	62	23	24	47	171
5:00 PM	21	48	69	7	6	13	31	26	57	44	36	80	219
5:15 PM	31	48	79	5	4	9	49	36	85	20	43	63	236
5:30 PM	20	17	37	1	1	2	27	49	76	33	22	55	170
5:45 PM	33	24	57	4	8	12	18	48	66	37	52	89	224
Subtotals	600	456	1056	64	70	134	404	608	1012	468	397	865	3067
Totals By Leg	1056			134			1012			865			

Hourly totals	Southbound Street - Bellefield Ave Southbound			Westbound Street - Fifth Ave Westbound			Northbound Street - Bellefield Ave Northbound			Eastbound Street - Fifth Ave Eastbound			Intersection Totals
Beginning @	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	
7:00 AM	70	14	84	0	3	3	14	37	51	21	6	27	165
7:15 AM	82	23	105	3	3	6	27	36	63	25	6	31	205
7:30 AM	88	36	124	5	9	14	29	47	76	32	13	45	259
7:45 AM	111	49	160	6	13	19	34	57	91	40	12	52	322
8:00 AM	137	52	189	6	19	25	39	83	122	38	23	61	397
8:15 AM	161	50	211	5	23	28	28	109	137	68	35	103	479
8:30 AM	188	40	228	6	17	23	32	133	165	94	37	131	547
8:45 AM	165	29	194	6	24	30	35	145	180	89	45	134	538
9:00 AM	138	29	167	8	20	28	32	139	171	109	47	156	522
9:15 AM													
9:30 AM													
9:45 AM													
3:00 PM	78	104	182	6	3	9	81	112	193	86	72	158	542
3:15 PM	73	111	184	16	4	20	88	101	189	84	79	163	556
3:30 PM	69	105	174	21	4	25	94	96	190	92	97	189	578
3:45 PM	74	119	193	22	4	26	102	92	194	95	106	201	614
4:00 PM	72	120	192	27	6	33	113	78	191	80	96	176	592
4:15 PM	71	141	212	23	10	33	121	85	206	101	109	210	661
4:30 PM	89	166	255	22	12	34	146	97	243	103	123	226	758
4:45 PM	90	150	240	18	13	31	150	130	280	120	125	245	796
5:00 PM	105	137	242	17	19	36	125	159	284	134	153	287	849
5:15 PM													
5:30 PM													
5:45 PM													
Peak Hour	8:30 AM	4:30 PM	4:30 PM	4:00 PM	8:45 AM	5:00 PM	4:45 PM	5:00 PM	5:00 PM	5:00 PM	5:00 PM	5:00 PM	5:00 PM
Volume	188	166	255	27	24	36	150	159	284	134	153	287	849
PHF	0.89	0.86	0.81	0.61	0.55	0.69	0.77	0.81	0.84	0.76	0.74	0.81	0.90

Study Name: Oakland/CMU - Fifth Ave and Bellefield Ave
Start Date: 09/14/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Bellefield Ave Southbound			Westbound Street - Fifth Ave Westbound			Northbound Street - Bellefield Ave Northbound			Eastbound Street - Fifth Ave Eastbound			Intersection Totals
Start Time	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	1	0	1	0	0	0	0	0	0	0	0	0	1
7:45 AM	2	0	2	0	0	0	0	4	4	1	0	1	7
8:00 AM	3	0	3	0	0	0	0	2	2	0	0	0	5
8:15 AM	4	0	4	0	0	0	0	2	2	0	1	1	7
8:30 AM	1	0	1	0	0	0	0	1	1	0	0	0	2
8:45 AM	3	0	3	0	1	1	0	2	2	1	1	2	8
9:00 AM	2	0	2	0	0	0	0	0	0	0	1	1	3
9:15 AM	3	0	3	0	0	0	0	2	2	0	1	1	6
9:30 AM	1	1	2	0	0	0	0	0	0	2	0	2	4
9:45 AM	1	0	1	0	0	0	0	3	3	1	0	1	5
3:00 PM	1	0	1	0	0	0	2	1	3	1	0	1	5
3:15 PM	2	0	2	0	0	0	1	2	3	0	0	0	5
3:30 PM	1	0	1	0	0	0	2	1	3	0	0	0	4
3:45 PM	0	0	0	0	0	0	5	0	5	1	0	1	6
4:00 PM	0	1	1	0	0	0	0	0	0	1	0	1	2
4:15 PM	1	0	1	0	0	0	2	0	2	1	1	2	5
4:30 PM	1	0	1	0	0	0	2	0	2	1	0	1	4
4:45 PM	1	2	3	0	0	0	2	0	2	2	0	2	7
5:00 PM	1	0	1	0	0	0	1	0	1	0	1	1	3
5:15 PM	0	0	0	0	0	0	3	3	6	0	1	1	7
5:30 PM	4	1	5	0	0	0	3	2	5	3	0	3	13
5:45 PM	1	0	1	0	0	0	1	0	1	0	0	0	2
Subtotals	34	5	39	0	1	1	24	25	49	15	7	22	111
Totals By Leg	39			1			49			22			

PCTI Pennsylvania Community Transportation Initiative

T. W. CONSULTANTS, INCORPORATED
ENGINEERS AND PLANNERS

gai consultants
transforming ideas into reality

Hourly totals	Southbound Street - Bellefield Ave Southbound			Westbound Street - Fifth Ave Westbound			Northbound Street - Bellefield Ave Northbound			Eastbound Street - Fifth Ave Eastbound			Intersection Totals
Beginning @	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	
7:00 AM	3	0	3	0	0	0	0	4	4	1	0	1	8
7:15 AM	6	0	6	0	0	0	0	6	6	1	0	1	13
7:30 AM	10	0	10	0	0	0	0	8	8	1	1	2	20
7:45 AM	10	0	10	0	0	0	0	9	9	1	1	2	21
8:00 AM	11	0	11	0	1	1	0	7	7	1	2	3	22
8:15 AM	10	0	10	0	1	1	0	5	5	1	3	4	20
8:30 AM	9	0	9	0	1	1	0	5	5	1	3	4	19
8:45 AM	9	1	10	0	1	1	0	4	4	3	3	6	21
9:00 AM	7	1	8	0	0	0	0	5	5	3	2	5	18
9:15 AM													
9:30 AM													
9:45 AM													
3:00 PM	4	0	4	0	0	0	10	4	14	2	0	2	20
3:15 PM	3	1	4	0	0	0	8	3	11	2	0	2	17
3:30 PM	2	1	3	0	0	0	9	1	10	3	1	4	17
3:45 PM	2	1	3	0	0	0	9	0	9	4	1	5	17
4:00 PM	3	3	6	0	0	0	6	0	6	5	1	6	18
4:15 PM	4	2	6	0	0	0	7	0	7	4	2	6	19
4:30 PM	3	2	5	0	0	0	8	3	11	3	2	5	21
4:45 PM	6	3	9	0	0	0	9	5	14	5	2	7	30
5:00 PM	6	1	7	0	0	0	8	5	13	3	2	5	25
5:15 PM													
5:30 PM													
5:45 PM													
Peak Hour	8:00 AM	4:00 PM	8:00 AM	---	8:00 AM	8:00 AM	3:00 PM	7:45 AM	4:45 PM	4:00 PM	8:15 AM	4:45 PM	4:45 PM
Volume	11	3	11	0	1	1	10	9	14	5	3	7	30
PHF	0.69	0.38	0.69	---	0.25	0.25	0.50	0.56	0.58	0.63	0.75	0.58	0.58

Study Name: Oakland/CMU - Fifth Ave and Bellefield Ave
Start Date: 09/14/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	31	0	5	0	5	267	0	0	32	28	39	0	0	0	0	0
7:15 AM	19	0	12	0	3	231	0	0	48	38	44	0	0	0	0	0
7:30 AM	40	0	12	0	2	295	0	0	45	47	67	0	0	0	0	0
7:45 AM	49	1	16	0	2	284	0	0	41	38	68	0	0	0	0	0
8:00 AM	46	0	20	0	5	251	0	0	32	49	88	0	0	1	0	0
8:15 AM	51	0	9	0	4	233	0	0	53	55	90	0	0	0	0	0
8:30 AM	42	0	11	0	8	294	0	0	43	52	83	0	0	0	0	0
8:45 AM	32	0	13	0	8	241	1	0	29	54	73	0	0	2	0	0
9:00 AM	29	0	17	0	5	218	0	0	49	50	76	0	0	0	0	0
9:15 AM	37	0	4	0	5	212	0	0	56	36	61	0	0	0	0	0
9:30 AM	21	0	9	0	2	242	0	0	58	38	64	0	0	0	0	0
9:45 AM	22	0	7	0	5	184	0	0	47	51	49	0	0	0	0	0
3:00 PM	31	0	19	0	3	175	0	0	81	51	57	0	0	0	0	0
3:15 PM	28	0	23	0	5	207	0	0	57	35	41	0	0	1	0	0
3:30 PM	37	0	44	0	12	219	0	0	76	33	49	0	0	0	0	0
3:45 PM	27	0	24	0	3	195	0	0	72	40	55	0	0	2	0	0
4:00 PM	46	0	31	0	7	188	0	0	77	43	61	0	0	3	0	0
4:15 PM	29	0	34	0	9	165	0	0	84	31	54	0	0	0	0	0
4:30 PM	33	0	44	0	13	192	0	0	97	47	43	0	0	0	0	0
4:45 PM	19	0	44	0	11	213	0	0	97	45	61	0	1	2	0	0
5:00 PM	31	0	49	0	4	177	0	0	104	45	35	0	0	3	0	0
5:15 PM	20	0	42	0	8	204	0	0	90	45	58	0	0	4	0	0
5:30 PM	32	0	40	0	9	201	0	0	99	49	79	0	0	3	0	0
5:45 PM	28	0	28	0	16	218	0	0	95	49	33	0	0	1	0	0

Study Name: Oakland/CMU - Fifth Ave and Bellefield Ave
Start Date: 09/14/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	2	0	0	0	0	7	0	0	0	2	2	0	0	0	0	0
7:15 AM	0	0	0	0	0	8	0	0	0	3	2	0	0	0	0	0
7:30 AM	1	0	1	0	0	4	0	0	4	2	1	0	0	0	0	0
7:45 AM	0	0	0	0	0	6	0	0	4	2	2	0	0	0	0	0
8:00 AM	3	0	1	0	0	6	0	0	2	1	3	0	0	0	0	0
8:15 AM	3	0	1	0	1	2	0	0	1	1	5	0	0	0	0	0
8:30 AM	6	0	2	0	1	5	0	0	3	5	1	0	0	0	0	0
8:45 AM	5	0	0	0	0	7	0	0	2	5	1	0	0	0	0	0
9:00 AM	4	0	1	0	0	13	0	0	4	1	0	0	0	0	0	0
9:15 AM	1	0	0	0	1	12	0	0	3	1	0	0	0	0	0	0
9:30 AM	1	0	1	0	1	8	0	0	2	2	3	0	0	0	0	0
9:45 AM	1	0	1	0	0	9	0	0	1	1	3	0	0	0	0	0
3:00 PM	2	0	1	0	0	7	0	0	2	1	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	4	0	0	2	1	0	0	0	0	0	0
3:30 PM	0	0	2	0	1	4	0	0	2	2	2	0	0	0	0	0
3:45 PM	0	0	0	0	0	5	0	0	2	1	1	0	0	0	0	0
4:00 PM	0	0	1	0	0	9	0	0	1	1	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	5	0	0	0	0	2	0	0	0	0	0
4:30 PM	0	0	0	0	1	4	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
5:00 PM	1	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
5:15 PM	1	0	0	0	0	2	0	0	1	0	2	0	0	0	0	0
5:30 PM	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	2	0	0	5	0	0	0	0	0	0	0

Study Name: Oakland/CMU - Fifth Ave and Bellefield Ave
Start Date: 09/14/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	0	0	0	0	0	14	0	0	4	0	7	0	0	6	0	0
7:15 AM	1	0	0	0	0	10	0	0	2	0	9	0	0	10	0	0
7:30 AM	0	0	0	0	0	11	0	0	2	1	8	0	0	6	0	0
7:45 AM	0	0	0	0	0	12	0	0	1	0	10	0	0	6	0	0
8:00 AM	0	0	0	0	0	14	0	0	3	1	8	0	0	5	0	0
8:15 AM	0	0	0	0	0	18	0	0	1	4	8	0	0	5	0	0
8:30 AM	1	0	1	0	0	12	0	0	0	2	4	0	0	9	0	0
8:45 AM	0	0	0	0	0	9	0	0	4	0	6	0	0	6	0	0
9:00 AM	2	0	0	0	0	14	0	0	0	0	9	0	0	6	0	0
9:15 AM	0	0	0	0	0	8	0	0	3	0	9	0	0	6	0	0
9:30 AM	1	0	0	0	0	10	0	0	0	0	7	0	0	6	0	0
9:45 AM	1	0	0	0	0	9	0	0	2	0	6	0	0	7	0	0
3:00 PM	1	0	1	0	0	13	0	0	2	0	9	0	0	5	0	0
3:15 PM	1	0	2	0	0	9	0	0	3	0	5	0	0	9	0	0
3:30 PM	0	0	0	0	0	15	0	0	1	1	8	0	0	6	0	0
3:45 PM	1	0	0	0	0	13	0	0	3	0	9	0	0	7	0	0
4:00 PM	1	0	0	0	0	11	0	0	2	0	11	0	0	5	0	0
4:15 PM	1	0	0	0	0	12	0	0	2	0	8	0	0	10	0	0
4:30 PM	0	0	1	0	0	9	0	0	1	1	7	0	0	8	0	0
4:45 PM	1	0	0	0	0	12	0	0	2	0	11	0	0	8	0	0
5:00 PM	0	0	0	0	0	8	0	0	1	0	5	0	0	3	0	0
5:15 PM	0	0	0	0	0	12	0	0	2	1	4	0	0	8	0	0
5:30 PM	1	0	0	0	0	10	0	0	0	0	7	0	0	5	0	0
5:45 PM	0	0	0	0	0	7	0	0	1	1	5	0	0	3	0	0

Study Name: Oakland/CMU - Fifth Ave and Bellefield Ave
Start Date: 09/14/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Bellefield Ave Southbound					Westbound Street - Fifth Avenue Westbound					Northbound Street - Bellefield Avenue Northbound					Eastbound Street - Fifth Avenue Eastbound					Intersection Totals
Start Time	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	
7:00 AM	33	0	5	0	38	5	288	0	0	293	36	30	48	0	114	0	6	0	0	6	451
7:15 AM	20	0	12	0	32	3	249	0	0	252	50	41	55	0	146	0	10	0	0	10	440
7:30 AM	41	0	13	0	54	2	310	0	0	312	51	50	76	0	177	0	6	0	0	6	549
7:45 AM	49	1	16	0	66	2	302	0	0	304	46	40	80	0	166	0	6	0	0	6	542
8:00 AM	49	0	21	0	70	5	271	0	0	276	37	51	99	0	187	0	6	0	0	6	539
8:15 AM	54	0	10	0	64	5	253	0	0	258	55	60	103	0	218	0	5	0	0	5	545
8:30 AM	49	0	14	0	63	9	311	0	0	320	46	59	88	0	193	0	9	0	0	9	585
8:45 AM	37	0	13	0	50	8	257	1	0	266	35	59	80	0	174	0	8	0	0	8	498
9:00 AM	35	0	18	0	53	5	245	0	0	250	53	51	85	0	189	0	6	0	0	6	498
9:15 AM	38	0	4	0	42	6	232	0	0	238	62	37	70	0	169	0	6	0	0	6	455
9:30 AM	23	0	10	0	33	3	260	0	0	263	60	40	74	0	174	0	6	0	0	6	476
9:45 AM	24	0	8	0	32	5	202	0	0	207	50	52	58	0	160	0	7	0	0	7	406
3:00 PM	34	0	21	0	55	3	195	0	0	198	85	52	66	0	203	0	5	0	0	5	461
3:15 PM	29	0	25	0	54	5	220	0	0	225	62	36	46	0	144	0	10	0	0	10	433
3:30 PM	37	0	46	0	83	13	238	0	0	251	79	36	59	0	174	0	6	0	0	6	514
3:45 PM	28	0	24	0	52	3	213	0	0	216	77	41	65	0	183	0	9	0	0	9	460
4:00 PM	47	0	32	0	79	7	208	0	0	215	80	44	72	0	196	0	8	0	0	8	498
4:15 PM	30	0	34	0	64	9	182	0	0	191	86	31	64	0	181	0	10	0	0	10	446
4:30 PM	33	0	45	0	78	14	205	0	0	219	98	48	50	0	196	0	8	0	0	8	501
4:45 PM	20	0	44	0	64	11	227	0	0	238	99	45	72	0	216	1	10	0	0	11	529
5:00 PM	32	0	49	0	81	4	189	0	0	193	105	45	40	0	190	0	6	0	0	6	470
5:15 PM	21	0	42	0	63	8	218	0	0	226	93	46	64	0	203	0	12	0	0	12	504
5:30 PM	33	0	40	0	73	9	213	0	0	222	100	49	86	0	235	0	8	0	0	8	538
5:45 PM	28	0	28	0	56	16	227	0	0	243	101	50	38	0	189	0	4	0	0	4	492
					0					0					0					0	0
Subtotals	824	1	574	0	1399	160	5715	1	0	5876	1646	1093	1638	0	4377	1	177	0	0	178	11830
Totals By Le	1399					5876					4377					178					

Heavy Vehi	13	0	5	0		0	272	0	0		42	12	180	0		0	155	0	0	
% Heavy of Movement	1.58%	0.00%	0.87%	---		0.00%	4.76%	0.00%	---		2.55%	1.10%	10.99%	---		0.00%	87.57%	---	---	
Heavy Vehicles	18					272					234					155				679
% Heavy By Leg	1.29%					4.63%					5.35%					87.08%				5.74%

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Hourly totals	Southbound Street - Bellefield Ave Southbound					Westbound Street - Fifth Avenue Westbound					Northbound Street - Bellefield Avenue Northbound					Eastbound Street - Fifth Avenue Eastbound					Intersection Totals
Beginning @	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	
7:00 AM	143	1	46	0	190	12	1149	0	0	1161	183	161	259	0	603	0	28	0	0	28	1982
7:15 AM	159	1	62	0	222	12	1132	0	0	1144	184	182	310	0	676	0	28	0	0	28	2070
7:30 AM	193	1	60	0	254	14	1136	0	0	1150	189	201	358	0	748	0	23	0	0	23	2175
7:45 AM	201	1	61	0	263	21	1137	0	0	1158	184	210	370	0	764	0	26	0	0	26	2211
8:00 AM	189	0	58	0	247	27	1092	1	0	1120	173	229	370	0	772	0	28	0	0	28	2167
8:15 AM	175	0	55	0	230	27	1066	1	0	1094	189	229	356	0	774	0	28	0	0	28	2126
8:30 AM	159	0	49	0	208	28	1045	1	0	1074	196	206	323	0	725	0	29	0	0	29	2036
8:45 AM	133	0	45	0	178	22	994	1	0	1017	210	187	309	0	706	0	26	0	0	26	1927
9:00 AM	120	0	40	0	160	19	939	0	0	958	225	180	287	0	692	0	25	0	0	25	1835
9:15 AM																					
9:30 AM																					
9:45 AM																					
3:00 PM	128	0	116	0	244	24	866	0	0	890	303	165	236	0	704	0	30	0	0	30	1868
3:15 PM	141	0	127	0	268	28	879	0	0	907	298	157	242	0	697	0	33	0	0	33	1905
3:30 PM	142	0	136	0	278	32	841	0	0	873	322	152	260	0	734	0	33	0	0	33	1918
3:45 PM	138	0	135	0	273	33	808	0	0	841	341	164	251	0	756	0	35	0	0	35	1905
4:00 PM	130	0	155	0	285	41	822	0	0	863	363	168	258	0	789	1	36	0	0	37	1974
4:15 PM	115	0	172	0	287	38	803	0	0	841	388	169	226	0	783	1	34	0	0	35	1946
4:30 PM	106	0	180	0	286	37	839	0	0	876	395	184	226	0	805	1	36	0	0	37	2004
4:45 PM	106	0	175	0	281	32	847	0	0	879	397	185	262	0	844	1	36	0	0	37	2041
5:00 PM	114	0	159	0	273	37	847	0	0	884	399	190	228	0	817	0	30	0	0	30	2004
5:15 PM																					
5:30 PM																					
5:45 PM																					
Peak Hour	7:45 AM	7:00 AM	4:30 PM	---	4:15 PM	4:00 PM	7:00 AM	8:00 AM	---	7:00 AM	5:00 PM	8:00 AM	7:45 AM	---	4:45 PM	4:45 PM	4:30 PM	---	---	4:30 PM	7:45 AM
Volume	201	1	180	0	287	41	1149	1	0	1161	399	229	370	0	844	1	36	0	0	37	2211
PHF	0.93	0.25	0.92	---	0.89	0.73	0.93	0.25	---	0.93	0.95	0.95	0.90	---	0.90	0.25	0.75	---	---	0.77	0.94

Study Name: Oakland/CMU Fifth Ave & Dithridge St
Start Date: 09/21/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Dithridge St Southbound			Westbound Street - Fifth Ave Westbound			Northbound Street - Dithridge St Northbound			Eastbound Street - Fifth Ave Eastbound			Intersection Totals
Start Time	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	
7:00 AM	8	3	11	0	3	3	2	4	6	3	0	3	23
7:15 AM	10	5	15	1	3	4	2	6	8	1	1	2	29
7:30 AM	17	3	20	0	4	4	4	5	9	2	4	6	39
7:45 AM	15	6	21	3	6	9	4	7	11	4	2	6	47
8:00 AM	0	0	0	4	5	9	3	7	10	5	0	5	24
8:15 AM	0	0	0	2	3	5	5	13	18	6	4	10	33
8:30 AM	0	0	0	0	11	11	5	17	22	7	2	9	42
8:45 AM	0	0	0	2	8	10	5	24	29	18	5	23	62
9:00 AM	38	10	48	1	16	17	6	18	24	8	2	10	99
9:15 AM	29	4	33	0	12	12	10	39	49	13	4	17	111
9:30 AM	27	2	29	0	6	6	7	17	24	10	6	16	75
9:45 AM	21	7	28	2	8	10	3	18	21	11	3	14	73
3:00 PM	20	16	36	2	4	6	18	17	35	3	9	12	89
3:15 PM	18	13	31	4	3	7	11	21	32	0	5	5	75
3:30 PM	13	10	23	5	10	15	16	16	32	3	2	5	75
3:45 PM	10	25	35	5	1	6	29	19	48	6	11	17	106
4:00 PM	7	14	21	7	8	15	19	18	37	2	13	15	88
4:15 PM	12	10	22	4	1	5	15	16	31	6	9	15	73
4:30 PM	19	14	33	8	6	14	24	20	44	4	10	14	105
4:45 PM	18	16	34	4	4	8	32	12	44	4	13	17	103
5:00 PM	21	31	52	9	6	15	26	19	45	1	16	17	129
5:15 PM	17	24	41	10	4	14	25	7	32	5	15	20	107
5:30 PM	21	25	46	8	4	12	32	13	45	9	15	24	127
5:45 PM	31	20	51	10	4	14	14	13	27	10	8	18	110
Subtotals	372	258	630	91	140	231	317	366	683	141	159	300	1844
Totals By Leg	630			231			683			300			

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Hourly totals	Southbound Street - Dithridge St Southbound			Westbound Street - Fifth Ave Westbound			Northbound Street - Dithridge St Northbound			Eastbound Street - Fifth Ave Eastbound			Intersection Totals
Beginning @	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	
7:00 AM	50	17	67	4	16	20	12	22	34	10	7	17	138
7:15 AM	42	14	56	8	18	26	13	25	38	12	7	19	139
7:30 AM	32	9	41	9	18	27	16	32	48	17	10	27	143
7:45 AM	15	6	21	9	25	34	17	44	61	22	8	30	146
8:00 AM	0	0	0	8	27	35	18	61	79	36	11	47	161
8:15 AM	38	10	48	5	38	43	21	72	93	39	13	52	236
8:30 AM	67	14	81	3	47	50	26	98	124	46	13	59	314
8:45 AM	94	16	110	3	42	45	28	98	126	49	17	66	347
9:00 AM	115	23	138	3	42	45	26	92	118	42	15	57	358
9:15 AM													
9:30 AM													
9:45 AM													
3:00 PM	61	64	125	16	18	34	74	73	147	12	27	39	345
3:15 PM	48	62	110	21	22	43	75	74	149	11	31	42	344
3:30 PM	42	59	101	21	20	41	79	69	148	17	35	52	342
3:45 PM	48	63	111	24	16	40	87	73	160	18	43	61	372
4:00 PM	56	54	110	23	19	42	90	66	156	16	45	61	369
4:15 PM	70	71	141	25	17	42	97	67	164	15	48	63	410
4:30 PM	75	85	160	31	20	51	107	58	165	14	54	68	444
4:45 PM	77	96	173	31	18	49	115	51	166	19	59	78	466
5:00 PM	90	100	190	37	18	55	97	52	149	25	54	79	473
5:15 PM													
5:30 PM													
5:45 PM													
Peak Hour	9:00 AM	5:00 PM	5:00 PM	5:00 PM	8:30 AM	5:00 PM	4:45 PM	8:30 AM	4:45 PM	8:45 AM	4:45 PM	5:00 PM	5:00 PM
Volume	115	100	190	37	47	55	115	98	166	49	59	79	473
PHF	0.76	0.81	0.91	0.93	0.73	0.92	0.90	0.63	0.92	0.68	0.92	0.82	0.92

Study Name: Oakland/CMU Fifth Ave & Dithridge St
Start Date: 09/21/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Dithridge St Southbound			Westbound Street - Fifth Ave Westbound			Northbound Street - Dithridge St Northbound			Eastbound Street - Fifth Ave Eastbound			Intersection Totals
Start Time	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	
7:00 AM	1	0	1	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	2	0	2	0	0	0	0	1	1	0	0	0	3
7:45 AM	2	0	2	0	0	0	1	2	3	0	0	0	5
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	1	1	2	0	2	3
8:30 AM	0	0	0	0	0	0	2	5	7	0	0	0	7
8:45 AM	0	0	0	1	2	3	0	3	3	1	0	1	7
9:00 AM	2	1	3	0	1	1	0	2	2	1	0	1	7
9:15 AM	3	0	3	0	1	1	0	2	2	0	0	0	6
9:30 AM	3	0	3	0	1	1	0	2	2	0	0	0	6
9:45 AM	7	0	7	0	0	0	0	1	1	3	0	3	11
3:00 PM	2	1	3	0	0	0	1	0	1	0	0	0	4
3:15 PM	2	0	2	0	0	0	0	0	0	0	0	0	2
3:30 PM	0	1	1	0	0	0	2	0	2	0	0	0	3
3:45 PM	0	0	0	0	0	0	1	0	1	0	0	0	1
4:00 PM	0	1	1	3	0	3	1	0	1	0	0	0	5
4:15 PM	0	0	0	0	0	0	3	0	3	0	0	0	3
4:30 PM	1	1	2	0	0	0	0	1	1	0	2	2	5
4:45 PM	1	1	2	0	0	0	1	1	2	0	0	0	4
5:00 PM	0	0	0	0	0	0	2	1	3	0	0	0	3
5:15 PM	0	0	0	0	0	0	9	3	12	0	0	0	12
5:30 PM	0	0	0	0	0	0	10	2	12	0	0	0	12
5:45 PM	0	0	0	1	1	2	4	2	6	0	0	0	8
Subtotals	26	6	32	5	6	11	37	29	66	7	2	9	118
Totals By Leg	32			11			66			9			

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Hourly totals	Southbound Street - Dithridge St Southbound			Westbound Street - Fifth Ave Westbound			Northbound Street - Dithridge St Northbound			Eastbound Street - Fifth Ave Eastbound			Intersection Totals
Beginning @	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	
7:00 AM	5	0	5	0	0	0	1	3	4	0	0	0	9
7:15 AM	4	0	4	0	0	0	1	3	4	0	0	0	8
7:30 AM	4	0	4	0	0	0	1	4	5	2	0	2	11
7:45 AM	2	0	2	0	0	0	3	8	11	2	0	2	15
8:00 AM	0	0	0	1	2	3	2	9	11	3	0	3	17
8:15 AM	2	1	3	1	3	4	2	11	13	4	0	4	24
8:30 AM	5	1	6	1	4	5	2	12	14	2	0	2	27
8:45 AM	8	1	9	1	5	6	0	9	9	2	0	2	26
9:00 AM	15	1	16	0	3	3	0	7	7	4	0	4	30
9:15 AM													
9:30 AM													
9:45 AM													
3:00 PM	4	2	6	0	0	0	4	0	4	0	0	0	10
3:15 PM	2	2	4	3	0	3	4	0	4	0	0	0	11
3:30 PM	0	2	2	3	0	3	7	0	7	0	0	0	12
3:45 PM	1	2	3	3	0	3	5	1	6	0	2	2	14
4:00 PM	2	3	5	3	0	3	5	2	7	0	2	2	17
4:15 PM	2	2	4	0	0	0	6	3	9	0	2	2	15
4:30 PM	2	2	4	0	0	0	12	6	18	0	2	2	24
4:45 PM	1	1	2	0	0	0	22	7	29	0	0	0	31
5:00 PM	0	0	0	1	1	2	25	8	33	0	0	0	35
5:15 PM													
5:30 PM													
5:45 PM													
Peak Hour	9:00 AM	4:00 PM	9:00 AM	3:15 PM	8:45 AM	8:45 AM	5:00 PM	8:30 AM	5:00 PM	8:15 AM	3:45 PM	9:00 AM	5:00 PM
Volume	15	3	16	3	5	6	25	12	33	4	2	4	35
PHF	0.54	0.75	0.57	0.25	0.63	0.50	0.63	0.60	0.69	0.50	0.25	0.33	0.73

Study Name: Oakland/CMU Fifth Ave & Dithridge St
Start Date: 09/21/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	0	0	0	0	14	255	3	0	7	9	1	0	3	39	2	0
7:15 AM	0	0	0	0	10	254	5	0	12	16	7	0	9	47	0	0
7:30 AM	0	0	0	0	6	238	6	0	16	19	13	0	11	48	1	0
7:45 AM	0	0	0	0	5	261	3	0	10	22	13	0	9	51	1	0
8:00 AM	0	0	0	0	1	262	7	0	10	25	15	0	10	34	4	0
8:15 AM	0	0	0	0	13	233	3	0	14	24	9	0	5	57	4	0
8:30 AM	0	0	0	0	8	239	5	0	16	21	9	0	5	60	3	0
8:45 AM	0	0	1	0	17	217	8	0	11	12	9	0	5	47	7	0
9:00 AM	0	0	0	0	7	229	6	0	16	17	9	0	2	78	38	0
9:15 AM	1	0	0	0	15	203	7	0	9	11	5	0	5	86	23	0
9:30 AM	0	0	0	0	11	210	7	0	16	14	9	0	5	87	26	0
9:45 AM	0	1	0	0	12	177	7	0	13	11	10	0	4	90	19	0
3:00 PM	0	0	0	0	7	177	5	0	16	17	17	0	4	133	30	0
3:15 PM	0	0	0	0	11	193	2	0	16	16	14	0	7	136	25	0
3:30 PM	0	0	0	0	12	227	1	0	24	15	12	0	4	140	12	0
3:45 PM	0	1	0	0	16	173	8	0	35	17	17	0	1	100	5	0
4:00 PM	0	1	0	0	10	174	4	0	29	18	22	0	4	118	0	0
4:15 PM	0	0	0	0	13	165	1	0	31	17	30	0	7	111	1	0
4:30 PM	0	1	0	0	11	191	5	0	34	17	28	0	5	142	3	0
4:45 PM	0	0	0	0	5	163	5	0	33	31	29	0	8	133	3	0
5:00 PM	0	0	0	0	6	184	3	0	33	16	36	0	3	114	5	0
5:15 PM	0	0	0	0	3	215	2	0	43	19	25	0	8	119	4	0
5:30 PM	0	0	0	0	9	183	3	0	39	10	28	0	4	114	2	0
5:45 PM	0	0	0	0	12	204	2	0	35	22	25	0	4	114	3	0

Study Name: Oakland/CMU Fifth Ave & Dithridge St
Start Date: 09/21/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	0	0	0	0	0	7	0	0	1	0	0	0	0	1	0	0
7:15 AM	0	0	0	0	0	3	0	0	0	1	1	0	0	3	0	0
7:30 AM	0	0	0	0	0	2	0	0	1	0	2	0	0	1	0	0
7:45 AM	0	0	0	0	0	12	0	0	0	0	1	0	0	2	0	0
8:00 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	5	0	0
8:15 AM	0	0	0	0	0	12	0	0	0	1	0	0	0	4	0	0
8:30 AM	0	0	0	0	0	7	0	0	0	0	0	0	0	4	1	0
8:45 AM	0	0	0	0	1	7	0	0	0	2	2	0	0	5	0	0
9:00 AM	0	0	0	0	2	13	0	0	0	0	0	0	0	5	3	0
9:15 AM	0	0	0	0	0	9	0	0	1	3	0	0	0	1	2	0
9:30 AM	0	0	0	0	0	8	0	0	1	0	0	0	0	4	0	0
9:45 AM	0	0	0	0	0	8	0	0	0	1	1	0	0	6	0	0
3:00 PM	0	0	0	0	0	7	0	0	0	2	0	0	1	4	1	0
3:15 PM	0	0	0	0	1	11	0	0	1	1	0	0	0	2	0	0
3:30 PM	0	0	0	0	0	8	1	0	0	1	0	0	0	3	0	0
3:45 PM	0	0	0	0	0	5	0	0	0	1	0	0	1	1	0	0
4:00 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0
4:15 PM	0	0	0	0	0	4	0	0	2	1	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	3	0	0	1	0	0	0	0	1	0	0
4:45 PM	0	0	0	0	0	2	0	0	1	2	0	0	0	4	0	0
5:00 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	3	0	0	1	2	0	0	0	2	0	0
5:30 PM	0	0	0	0	0	5	1	0	1	0	0	0	0	1	0	0
5:45 PM	0	0	0	0	0	4	0	0	0	1	0	0	0	1	0	0

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Study Name: Oakland/CMU Fifth Ave & Dithridge St
Start Date: 09/21/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	0	0	0	0	0	15	0	0	0	1	0	0	0	8	0	0
7:15 AM	0	0	0	0	0	12	0	0	0	0	1	0	0	9	0	0
7:30 AM	0	0	0	0	0	13	0	0	0	1	0	0	0	9	0	0
7:45 AM	0	0	0	0	0	8	0	0	1	2	1	0	0	9	0	0
8:00 AM	0	0	0	0	0	8	0	0	0	2	1	0	1	10	0	0
8:15 AM	0	0	0	0	0	9	0	0	0	0	0	0	0	8	0	0
8:30 AM	0	0	0	0	0	6	0	0	0	1	0	0	0	7	1	0
8:45 AM	0	0	0	0	0	8	0	0	0	0	1	0	0	12	0	0
9:00 AM	0	0	0	0	0	12	0	0	1	1	0	0	0	11	1	0
9:15 AM	0	0	0	0	0	13	0	0	0	0	1	0	0	6	2	0
9:30 AM	0	0	0	0	0	9	0	0	1	0	0	0	0	10	2	0
9:45 AM	0	0	0	0	0	7	0	0	2	0	1	0	0	10	2	0
3:00 PM	0	0	0	0	0	11	0	0	0	1	0	0	0	12	1	0
3:15 PM	0	0	0	0	0	13	1	0	0	0	0	0	0	9	3	0
3:30 PM	0	0	0	0	0	12	0	0	0	1	0	0	0	7	1	0
3:45 PM	0	0	0	0	0	10	0	0	0	0	0	0	0	10	0	0
4:00 PM	0	0	0	0	0	9	0	0	1	0	0	0	0	11	0	0
4:15 PM	0	0	0	0	0	20	1	0	0	1	0	0	0	7	0	0
4:30 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	12	0	0
4:45 PM	0	0	0	0	0	8	0	0	1	0	0	0	0	11	0	0
5:00 PM	0	0	0	0	0	15	0	0	1	2	0	0	0	9	0	0
5:15 PM	0	0	0	0	0	7	0	0	0	0	0	0	0	4	0	0
5:30 PM	0	0	0	0	0	7	0	0	1	1	0	0	0	7	0	0
5:45 PM	0	0	0	0	0	10	0	0	1	0	0	0	0	10	0	0

Study Name: Oakland/CMU Fifth Ave & Dithridge St
Start Date: 09/21/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	0	0	0	0	14	255	3	0	7	9	1	0	3	39	2	0
7:15 AM	0	0	0	0	10	254	5	0	12	16	7	0	9	47	0	0
7:30 AM	0	0	0	0	6	238	6	0	16	19	13	0	11	48	1	0
7:45 AM	0	0	0	0	5	261	3	0	10	22	13	0	9	51	1	0
8:00 AM	0	0	0	0	1	262	7	0	10	25	15	0	10	34	4	0
8:15 AM	0	0	0	0	13	233	3	0	14	24	9	0	5	57	4	0
8:30 AM	0	0	0	0	8	239	5	0	16	21	9	0	5	60	3	0
8:45 AM	0	0	1	0	17	217	8	0	11	12	9	0	5	47	7	0
9:00 AM	0	0	0	0	7	229	6	0	16	17	9	0	2	78	38	0
9:15 AM	1	0	0	0	15	203	7	0	9	11	5	0	5	86	23	0
9:30 AM	0	0	0	0	11	210	7	0	16	14	9	0	5	87	26	0
9:45 AM	0	1	0	0	12	177	7	0	13	11	10	0	4	90	19	0
3:00 PM	0	0	0	0	7	177	5	0	16	17	17	0	4	133	30	0
3:15 PM	0	0	0	0	11	193	2	0	16	16	14	0	7	136	25	0
3:30 PM	0	0	0	0	12	227	1	0	24	15	12	0	4	140	12	0
3:45 PM	0	1	0	0	16	173	8	0	35	17	17	0	1	100	5	0
4:00 PM	0	1	0	0	10	174	4	0	29	18	22	0	4	118	0	0
4:15 PM	0	0	0	0	13	165	1	0	31	17	30	0	7	111	1	0
4:30 PM	0	1	0	0	11	191	5	0	34	17	28	0	5	142	3	0
4:45 PM	0	0	0	0	5	163	5	0	33	31	29	0	8	133	3	0
5:00 PM	0	0	0	0	6	184	3	0	33	16	36	0	3	114	5	0
5:15 PM	0	0	0	0	3	215	2	0	43	19	25	0	8	119	4	0
5:30 PM	0	0	0	0	9	183	3	0	39	10	28	0	4	114	2	0
5:45 PM	0	0	0	0	12	204	2	0	35	22	25	0	4	114	3	0

Study Name: Oakland/CMU Fifth Ave & Dithridge St
Start Date: 09/21/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	0	0	0	0	0	7	0	0	1	0	0	0	0	1	0	0
7:15 AM	0	0	0	0	0	3	0	0	0	1	1	0	0	3	0	0
7:30 AM	0	0	0	0	0	2	0	0	1	0	2	0	0	1	0	0
7:45 AM	0	0	0	0	0	12	0	0	0	0	1	0	0	2	0	0
8:00 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	5	0	0
8:15 AM	0	0	0	0	0	12	0	0	0	1	0	0	0	4	0	0
8:30 AM	0	0	0	0	0	7	0	0	0	0	0	0	0	4	1	0
8:45 AM	0	0	0	0	1	7	0	0	0	2	2	0	0	5	0	0
9:00 AM	0	0	0	0	2	13	0	0	0	0	0	0	0	5	3	0
9:15 AM	0	0	0	0	0	9	0	0	1	3	0	0	0	1	2	0
9:30 AM	0	0	0	0	0	8	0	0	1	0	0	0	0	4	0	0
9:45 AM	0	0	0	0	0	8	0	0	0	1	1	0	0	6	0	0
3:00 PM	0	0	0	0	0	7	0	0	0	2	0	0	1	4	1	0
3:15 PM	0	0	0	0	1	11	0	0	1	1	0	0	0	2	0	0
3:30 PM	0	0	0	0	0	8	1	0	0	1	0	0	0	3	0	0
3:45 PM	0	0	0	0	0	5	0	0	0	1	0	0	1	1	0	0
4:00 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0
4:15 PM	0	0	0	0	0	4	0	0	2	1	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	3	0	0	1	0	0	0	0	1	0	0
4:45 PM	0	0	0	0	0	2	0	0	1	2	0	0	0	4	0	0
5:00 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	3	0	0	1	2	0	0	0	2	0	0
5:30 PM	0	0	0	0	0	5	1	0	1	0	0	0	0	1	0	0
5:45 PM	0	0	0	0	0	4	0	0	0	1	0	0	0	1	0	0

Study Name: Oakland/CMU Fifth Ave & Dithridge St
Start Date: 09/21/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	0	0	0	0	0	15	0	0	0	1	0	0	0	8	0	0
7:15 AM	0	0	0	0	0	12	0	0	0	0	1	0	0	9	0	0
7:30 AM	0	0	0	0	0	13	0	0	0	1	0	0	0	9	0	0
7:45 AM	0	0	0	0	0	8	0	0	1	2	1	0	0	9	0	0
8:00 AM	0	0	0	0	0	8	0	0	0	2	1	0	1	10	0	0
8:15 AM	0	0	0	0	0	9	0	0	0	0	0	0	0	8	0	0
8:30 AM	0	0	0	0	0	6	0	0	0	1	0	0	0	7	1	0
8:45 AM	0	0	0	0	0	8	0	0	0	0	1	0	0	12	0	0
9:00 AM	0	0	0	0	0	12	0	0	1	1	0	0	0	11	1	0
9:15 AM	0	0	0	0	0	13	0	0	0	0	1	0	0	6	2	0
9:30 AM	0	0	0	0	0	9	0	0	1	0	0	0	0	10	2	0
9:45 AM	0	0	0	0	0	7	0	0	2	0	1	0	0	10	2	0
3:00 PM	0	0	0	0	0	11	0	0	0	1	0	0	0	12	1	0
3:15 PM	0	0	0	0	0	13	1	0	0	0	0	0	0	9	3	0
3:30 PM	0	0	0	0	0	12	0	0	0	1	0	0	0	7	1	0
3:45 PM	0	0	0	0	0	10	0	0	0	0	0	0	0	10	0	0
4:00 PM	0	0	0	0	0	9	0	0	1	0	0	0	0	11	0	0
4:15 PM	0	0	0	0	0	20	1	0	0	1	0	0	0	7	0	0
4:30 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	12	0	0
4:45 PM	0	0	0	0	0	8	0	0	1	0	0	0	0	11	0	0
5:00 PM	0	0	0	0	0	15	0	0	1	2	0	0	0	9	0	0
5:15 PM	0	0	0	0	0	7	0	0	0	0	0	0	0	4	0	0
5:30 PM	0	0	0	0	0	7	0	0	1	1	0	0	0	7	0	0
5:45 PM	0	0	0	0	0	10	0	0	1	0	0	0	0	10	0	0

Study Name: Oakland/CMU Fifth Ave & Dithridge St
Start Date: 09/21/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Dithridge Street Southbound					Westbound Street - Fifth Avenue Westbound					Northbound Street - Dithridge Street Northbound					Eastbound Street - Fifth Avenue Eastbound					Intersection Totals
Start Time	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	
7:00 AM	0	0	0	0	0	14	277	3	0	294	8	10	1	0	19	3	48	2	0	53	366
7:15 AM	0	0	0	0	0	10	269	5	0	284	12	17	9	0	38	9	59	0	0	68	390
7:30 AM	0	0	0	0	0	6	253	6	0	265	17	20	15	0	52	11	58	1	0	70	387
7:45 AM	0	0	0	0	0	5	281	3	0	289	11	24	15	0	50	9	62	1	0	72	411
8:00 AM	0	0	0	0	0	1	273	7	0	281	10	27	16	0	53	11	49	4	0	64	398
8:15 AM	0	0	0	0	0	13	254	3	0	270	14	25	9	0	48	5	69	4	0	78	396
8:30 AM	0	0	0	0	0	8	252	5	0	265	16	22	9	0	47	5	71	5	0	81	393
8:45 AM	0	0	1	0	1	18	232	8	0	258	11	14	12	0	37	5	64	7	0	76	372
9:00 AM	0	0	0	0	0	9	254	6	0	269	17	18	9	0	44	2	94	42	0	138	451
9:15 AM	1	0	0	0	1	15	225	7	0	247	10	14	6	0	30	5	93	27	0	125	403
9:30 AM	0	0	0	0	0	11	227	7	0	245	18	14	9	0	41	5	101	28	0	134	420
9:45 AM	0	1	0	0	1	12	192	7	0	211	15	12	12	0	39	4	106	21	0	131	382
3:00 PM	0	0	0	0	0	7	195	5	0	207	16	20	17	0	53	5	149	32	0	186	446
3:15 PM	0	0	0	0	0	12	217	3	0	232	17	17	14	0	48	7	147	28	0	182	462
3:30 PM	0	0	0	0	0	12	247	2	0	261	24	17	12	0	53	4	150	13	0	167	481
3:45 PM	0	1	0	0	1	16	188	8	0	212	35	18	17	0	70	2	111	5	0	118	401
4:00 PM	0	1	0	0	1	10	186	4	0	200	30	18	22	0	70	4	130	0	0	134	405
4:15 PM	0	0	0	0	0	13	189	2	0	204	33	19	30	0	82	7	118	1	0	126	412
4:30 PM	0	1	0	0	1	11	200	5	0	216	35	17	28	0	80	5	155	3	0	163	460
4:45 PM	0	0	0	0	0	5	173	5	0	183	35	33	29	0	97	8	148	3	0	159	439
5:00 PM	0	0	0	0	0	6	203	3	0	212	34	18	36	0	88	3	123	5	0	131	431
5:15 PM	0	0	0	0	0	3	225	2	0	230	44	21	25	0	90	8	125	4	0	137	457
5:30 PM	0	0	0	0	0	9	195	4	0	208	41	11	28	0	80	4	122	2	0	128	416
5:45 PM	0	0	0	0	0	12	218	2	0	232	36	23	25	0	84	4	125	3	0	132	448
Subtotals	1	4	1	0	6	238	5425	112	0	5775	539	449	405	0	1393	135	2477	241	0	2853	10027
Totals By Leg	6					5775					1393					2853					

Heavy Vehicles	0	0	0	0
% Heavy of Movement	0.00%	0.00%	0.00%	—
Total Heavy Vehicles	0			
% Heavy By Leg	0.00%			

0	248	2	0
0.00%	4.57%	1.79%	—
250			
4.33%			

10	14	6	0
1.86%	3.12%	1.48%	—
30			
2.15%			

1	218	13	0
0.74%	8.80%	5.39%	—
232			
8.13%			

512
5.11%

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	Southbound Street - Dithridge Street Southbound					Westbound Street - Fifth Avenue Westbound					Northbound Street - Dithridge Street Northbound					Eastbound Street - Fifth Avenue Eastbound					Intersection Totals
Start Time	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	
Hourly totals																					
Beginning @	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	
7:00 AM	0	0	0	0	0	35	1080	17	0	1132	48	71	40	0	159	32	227	4	0	263	1554
7:15 AM	0	0	0	0	0	22	1076	21	0	1119	50	88	55	0	193	40	228	6	0	274	1586
7:30 AM	0	0	0	0	0	25	1061	19	0	1105	52	96	55	0	203	36	238	10	0	284	1592
7:45 AM	0	0	0	0	0	27	1060	18	0	1105	51	98	49	0	198	30	251	14	0	295	1598
8:00 AM	0	0	1	0	1	40	1011	23	0	1074	51	88	46	0	185	26	253	20	0	299	1559
8:15 AM	0	0	1	0	1	48	992	22	0	1062	58	79	39	0	176	17	298	58	0	373	1612
8:30 AM	1	0	1	0	2	50	963	26	0	1039	54	68	36	0	158	17	322	81	0	420	1619
8:45 AM	1	0	1	0	2	53	938	28	0	1019	56	60	36	0	152	17	352	104	0	473	1646
9:00 AM	1	1	0	0	2	47	898	27	0	972	60	58	36	0	154	16	394	118	0	528	1656
9:15 AM																					
9:30 AM																					
9:45 AM																					
3:00 PM	0	1	0	0	1	47	847	18	0	912	92	72	60	0	224	18	557	78	0	653	1790
3:15 PM	0	2	0	0	2	50	838	17	0	905	106	70	65	0	241	17	538	46	0	601	1749
3:30 PM	0	2	0	0	2	51	810	16	0	877	122	72	81	0	275	17	509	19	0	545	1699
3:45 PM	0	3	0	0	3	50	763	19	0	832	133	72	97	0	302	18	514	9	0	541	1678
4:00 PM	0	2	0	0	2	39	748	16	0	803	133	87	109	0	329	24	551	7	0	582	1716
4:15 PM	0	1	0	0	1	35	765	15	0	815	137	87	123	0	347	23	544	12	0	579	1742
4:30 PM	0	1	0	0	1	25	801	15	0	841	148	89	118	0	355	24	551	15	0	590	1787
4:45 PM	0	0	0	0	0	23	796	14	0	833	154	83	118	0	355	23	518	14	0	555	1743
5:00 PM	0	0	0	0	0	30	841	11	0	882	155	73	114	0	342	19	495	14	0	528	1752
5:15 PM																					
5:30 PM																					
5:45 PM																					
Peak Hour	8:30 AM	3:45 PM	8:00 AM	---	3:45 PM	8:45 AM	7:00 AM	8:45 AM	---	7:00 AM	5:00 PM	7:45 AM	4:15 PM	---	4:30 PM	7:15 AM	3:00 PM	9:00 AM	---	3:00 PM	3:00 PM
Volume	1	3	1	0	3	53	1080	28	0	1132	155	98	123	0	355	40	557	118	0	653	1790
PHF	0.25	0.75	0.25	---	0.75	0.74	0.96	0.88	---	0.96	0.88	0.91	0.85	---	0.91	0.91	0.93	0.70	---	0.88	0.93

Study Name: Oakland/CMU - Forbes Avenue & Margret Morrison
Start Date: 9/22/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Does Not Exist Southbound			Westbound Street - Forbes Ave Westbound			Northbound Street - Margret Morrisson Northbound			Eastbound Street - Forbes Ave Eastbound			Intersection Totals
Start Time	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	
7:00 AM	0	0	0	0	1	1	0	2	2	1	0	1	4
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	1	1	0	1	1	4	2	6	8
7:45 AM	0	0	0	1	1	2	2	10	12	0	0	0	14
8:00 AM	0	0	0	3	5	8	1	2	3	2	1	3	14
8:15 AM	0	0	0	0	20	20	1	12	13	3	0	3	36
8:30 AM	0	0	0	0	22	22	0	6	6	2	0	2	30
8:45 AM	0	0	0	0	9	9	1	8	9	6	0	6	24
9:00 AM	0	0	0	0	11	11	1	5	6	8	0	8	25
9:15 AM	0	0	0	0	5	5	0	12	12	8	2	10	27
9:30 AM	0	0	0	1	2	3	0	0	0	3	0	3	6
9:45 AM	0	0	0	0	2	2	0	7	7	2	1	3	12
3:00 PM	0	0	0	2	0	2	2	2	4	1	1	2	8
3:15 PM	0	0	0	0	1	1	1	0	1	0	3	3	5
3:30 PM	0	0	0	2	0	2	3	0	3	1	1	2	7
3:45 PM	0	0	0	1	3	4	0	2	2	0	0	0	6
4:00 PM	0	0	0	0	0	0	3	2	5	1	1	2	7
4:15 PM	0	0	0	0	0	0	8	2	10	5	1	6	16
4:30 PM	0	0	0	3	1	4	10	2	12	0	3	3	19
4:45 PM	0	0	0	0	1	1	8	0	8	1	3	4	13
5:00 PM	0	0	0	0	6	6	7	1	8	20	3	23	37
5:15 PM	0	0	0	4	1	5	4	1	5	4	2	6	16
5:30 PM	0	0	0	0	1	1	7	6	13	1	2	3	17
5:45 PM	0	0	0	2	4	6	13	3	16	3	2	5	27
Subtotals	0	0	0	19	97	116	72	86	158	76	28	104	378
Totals By Leg	0			116			158			104			

Hourly totals	Southbound Street - Does Not Exist Southbound			Westbound Street - Forbes Ave Westbound			Northbound Street - Margret Morrisson Northbound			Eastbound Street - Forbes Ave Eastbound			Intersection Totals
Beginning @	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	
7:00 AM	0	0	0	1	3	4	2	13	15	5	2	7	26
7:15 AM	0	0	0	4	7	11	3	13	16	6	3	9	36
7:30 AM	0	0	0	4	27	31	4	25	29	9	3	12	72
7:45 AM	0	0	0	4	48	52	4	30	34	7	1	8	94
8:00 AM	0	0	0	3	56	59	3	28	31	13	1	14	104
8:15 AM	0	0	0	0	62	62	3	31	34	19	0	19	115
8:30 AM	0	0	0	0	47	47	2	31	33	24	2	26	106
8:45 AM	0	0	0	1	27	28	2	25	27	25	2	27	82
9:00 AM	0	0	0	1	20	21	1	24	25	21	3	24	70
9:15 AM													
9:30 AM													
9:45 AM													
3:00 PM	0	0	0	5	4	9	6	4	10	2	5	7	26
3:15 PM	0	0	0	3	4	7	7	4	11	2	5	7	25
3:30 PM	0	0	0	3	3	6	14	6	20	7	3	10	36
3:45 PM	0	0	0	4	4	8	21	8	29	6	5	11	48
4:00 PM	0	0	0	3	2	5	29	6	35	7	8	15	55
4:15 PM	0	0	0	3	8	11	33	5	38	26	10	36	85
4:30 PM	0	0	0	7	9	16	29	4	33	25	11	36	85
4:45 PM	0	0	0	4	9	13	26	8	34	26	10	36	83
5:00 PM	0	0	0	6	12	18	31	11	42	28	9	37	97
5:15 PM													
5:30 PM													
5:45 PM													
Peak Hour	---	---	---	4:30 PM	8:15 AM	8:15 AM	4:15 PM	8:15 AM	5:00 PM	5:00 PM	4:30 PM	5:00 PM	8:15 AM
Volume	0	0	0	7	62	62	33	31	42	28	11	37	115
PHF	---	---	---	0.44	0.70	0.70	0.83	0.65	0.66	0.35	0.92	0.40	0.80

Study Name: Oakland/CMU - Forbes Avenue & Margret Morrison
Start Date: 9/22/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Does Not Exist Southbound			Westbound Street - Forbes Ave Westbound			Northbound Street - Margret Morrisson Northbound			Eastbound Street - Forbes Ave Eastbound			Intersection Totals
Start Time	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	2	2	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	1	0	1	0	0	0	1
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	1	0	1	0	0	0	1
4:15 PM	0	0	0	0	0	0	1	0	1	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	1	0	1	0	0	0	1
5:00 PM	0	0	0	0	0	0	1	0	1	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotals	0	0	0	0	2	2	5	0	5	0	0	0	7
Totals By Leg	0			2			5			0			

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Hourly totals	Southbound Street - Does Not Exist Southbound			Westbound Street - Forbes Ave Westbound			Northbound Street - Margret Morrisson Northbound			Eastbound Street - Forbes Ave Eastbound			Intersection Totals
Beginning @	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	
7:00 AM	0	0	0	0	2	2	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	2	2	0	0	0	0	0	0	2
7:30 AM	0	0	0	0	2	2	0	0	0	0	0	0	2
7:45 AM	0	0	0	0	2	2	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	1	0	1	0	0	0	1
8:45 AM	0	0	0	0	0	0	1	0	1	0	0	0	1
9:00 AM	0	0	0	0	0	0	1	0	1	0	0	0	1
9:15 AM													
9:30 AM													
9:45 AM													
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	1	0	1	0	0	0	1
3:30 PM	0	0	0	0	0	0	2	0	2	0	0	0	2
3:45 PM	0	0	0	0	0	0	2	0	2	0	0	0	2
4:00 PM	0	0	0	0	0	0	3	0	3	0	0	0	3
4:15 PM	0	0	0	0	0	0	3	0	3	0	0	0	3
4:30 PM	0	0	0	0	0	0	2	0	2	0	0	0	2
4:45 PM	0	0	0	0	0	0	2	0	2	0	0	0	2
5:00 PM	0	0	0	0	0	0	1	0	1	0	0	0	1
5:15 PM													
5:30 PM													
5:45 PM													
Peak Hour	---	---	---	---	7:00 AM	7:00 AM	4:00 PM	---	4:00 PM	---	---	---	4:00 PM
Volume	0	0	0	0	2	2	3	0	3	0	0	0	3
PHF	---	---	---	---	0.25	0.25	0.75	---	0.75	---	---	---	0.75

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Study Name: CMU/Oakland - Forbes Ave & Beeler St
Start Date: 09/22/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Beeler St Southbound			Westbound Street - Forbes Ave Westbound			Northbound Street - Parking Garage Northbound			Eastbound Street - Forbes Ave Eastbound			Intersection Totals
Start Time	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	
7:00 AM	5	1	6	0	4	4	0	3	3	0	0	0	13
7:15 AM	5	1	6	1	5	6	3	2	5	0	0	0	17
7:30 AM	3	3	6	1	2	3	0	1	1	0	0	0	10
7:45 AM	2	1	3	0	3	3	1	8	9	0	0	0	15
8:00 AM	4	6	10	2	21	23	1	8	9	0	0	0	42
8:15 AM	5	16	21	0	32	32	1	7	8	0	0	0	61
8:30 AM	5	3	8	6	19	25	2	6	8	0	0	0	41
8:45 AM	7	5	12	12	19	31	0	10	10	0	0	0	53
9:00 AM	9	1	10	4	16	20	4	6	10	0	0	0	40
9:15 AM	8	3	11	1	40	41	1	9	10	0	0	0	62
9:30 AM	9	3	12	5	12	17	4	2	6	0	0	0	35
9:45 AM	2	1	3	2	10	12	1	4	5	0	0	0	20
3:00 PM	0	0	0	29	3	32	5	2	7	0	0	0	39
3:15 PM	9	4	13	19	5	24	6	2	8	0	0	0	45
3:30 PM	2	8	10	7	3	10	4	5	9	0	0	0	29
3:45 PM	1	1	2	6	2	8	2	2	4	0	0	0	14
4:00 PM	2	5	7	18	6	24	6	2	8	0	0	0	39
4:15 PM	23	1	24	32	18	50	12	3	15	0	0	0	89
4:30 PM	10	3	13	35	8	43	15	3	18	0	0	0	74
4:45 PM	2	4	6	10	7	17	6	1	7	0	0	0	30
5:00 PM	3	32	35	20	17	37	21	3	24	1	0	1	97
5:15 PM	3	11	14	17	8	25	13	3	16	0	0	0	55
5:30 PM	6	2	8	15	12	27	13	3	16	0	0	0	51
5:45 PM	6	2	8	14	16	30	12	6	18	1	0	1	57
Subtotals	131	117	248	256	288	544	133	101	234	2	0	2	1028
Totals By Leg	248			544			234			2			

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Hourly totals	Southbound Street - Beeler St Southbound			Westbound Street - Forbes Ave Westbound			Northbound Street - Parking Garage Northbound			Eastbound Street - Forbes Ave Eastbound			Intersection Totals
Beginning @	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	
7:00 AM	15	6	21	2	14	16	4	14	18	0	0	0	55
7:15 AM	14	11	25	4	31	35	5	19	24	0	0	0	84
7:30 AM	14	26	40	3	58	61	3	24	27	0	0	0	128
7:45 AM	16	26	42	8	75	83	5	29	34	0	0	0	159
8:00 AM	21	30	51	20	91	111	4	31	35	0	0	0	197
8:15 AM	26	25	51	22	86	108	7	29	36	0	0	0	195
8:30 AM	29	12	41	23	94	117	7	31	38	0	0	0	196
8:45 AM	33	12	45	22	87	109	9	27	36	0	0	0	190
9:00 AM	28	8	36	12	78	90	10	21	31	0	0	0	157
9:15 AM													
9:30 AM													
9:45 AM													
3:00 PM	12	13	25	61	13	74	17	11	28	0	0	0	127
3:15 PM	14	18	32	50	16	66	18	11	29	0	0	0	127
3:30 PM	28	15	43	63	29	92	24	12	36	0	0	0	171
3:45 PM	36	10	46	91	34	125	35	10	45	0	0	0	216
4:00 PM	37	13	50	95	39	134	39	9	48	0	0	0	232
4:15 PM	38	40	78	97	50	147	54	10	64	1	0	1	290
4:30 PM	18	50	68	82	40	122	55	10	65	1	0	1	256
4:45 PM	14	49	63	62	44	106	53	10	63	1	0	1	233
5:00 PM	18	47	65	66	53	119	59	15	74	2	0	2	260
5:15 PM													
5:30 PM													
5:45 PM													
Peak Hour	4:15 PM	4:30 PM	4:15 PM	4:15 PM	8:30 AM	4:15 PM	5:00 PM	8:00 AM	5:00 PM	5:00 PM	---	5:00 PM	4:15 PM
Volume	38	50	78	97	94	147	59	31	74	2	0	2	290
PHF	0.41	0.39	0.56	0.69	0.59	0.74	0.70	0.78	0.77	0.50	---	0.50	0.75

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Study Name: CMU/Oakland - Forbes Ave & Beeler St
Start Date: 09/22/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Beeler St Southbound			Westbound Street - Forbes Ave Westbound			Northbound Street - Parking Garage Northbound			Eastbound Street - Forbes Ave Eastbound			Intersection Totals
Start Time	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	1	1	2	0	0	0	2
8:00 AM	3	1	4	0	0	0	0	0	0	0	0	0	4
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	3	1	4	1	1	2	0	2	2	0	0	0	8
8:45 AM	3	0	3	0	0	0	0	1	1	0	0	0	4
9:00 AM	0	1	1	1	0	1	0	0	0	0	0	0	2
9:15 AM	1	1	2	3	1	4	0	0	0	0	0	0	6
9:30 AM	1	0	1	0	0	0	0	0	0	0	0	0	1
9:45 AM	1	0	1	0	0	0	0	0	0	0	0	0	1
3:00 PM	0	0	0	0	0	0	2	1	3	0	0	0	3
3:15 PM	1	0	1	0	0	0	1	0	1	0	0	0	2
3:30 PM	0	0	0	0	0	0	1	1	2	0	0	0	2
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	1	0	1	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	1	1	2	1	0	1	0	0	0	3
5:30 PM	2	0	2	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotals	16	4	20	6	3	9	6	6	12	0	0	0	41
Totals By Leg	20			9			12			0			

Hourly totals Beginning @	Southbound Street - Beeler St Southbound			Westbound Street - Forbes Ave Westbound			Northbound Street - Parking Garage Northbound			Eastbound Street - Forbes Ave Eastbound			Intersection Totals
	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	
7:00 AM	0	0	0	0	0	0	1	1	2	0	0	0	2
7:15 AM	3	1	4	0	0	0	1	1	2	0	0	0	6
7:30 AM	3	1	4	0	0	0	1	1	2	0	0	0	6
7:45 AM	6	2	8	1	1	2	1	3	4	0	0	0	14
8:00 AM	9	2	11	1	1	2	0	3	3	0	0	0	16
8:15 AM	6	2	8	2	1	3	0	3	3	0	0	0	14
8:30 AM	7	3	10	5	2	7	0	3	3	0	0	0	20
8:45 AM	5	2	7	4	1	5	0	1	1	0	0	0	13
9:00 AM	3	2	5	4	1	5	0	0	0	0	0	0	10
9:15 AM													
9:30 AM													
9:45 AM													
3:00 PM	1	0	1	0	0	0	4	2	6	0	0	0	7
3:15 PM	1	0	1	0	0	0	2	1	3	0	0	0	4
3:30 PM	0	0	0	0	0	0	1	1	2	0	0	0	2
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	1	0	1	0	0	0	0	0	0	0	0	0	1
4:30 PM	1	0	1	1	1	2	1	0	1	0	0	0	4
4:45 PM	3	0	3	1	1	2	1	0	1	0	0	0	6
5:00 PM	3	0	3	1	1	2	1	0	1	0	0	0	6
5:15 PM													
5:30 PM													
5:45 PM													
Peak Hour	8:00 AM	8:30 AM	8:00 AM	8:30 AM	8:30 AM	8:30 AM	3:00 PM	7:45 AM	3:00 PM	---	---	---	8:30 AM
Volume	9	3	11	5	2	7	4	3	6	0	0	0	20
PHF	0.75	0.75	0.69	0.42	0.50	0.44	0.50	0.38	0.50	---	---	---	0.63

Study Name: Oakland/CMU Forbes Ave & Morewood Avenue
Start Date: 09/22/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Morewood Ave Southbound			Westbound Street - Forbes Ave Westbound			Northbound Street - Does Not Exist Northbound			Eastbound Street - Forbes Ave Eastbound			Intersection Totals
Start Time	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	
7:00 AM	2	0	2	1	6	7	0	19	19	12	1	13	41
7:15 AM	6	2	8	0	7	7	2	1	3	19	3	22	40
7:30 AM	3	1	4	1	12	13	0	3	3	21	5	26	46
7:45 AM	3	1	4	2	12	14	0	11	11	78	6	84	113
8:00 AM	2	0	2	2	39	41	3	21	24	234	17	251	318
8:15 AM	7	3	10	3	59	62	4	16	20	230	12	242	334
8:30 AM	3	1	4	0	31	31	3	12	15	114	9	123	173
8:45 AM	8	1	9	0	35	35	1	13	14	87	7	94	152
9:00 AM	16	3	19	5	38	43	0	12	12	246	7	253	327
9:15 AM	10	0	10	6	78	84	2	15	17	422	69	491	602
9:30 AM	0	0	0	7	26	33	1	8	9	148	55	203	245
9:45 AM	0	0	0	4	29	33	8	14	22	118	11	129	184
3:00 PM	4	7	11	17	10	27	19	24	43	79	112	191	272
3:15 PM	6	2	8	21	25	46	21	14	35	67	70	137	226
3:30 PM	1	0	1	8	28	36	17	15	32	43	60	103	172
3:45 PM	0	0	0	18	4	22	17	6	23	30	59	89	134
4:00 PM	1	6	7	17	6	23	16	14	30	77	138	215	275
4:15 PM	19	11	30	66	18	84	14	4	18	391	572	963	1095
4:30 PM	2	3	5	57	10	67	26	20	46	81	119	200	318
4:45 PM	4	12	16	47	13	60	25	15	40	27	72	99	215
5:00 PM	3	5	8	14	20	34	27	11	38	88	136	224	304
5:15 PM	22	23	45	26	13	39	20	10	30	90	120	210	324
5:30 PM	0	0	0	26	15	41	32	24	56	98	132	230	327
5:45 PM	8	14	22	32	27	59	27	11	38	113	138	251	370
Subtotals	130	95	225	380	561	941	285	313	598	2913	1930	4843	6607
Totals By Leg	225			941			598			4843			

PCTI Pennsylvania Community Transportation Initiative

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Hourly totals	Southbound Street - Morewood Ave Southbound			Westbound Street - Forbes Ave Westbound			Northbound Street - Does Not Exist Northbound			Eastbound Street - Forbes Ave Eastbound			Intersection Totals
Beginning @	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	
7:00 AM	14	4	18	4	37	41	2	34	36	130	15	145	240
7:15 AM	14	4	18	5	70	75	5	36	41	352	31	383	517
7:30 AM	15	5	20	8	122	130	7	51	58	563	40	603	811
7:45 AM	15	5	20	7	141	148	10	60	70	656	44	700	938
8:00 AM	20	5	25	5	164	169	11	62	73	665	45	710	977
8:15 AM	34	8	42	8	163	171	8	53	61	677	35	712	986
8:30 AM	37	5	42	11	182	193	6	52	58	869	92	961	1254
8:45 AM	34	4	38	18	177	195	4	48	52	903	138	1041	1326
9:00 AM	26	3	29	22	171	193	11	49	60	934	142	1076	1358
9:15 AM													
9:30 AM													
9:45 AM													
3:00 PM	11	9	20	64	67	131	74	59	133	219	301	520	804
3:15 PM	8	8	16	64	63	127	71	49	120	217	327	544	807
3:30 PM	21	17	38	109	56	165	64	39	103	541	829	1370	1676
3:45 PM	22	20	42	158	38	196	73	44	117	579	888	1467	1822
4:00 PM	26	32	58	187	47	234	81	53	134	576	901	1477	1903
4:15 PM	28	31	59	184	61	245	92	50	142	587	899	1486	1932
4:30 PM	31	43	74	144	56	200	98	56	154	286	447	733	1161
4:45 PM	29	40	69	113	61	174	104	60	164	303	460	763	1170
5:00 PM	33	42	75	98	75	173	106	56	162	389	526	915	1325
5:15 PM													
5:30 PM													
5:45 PM													
Peak Hour	8:30 AM	4:30 PM	5:00 PM	4:00 PM	8:30 AM	4:15 PM	5:00 PM	8:00 AM	4:45 PM	9:00 AM	4:00 PM	4:15 PM	4:15 PM
Volume	37	43	75	187	182	245	106	62	164	934	901	1486	1932
PHF	0.58	0.47	0.42	0.71	0.58	0.73	0.83	0.74	0.73	0.55	0.39	0.39	0.44

PCTI PENNSYLVANIA COMMUNITY TRANSPORTATION INITIATIVE

T. W. CONSULTANTS, INCORPORATED
ENGINEERS AND PLANNERS

gai consultants
transforming ideas into reality

Study Name: Oakland/CMU Forbes Ave & Morewood Avenue
Start Date: 09/22/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Morewood Ave Southbound			Westbound Street - Forbes Ave Westbound			Northbound Street - Does Not Exist Northbound			Eastbound Street - Forbes Ave Eastbound			Intersection Totals
Start Time	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	1	1	0	0	0	0	0	0	1
8:00 AM	1	0	1	0	0	0	1	0	1	0	0	0	2
8:15 AM	0	0	0	0	0	0	3	0	3	0	0	0	3
8:30 AM	2	0	2	0	2	2	0	0	0	0	0	0	4
8:45 AM	0	0	0	0	1	1	1	0	1	0	0	0	2
9:00 AM	0	0	0	0	3	3	0	1	1	0	0	0	4
9:15 AM	0	0	0	0	2	2	0	0	0	0	0	0	2
9:30 AM	0	0	0	0	2	2	1	0	1	0	0	0	3
9:45 AM	0	0	0	0	3	3	2	1	3	0	0	0	6
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	1	0	1	1	0	1	0	0	0	2
3:30 PM	0	0	0	2	0	2	0	2	2	0	0	0	4
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
4:45 PM	0	0	0	2	1	3	0	0	0	0	1	1	4
5:00 PM	1	0	1	0	0	0	2	2	4	2	0	2	7
5:15 PM	0	0	0	1	0	1	4	2	6	0	0	0	7
5:30 PM	0	0	0	1	0	1	1	0	1	0	0	0	2
5:45 PM	0	0	0	2	0	2	1	1	2	14	16	30	34
Subtotals	4	0	4	9	15	24	17	9	26	17	17	34	88
Totals By Leg	4			24			26			34			

Hourly totals	Southbound Street - Morewood Ave Southbound			Westbound Street - Forbes Ave Westbound			Northbound Street - Does Not Exist Northbound			Eastbound Street - Forbes Ave Eastbound			Intersection Totals
Beginning @	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	
7:00 AM	0	0	0	0	1	1	0	0	0	0	0	0	1
7:15 AM	1	0	1	0	1	1	1	0	1	0	0	0	3
7:30 AM	1	0	1	0	1	1	4	0	4	0	0	0	6
7:45 AM	3	0	3	0	3	3	4	0	4	0	0	0	10
8:00 AM	3	0	3	0	3	3	5	0	5	0	0	0	11
8:15 AM	2	0	2	0	6	6	4	1	5	0	0	0	13
8:30 AM	2	0	2	0	8	8	1	1	2	0	0	0	12
8:45 AM	0	0	0	0	8	8	2	1	3	0	0	0	11
9:00 AM	0	0	0	0	10	10	3	2	5	0	0	0	15
9:15 AM													
9:30 AM													
9:45 AM													
3:00 PM	0	0	0	3	0	3	1	2	3	0	0	0	6
3:15 PM	0	0	0	3	0	3	1	2	3	0	0	0	6
3:30 PM	0	0	0	2	0	2	0	2	2	0	0	0	4
3:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
4:00 PM	0	0	0	2	1	3	0	0	0	1	1	2	5
4:15 PM	1	0	1	2	1	3	2	2	4	3	1	4	12
4:30 PM	1	0	1	3	1	4	6	4	10	3	1	4	19
4:45 PM	1	0	1	4	1	5	7	4	11	2	1	3	20
5:00 PM	1	0	1	4	0	4	8	5	13	16	16	32	50
5:15 PM													
5:30 PM													
5:45 PM													
Peak Hour	7:45 AM	---	7:45 AM	4:45 PM	9:00 AM	9:00 AM	5:00 PM	5:00 PM	5:00 PM	5:00 PM	5:00 PM	5:00 PM	5:00 PM
Volume	3	0	3	4	10	10	8	5	13	16	16	32	50
PHF	0.38	---	0.38	0.50	0.83	0.83	0.50	0.63	0.54	0.29	0.25	0.27	0.37

Study Name: Oakland/CMU - Forbes Ave. & Hamburg Hall
Start Date: 09/21/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Parking Lot Southbound			Westbound Street - Forbes Ave Westbound			Northbound Street - Does Not Exist Northbound			Eastbound Street - Forbes Ave Eastbound			Intersection Totals
Start Time	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	
7:00 AM	5	1	6	0	3	3	0	0	0	2	0	2	11
7:15 AM	13	1	14	0	6	6	0	0	0	0	0	0	20
7:30 AM	8	4	12	0	13	13	0	0	0	0	0	0	25
7:45 AM	5	3	8	0	13	13	0	0	0	0	0	0	21
8:00 AM	8	5	13	0	11	11	0	0	0	2	0	2	26
8:15 AM	11	3	14	0	17	17	0	0	0	1	0	1	32
8:30 AM	14	10	24	5	37	42	0	0	0	2	0	2	68
8:45 AM	15	9	24	1	70	71	0	0	0	3	0	3	98
9:00 AM	14	1	15	1	44	45	0	0	0	3	0	3	63
9:15 AM	7	2	9	0	19	19	0	0	0	3	1	4	32
9:30 AM	15	4	19	2	26	28	0	0	0	1	0	1	48
9:45 AM	11	7	18	3	20	23	0	0	0	1	1	2	43
3:00 PM	27	16	43	4	8	12	0	0	0	0	0	0	55
3:15 PM	18	7	25	5	8	13	0	0	0	1	1	2	40
3:30 PM	17	8	25	2	4	6	0	0	0	0	1	1	32
3:45 PM	9	12	21	1	3	4	0	0	0	1	1	2	27
4:00 PM	9	16	25	15	5	20	0	0	0	1	1	2	47
4:15 PM	20	12	32	15	1	16	0	0	0	5	1	6	54
4:30 PM	32	23	55	27	10	37	0	0	0	0	12	12	104
4:45 PM	15	23	38	26	9	35	0	0	0	1	8	9	82
5:00 PM	20	15	35	17	21	38	0	0	0	0	3	3	76
5:15 PM	16	19	35	14	37	51	0	0	0	1	1	2	88
5:30 PM	14	17	31	15	17	32	0	0	0	0	4	4	67
5:45 PM	22	20	42	11	4	15	0	0	0	1	4	5	62
Subtotals	345	238	583	164	406	570	0	0	0	29	39	68	1221
Totals By Leg	583			570			0			68			

Hourly totals Beginning @	Southbound Street - Parking Lot Southbound			Westbound Street - Forbes Ave Westbound			Northbound Street - Does Not Exist Northbound			Eastbound Street - Forbes Ave Eastbound			Intersection Totals
	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	
7:00 AM	31	9	40	0	35	35	0	0	0	2	0	2	77
7:15 AM	34	13	47	0	43	43	0	0	0	2	0	2	92
7:30 AM	32	15	47	0	54	54	0	0	0	3	0	3	104
7:45 AM	38	21	59	5	78	83	0	0	0	5	0	5	147
8:00 AM	48	27	75	6	135	141	0	0	0	8	0	8	224
8:15 AM	54	23	77	7	168	175	0	0	0	9	0	9	261
8:30 AM	50	22	72	7	170	177	0	0	0	11	1	12	261
8:45 AM	51	16	67	4	159	163	0	0	0	10	1	11	241
9:00 AM	47	14	61	6	109	115	0	0	0	8	2	10	186
9:15 AM													
9:30 AM													
9:45 AM													
3:00 PM	71	43	114	12	23	35	0	0	0	2	3	5	154
3:15 PM	53	43	96	23	20	43	0	0	0	3	4	7	146
3:30 PM	55	48	103	33	13	46	0	0	0	7	4	11	160
3:45 PM	70	63	133	58	19	77	0	0	0	7	15	22	232
4:00 PM	76	74	150	83	25	108	0	0	0	7	22	29	287
4:15 PM	87	73	160	85	41	126	0	0	0	6	24	30	316
4:30 PM	83	80	163	84	77	161	0	0	0	2	24	26	350
4:45 PM	65	74	139	72	84	156	0	0	0	2	16	18	313
5:00 PM	72	71	143	57	79	136	0	0	0	2	12	14	293
5:15 PM													
5:30 PM													
5:45 PM													
Peak Hour	4:15 PM	4:30 PM	4:30 PM	4:15 PM	8:30 AM	8:30 AM	---	---	---	8:30 AM	4:15 PM	4:15 PM	4:30 PM
Volume	87	80	163	85	170	177	0	0	0	11	24	30	350
PHF	0.68	0.87	0.74	0.79	0.61	0.62	---	---	---	0.92	0.50	0.63	0.84

PCTI Pennsylvania Community Transportation Initiative

T. W. CONSULTANTS, INCORPORATED
ENGINEERS AND PLANNERS

gai consultants
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Study Name: Oakland/CMU - Forbes Ave.& Craig Street
Start Date: 09/21/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Craig St Southbound			Westbound Street - Forbes Ave Westbound			Northbound Street - Museum Parking Northbound			Eastbound Street - Forbes Ave Eastbound			Intersection Totals
Start Time	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	
7:00 AM	3	0	3	2	1	3	1	1	2	2	6	8	16
7:15 AM	9	6	15	4	0	4	2	3	5	3	4	7	31
7:30 AM	15	18	33	5	7	12	5	7	12	15	1	16	73
7:45 AM	4	6	10	7	2	9	5	3	8	4	9	13	40
8:00 AM	16	5	21	21	10	31	2	5	7	1	12	13	72
8:15 AM	12	4	16	6	25	31	8	1	9	9	14	23	79
8:30 AM	14	7	21	3	23	26	4	8	12	4	15	19	78
8:45 AM	13	4	17	8	22	30	4	3	7	2	8	10	64
9:00 AM	18	5	23	1	18	19	5	2	7	6	12	18	67
9:15 AM	16	3	19	5	16	21	6	4	10	1	9	10	60
9:30 AM	4	5	9	3	20	23	3	5	8	6	4	10	50
9:45 AM	23	27	50	7	17	24	11	3	14	2	7	9	97
3:00 PM	20	11	31	18	19	37	8	12	20	18	7	25	113
3:15 PM	13	15	28	12	6	18	5	11	16	7	9	16	78
3:30 PM	2	18	20	12	5	17	10	7	17	22	16	38	92
3:45 PM	32	51	83	24	12	36	13	4	17	18	25	43	179
4:00 PM	20	10	30	21	10	31	15	6	21	18	18	36	118
4:15 PM	22	17	39	34	21	55	13	6	19	23	9	32	145
4:30 PM	31	21	52	35	23	58	10	7	17	15	18	33	160
4:45 PM	29	16	45	34	24	58	19	25	44	30	12	42	189
5:00 PM	29	23	52	33	41	74	21	29	50	32	25	57	233
5:15 PM	44	54	98	24	37	61	9	24	33	24	13	37	229
5:30 PM	40	25	65	28	14	42	11	6	17	16	18	34	158
5:45 PM	34	37	71	33	23	56	8	12	20	28	14	42	189
Subtotals	463	388	851	380	396	776	198	194	392	306	285	591	2610
Totals By Leg	851			776			392			591			

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Hourly totals Beginning @	Southbound Street - Craig St Southbound			Westbound Street - Forbes Ave Westbound			Northbound Street - Museum Parking Northbound			Eastbound Street - Forbes Ave Eastbound			Intersection Totals
	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	
7:00 AM	31	30	61	18	10	28	13	14	27	24	20	44	160
7:15 AM	44	35	79	37	19	56	14	18	32	23	26	49	216
7:30 AM	47	33	80	39	44	83	20	16	36	29	36	65	264
7:45 AM	46	22	68	37	60	97	19	17	36	18	50	68	269
8:00 AM	55	20	75	38	80	118	18	17	35	16	49	65	293
8:15 AM	57	20	77	18	88	106	21	14	35	21	49	70	288
8:30 AM	61	19	80	17	79	96	19	17	36	13	44	57	269
8:45 AM	51	17	68	17	76	93	18	14	32	15	33	48	241
9:00 AM	61	40	101	16	71	87	25	14	39	15	32	47	274
9:15 AM													
9:30 AM													
9:45 AM													
3:00 PM	67	95	162	66	42	108	36	34	70	65	57	122	462
3:15 PM	67	94	161	69	33	102	43	28	71	65	68	133	467
3:30 PM	76	96	172	91	48	139	51	23	74	81	68	149	534
3:45 PM	105	99	204	114	66	180	51	23	74	74	70	144	602
4:00 PM	102	64	166	124	78	202	57	44	101	86	57	143	612
4:15 PM	111	77	188	136	109	245	63	67	130	100	64	164	727
4:30 PM	133	114	247	126	125	251	59	85	144	101	68	169	811
4:45 PM	142	118	260	119	116	235	60	84	144	102	68	170	809
5:00 PM	147	139	286	118	115	233	49	71	120	100	70	170	809
5:15 PM													
5:30 PM													
5:45 PM													
Peak Hour	5:00 PM	5:00 PM	5:00 PM	4:15 PM	4:30 PM	4:30 PM	4:15 PM	4:30 PM	4:30 PM	4:45 PM	3:45 PM	4:45 PM	4:30 PM
Volume	147	139	286	136	125	251	63	85	144	102	70	170	811
PHF	0.84	0.64	0.73	0.97	0.76	0.85	0.75	0.73	0.72	0.80	0.70	0.75	0.87

Study Name: Oakland/CMU - Forbes Ave & Craig Street
Start Date: 09/21/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Craig St Southbound			Westbound Street - Forbes Ave Westbound			Northbound Street - Museum Parking Northbound			Eastbound Street - Forbes Ave Eastbound			Intersection Totals
Start Time	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	1	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	1	0	1	0	0	0	1	0	1	2
8:15 AM	0	0	0	0	0	0	1	0	1	0	0	0	1
8:30 AM	0	0	0	0	0	0	1	0	1	0	1	1	2
8:45 AM	3	0	3	0	0	0	0	0	0	0	0	0	3
9:00 AM	0	0	0	0	1	1	0	0	0	0	0	0	1
9:15 AM	0	0	0	1	0	1	0	1	1	0	0	0	2
9:30 AM	3	0	3	0	1	1	0	0	0	0	0	0	4
9:45 AM	2	0	2	0	0	0	1	0	1	0	0	0	3
3:00 PM	0	0	0	0	0	0	1	0	1	0	0	0	1
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	1	0	1	0	0	0	1
3:45 PM	0	0	0	0	0	0	0	0	0	0	2	2	2
4:00 PM	1	1	2	1	1	2	0	0	0	0	0	0	4
4:15 PM	1	0	1	0	0	0	2	1	3	1	0	1	5
4:30 PM	2	0	2	0	0	0	0	2	2	1	0	1	5
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	3	3	1	1	2	0	0	0	0	0	0	5
5:15 PM	0	2	2	2	4	6	0	0	0	0	0	0	8
5:30 PM	1	2	3	1	1	2	0	0	0	0	1	1	6
5:45 PM	3	6	9	0	0	0	2	0	2	0	0	0	11
Subtotals	16	14	30	7	9	16	9	4	13	3	5	8	67
Totals By Leg	30			16			13			8			

Hourly totals	Southbound Street - Craig St Southbound			Westbound Street - Forbes Ave Westbound			Northbound Street - Museum Parking Northbound			Eastbound Street - Forbes Ave Eastbound			Intersection Totals
Beginning @	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	1	1
7:15 AM	0	0	0	1	0	1	0	0	0	1	1	2	3
7:30 AM	0	0	0	1	0	1	1	0	1	1	0	1	3
7:45 AM	0	0	0	1	0	1	2	0	2	1	1	2	5
8:00 AM	3	0	3	1	0	1	2	0	2	1	1	2	8
8:15 AM	3	0	3	0	1	1	2	0	2	0	1	1	7
8:30 AM	3	0	3	1	1	2	1	1	2	0	1	1	8
8:45 AM	6	0	6	1	2	3	0	1	1	0	0	0	10
9:00 AM	5	0	5	1	2	3	1	1	2	0	0	0	10
9:15 AM													
9:30 AM													
9:45 AM													
3:00 PM	0	0	0	0	0	0	2	0	2	0	2	2	4
3:15 PM	1	1	2	1	1	2	1	0	1	0	2	2	7
3:30 PM	2	1	3	1	1	2	3	1	4	1	2	3	12
3:45 PM	4	1	5	1	1	2	2	3	5	2	2	4	16
4:00 PM	4	1	5	1	1	2	2	3	5	2	0	2	14
4:15 PM	3	3	6	1	1	2	2	3	5	2	0	2	15
4:30 PM	2	5	7	3	5	8	0	2	2	1	0	1	18
4:45 PM	1	7	8	4	6	10	0	0	0	0	1	1	19
5:00 PM	4	13	17	4	6	10	2	0	2	0	1	1	30
5:15 PM													
5:30 PM													
5:45 PM													
Peak Hour	8:45 AM	5:00 PM	5:00 PM	4:45 PM	4:45 PM	4:45 PM	3:30 PM	3:45 PM	3:45 PM	3:45 PM	3:00 PM	3:45 PM	5:00 PM
Volume	6	13	17	4	6	10	3	3	5	2	2	4	30
PHF	0.50	0.54	0.47	0.50	0.38	0.42	0.38	0.38	0.42	0.50	0.25	0.50	0.68

Study Name: Oakland/CMU Fifth & Morewood
Start Date: 09/22/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Morewood Ave Southbound			Westbound Street - Fifth Ave Westbound			Northbound Street - Morewood Ave Northbound			Eastbound Street - Fifth Ave Eastbound			Intersection Totals
Start Time	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	
7:00 AM	4	0	4	0	3	3	0	0	0	4	1	5	12
7:15 AM	4	3	7	0	9	9	0	2	2	4	1	5	23
7:30 AM	12	1	13	1	5	6	2	4	6	10	0	10	35
7:45 AM	11	0	11	1	6	7	0	4	4	7	1	8	30
8:00 AM	8	0	8	2	28	30	0	7	7	13	5	18	63
8:15 AM	26	2	28	6	87	93	5	10	15	26	1	27	163
8:30 AM	28	0	28	0	31	31	1	8	9	26	4	30	98
8:45 AM	18	0	18	0	46	46	2	9	11	17	1	18	93
9:00 AM	12	0	12	0	19	19	3	7	10	21	0	21	62
9:15 AM	16	0	16	0	71	71	4	1	5	12	4	16	108
9:30 AM	15	0	15	5	21	26	4	8	12	16	3	19	72
9:45 AM	4	0	4	1	16	17	2	3	5	15	0	15	41
3:00 PM	4	5	9	10	13	23	3	1	4	7	11	18	54
3:15 PM	8	1	9	4	5	9	4	0	4	10	7	17	39
3:30 PM	8	2	10	0	20	20	7	0	7	3	10	13	50
3:45 PM	4	2	6	2	1	3	0	1	1	3	5	8	18
4:00 PM	4	2	6	5	4	9	6	4	10	4	4	8	33
4:15 PM	0	2	2	7	4	11	5	2	7	2	4	6	26
4:30 PM	3	1	4	15	1	16	14	0	14	0	9	9	43
4:45 PM	4	9	13	23	7	30	8	3	11	5	16	21	75
5:00 PM	3	5	8	11	26	37	17	6	23	5	14	19	87
5:15 PM	0	6	6	16	6	22	18	4	22	2	2	4	54
5:30 PM	5	2	7	19	7	26	10	6	16	7	8	15	64
5:45 PM	3	5	8	12	16	28	9	3	12	2	8	10	58
Subtotals	204	48	252	140	452	592	124	93	217	221	119	340	1401
Totals By Leg	252			592			217			340			

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Hourly totals	Southbound Street - Morewood Ave Southbound			Westbound Street - Fifth Ave Westbound			Northbound Street - Morewood Ave Northbound			Eastbound Street - Fifth Ave Eastbound			Intersection Totals
Beginning @	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	
7:00 AM	31	4	35	2	23	25	2	10	12	25	3	28	100
7:15 AM	35	4	39	4	48	52	2	17	19	34	7	41	151
7:30 AM	57	3	60	10	126	136	7	25	32	56	7	63	291
7:45 AM	73	2	75	9	152	161	6	29	35	72	11	83	354
8:00 AM	80	2	82	8	192	200	8	34	42	82	11	93	417
8:15 AM	84	2	86	6	183	189	11	34	45	90	6	96	416
8:30 AM	74	0	74	0	167	167	10	25	35	76	9	85	361
8:45 AM	61	0	61	5	157	162	13	25	38	66	8	74	335
9:00 AM	47	0	47	6	127	133	13	19	32	64	7	71	283
9:15 AM													
9:30 AM													
9:45 AM													
3:00 PM	24	10	34	16	39	55	14	2	16	23	33	56	161
3:15 PM	24	7	31	11	30	41	17	5	22	20	26	46	140
3:30 PM	16	8	24	14	29	43	18	7	25	12	23	35	127
3:45 PM	11	7	18	29	10	39	25	7	32	9	22	31	120
4:00 PM	11	14	25	50	16	66	33	9	42	11	33	44	177
4:15 PM	10	17	27	56	38	94	44	11	55	12	43	55	231
4:30 PM	10	21	31	65	40	105	57	13	70	12	41	53	259
4:45 PM	12	22	34	69	46	115	53	19	72	19	40	59	280
5:00 PM	11	18	29	58	55	113	54	19	73	16	32	48	263
5:15 PM													
5:30 PM													
5:45 PM													
Peak Hour	8:15 AM	4:45 PM	8:15 AM	4:45 PM	8:00 AM	8:00 AM	4:30 PM	8:00 AM	5:00 PM	8:15 AM	4:15 PM	8:15 AM	8:00 AM
Volume	84	22	86	69	192	200	57	34	73	90	43	96	417
PHF	0.75	0.61	0.77	0.75	0.55	0.54	0.79	0.85	0.79	0.87	0.67	0.80	0.64

Study Name: Oakland/CMU Fifth & Morewood
Start Date: 09/22/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Morewood Ave Southbound			Westbound Street - Fifth Ave Westbound			Northbound Street - Morewood Ave Northbound			Eastbound Street - Fifth Ave Eastbound			Intersection Totals
Start Time	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	
7:00 AM	0	0	0	0	0	0	0	1	1	0	0	0	1
7:15 AM	0	0	0	0	0	0	1	1	2	1	0	1	3
7:30 AM	0	0	0	0	0	0	0	1	1	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	3	0	3	3
8:00 AM	3	0	3	0	0	0	0	0	0	0	0	0	3
8:15 AM	2	1	3	0	2	2	0	0	0	0	1	1	6
8:30 AM	1	0	1	0	2	2	0	1	1	0	0	0	4
8:45 AM	3	0	3	0	2	2	0	1	1	2	0	2	8
9:00 AM	0	0	0	0	0	0	0	0	0	0	1	1	1
9:15 AM	0	0	0	0	0	0	0	0	0	10	1	11	11
9:30 AM	0	0	0	0	0	0	0	0	0	2	0	2	2
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	1	1	2	1	3	0	0	0	4
3:15 PM	0	0	0	1	0	1	1	0	1	1	0	1	3
3:30 PM	0	0	0	0	0	0	1	0	1	0	0	0	1
3:45 PM	2	0	2	0	0	0	0	0	0	1	0	1	3
4:00 PM	1	0	1	0	0	0	0	0	0	0	0	0	1
4:15 PM	2	0	2	1	4	5	1	0	1	2	1	3	11
4:30 PM	1	0	1	4	0	4	2	0	2	2	0	2	9
4:45 PM	1	0	1	0	1	1	0	0	0	1	0	1	3
5:00 PM	0	0	0	2	0	2	0	0	0	4	2	6	8
5:15 PM	1	0	1	5	0	5	0	0	0	1	1	2	8
5:30 PM	3	1	4	7	2	9	0	0	0	0	1	1	14
5:45 PM	0	1	1	3	4	7	0	0	0	0	0	0	8
Subtotals	20	3	23	23	18	41	8	6	14	30	8	38	116
Totals By Leg	23			41			14			38			

Hourly totals	Southbound Street - Morewood Ave Southbound			Westbound Street - Fifth Ave Westbound			Northbound Street - Morewood Ave Northbound			Eastbound Street - Fifth Ave Eastbound			Intersection Totals
Beginning @	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	
7:00 AM	0	0	0	0	0	0	1	3	4	4	0	4	8
7:15 AM	3	0	3	0	0	0	1	2	3	4	0	4	10
7:30 AM	5	1	6	0	2	2	0	1	1	3	1	4	13
7:45 AM	6	1	7	0	4	4	0	1	1	3	1	4	16
8:00 AM	9	1	10	0	6	6	0	2	2	2	1	3	21
8:15 AM	6	1	7	0	6	6	0	2	2	2	2	4	19
8:30 AM	4	0	4	0	4	4	0	2	2	12	2	14	24
8:45 AM	3	0	3	0	2	2	0	1	1	14	2	16	22
9:00 AM	0	0	0	0	0	0	0	0	0	12	2	14	14
9:15 AM													
9:30 AM													
9:45 AM													
3:00 PM	2	0	2	1	1	2	4	1	5	2	0	2	11
3:15 PM	3	0	3	1	0	1	2	0	2	2	0	2	8
3:30 PM	5	0	5	1	4	5	2	0	2	3	1	4	16
3:45 PM	6	0	6	5	4	9	3	0	3	5	1	6	24
4:00 PM	5	0	5	5	5	10	3	0	3	5	1	6	24
4:15 PM	4	0	4	7	5	12	3	0	3	9	3	12	31
4:30 PM	3	0	3	11	1	12	2	0	2	8	3	11	28
4:45 PM	5	1	6	14	3	17	0	0	0	6	4	10	33
5:00 PM	4	2	6	17	6	23	0	0	0	5	4	9	38
5:15 PM													
5:30 PM													
5:45 PM													
Peak Hour	8:00 AM	5:00 PM	8:00 AM	5:00 PM	5:00 PM	5:00 PM	3:00 PM	7:00 AM	3:00 PM	8:45 AM	4:45 PM	8:45 AM	5:00 PM
Volume	9	2	10	17	6	23	4	3	5	14	4	16	38
PHF	0.75	0.50	0.83	0.61	0.38	0.64	0.50	0.75	0.42	0.35	0.50	0.36	0.68

Study Name: Oakland/CMU - Fifth Ave & Neville St
Start Date: 09/21/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Neville St Southbound			Westbound Street - Fifth Ave Westbound			Northbound Street - Neville St Northbound			Eastbound Street - Fifth Ave Eastbound			Intersection Totals
Start Time	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	
7:00 AM	1	2	3	0	2	2	6	5	11	6	0	6	22
7:15 AM	7	10	17	0	8	8	5	9	14	3	0	3	42
7:30 AM	14	19	33	0	21	21	3	26	29	6	0	6	89
7:45 AM	10	7	17	0	13	13	3	13	16	2	2	4	50
8:00 AM	17	6	23	0	7	7	4	10	14	1	2	3	47
8:15 AM	17	4	21	0	15	15	13	8	21	1	0	1	58
8:30 AM	25	6	31	1	15	16	7	15	22	7	1	8	77
8:45 AM	18	5	23	3	20	23	8	19	27	5	2	7	80
9:00 AM	22	6	28	2	16	18	5	7	12	1	2	3	61
9:15 AM	19	4	23	2	15	17	7	3	10	4	2	6	56
9:30 AM	18	1	19	0	3	3	3	2	5	2	1	3	30
9:45 AM	6	3	9	0	12	12	10	5	15	0	0	0	36
3:00 PM	10	7	17	3	5	8	13	18	31	3	5	8	64
3:15 PM	5	11	16	0	8	8	17	12	29	3	4	7	60
3:30 PM	8	9	17	9	5	14	12	9	21	3	3	6	58
3:45 PM	9	6	15	6	5	11	9	17	26	1	5	6	58
4:00 PM	4	9	13	6	5	11	12	17	29	2	5	7	60
4:15 PM	6	7	13	18	5	23	7	22	29	3	7	10	75
4:30 PM	19	9	28	13	3	16	23	37	60	8	3	11	115
4:45 PM	9	9	18	10	5	15	21	30	51	1	11	12	96
5:00 PM	7	20	27	8	5	13	3	1	4	2	7	9	53
5:15 PM	12	15	27	12	5	17	0	4	4	0	4	4	52
5:30 PM	12	19	31	12	7	19	1	0	1	3	10	13	64
5:45 PM	18	12	30	14	9	23	3	1	4	1	2	3	60
Subtotals	293	206	499	119	214	333	195	290	485	68	78	146	1463
Totals By Leg	499			333			485			146			

Hourly totals	Southbound Street - Neville St Southbound			Westbound Street - Fifth Ave Westbound			Northbound Street - Neville St Northbound			Eastbound Street - Fifth Ave Eastbound			Intersection Totals
Beginning @	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	
7:00 AM	32	38	70	0	44	44	17	53	70	17	2	19	203
7:15 AM	48	42	90	0	49	49	15	58	73	12	4	16	228
7:30 AM	58	36	94	0	56	56	23	57	80	10	4	14	244
7:45 AM	69	23	92	1	50	51	27	46	73	11	5	16	232
8:00 AM	77	21	98	4	57	61	32	52	84	14	5	19	262
8:15 AM	82	21	103	6	66	72	33	49	82	14	5	19	276
8:30 AM	84	21	105	8	66	74	27	44	71	17	7	24	274
8:45 AM	77	16	93	7	54	61	23	31	54	12	7	19	227
9:00 AM	65	14	79	4	46	50	25	17	42	7	5	12	183
9:15 AM													
9:30 AM													
9:45 AM													
3:00 PM	32	33	65	18	23	41	51	56	107	10	17	27	240
3:15 PM	26	35	61	21	23	44	50	55	105	9	17	26	236
3:30 PM	27	31	58	39	20	59	40	65	105	9	20	29	251
3:45 PM	38	31	69	43	18	61	51	93	144	14	20	34	308
4:00 PM	38	34	72	47	18	65	63	106	169	14	26	40	346
4:15 PM	41	45	86	49	18	67	54	90	144	14	28	42	339
4:30 PM	47	53	100	43	18	61	47	72	119	11	25	36	316
4:45 PM	40	63	103	42	22	64	25	35	60	6	32	38	265
5:00 PM	49	66	115	46	26	72	7	6	13	6	23	29	229
5:15 PM													
5:30 PM													
5:45 PM													
Peak Hour	8:30 AM	5:00 PM	5:00 PM	4:15 PM	8:15 AM	8:30 AM	4:00 PM	4:00 PM	4:00 PM	7:00 AM	4:45 PM	4:15 PM	4:00 PM
Volume	84	66	115	49	66	74	63	106	169	17	32	42	346
PHF	0.84	0.83	0.93	0.68	0.83	0.80	0.68	0.72	0.70	0.71	0.73	0.88	0.75

Study Name: Oakland/CMU - Fifth Ave & Neville St
Start Date: 09/21/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Neville St Southbound			Westbound Street - Fifth Ave Westbound			Northbound Street - Neville St Northbound			Eastbound Street - Fifth Ave Eastbound			Intersection Totals
Start Time	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	
7:00 AM	1	0	1	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	3	0	3	3
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	3	0	3	0	0	0	0	0	0	0	0	0	3
9:45 AM	1	0	1	0	0	0	0	0	0	0	0	0	1
3:00 PM	1	1	2	0	0	0	0	0	0	0	0	0	2
3:15 PM	1	0	1	0	0	0	0	0	0	0	0	0	1
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	2	0	2	0	0	0	0	1	1	0	1	1	4
4:15 PM	3	1	4	0	0	0	0	2	2	1	2	3	9
4:30 PM	0	0	0	1	0	1	0	0	0	0	0	0	1
4:45 PM	2	0	2	0	0	0	0	0	0	2	0	2	4
5:00 PM	1	0	1	0	0	0	0	0	0	0	2	2	3
5:15 PM	2	2	4	0	0	0	0	0	0	1	0	1	5
5:30 PM	1	0	1	0	0	0	0	0	0	0	1	1	2
5:45 PM	2	1	3	0	0	0	0	0	0	0	1	1	4
Subtotals	20	5	25	1	0	1	0	3	3	7	7	14	43
Totals By Leg	25			1			3			14			

Hourly totals	Southbound			Westbound			Northbound			Eastbound			Totals
Beginning @	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	
7:00 AM	1	0	1	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	3	0	3	3
8:15 AM	0	0	0	0	0	0	0	0	0	3	0	3	3
8:30 AM	0	0	0	0	0	0	0	0	0	3	0	3	3
8:45 AM	3	0	3	0	0	0	0	0	0	3	0	3	6
9:00 AM	4	0	4	0	0	0	0	0	0	0	0	0	4
9:15 AM													
9:30 AM													
9:45 AM													
3:00 PM	2	1	3	0	0	0	0	0	0	0	0	0	3
3:15 PM	3	0	3	0	0	0	0	1	1	0	1	1	5
3:30 PM	5	1	6	0	0	0	0	3	3	1	3	4	13
3:45 PM	5	1	6	1	0	1	0	3	3	1	3	4	14
4:00 PM	7	1	8	1	0	1	0	3	3	3	3	6	18
4:15 PM	6	1	7	1	0	1	0	2	2	3	4	7	17
4:30 PM	5	2	7	1	0	1	0	0	0	3	2	5	13
4:45 PM	6	2	8	0	0	0	0	0	0	3	3	6	14
5:00 PM	6	3	9	0	0	0	0	0	0	1	4	5	14
5:15 PM													
5:30 PM													
5:45 PM													
Peak Hour	4:00 PM	5:00 PM	5:00 PM	3:45 PM	---	3:45 PM	---	3:30 PM	3:30 PM	8:00 AM	4:15 PM	4:15 PM	4:00 PM
Volume	7	3	9	1	0	1	0	3	3	3	4	7	18
PHF	0.58	0.38	0.56	0.25	---	0.25	---	0.38	0.38	0.25	0.50	0.58	0.50

Study Name: Oakland/CMU - Fifth Ave and Craig Street
Start Date: 09/14/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Craig St Southbound			Westbound Street - Fifth Ave Westbound			Northbound Street - Craig St Northbound			Eastbound Street - Fifth Ave Eastbound			Intersection Totals
Start Time	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	
7:00 AM	1	3	4	2	4	6	0	4	4	3	0	3	17
7:15 AM	2	8	10	10	14	24	1	4	5	11	3	14	53
7:30 AM	4	13	17	14	5	19	4	3	7	13	1	14	57
7:45 AM	3	9	12	9	14	23	3	5	8	10	3	13	56
8:00 AM	7	9	16	5	8	13	2	6	8	14	5	19	56
8:15 AM	6	24	30	9	17	26	4	19	23	32	10	42	121
8:30 AM	2	22	24	9	17	26	5	10	15	32	4	36	101
8:45 AM	2	23	25	2	14	16	5	8	13	27	3	30	84
9:00 AM	22	27	49	7	12	19	6	10	16	33	5	38	122
9:15 AM	16	16	32	6	9	15	7	9	16	23	4	27	90
9:30 AM	10	24	34	4	21	25	3	11	14	14	4	18	91
9:45 AM	12	18	30	4	25	29	2	9	11	23	3	26	96
3:00 PM	10	7	17	27	10	37	10	15	25	9	12	21	100
3:15 PM	7	12	19	15	11	26	19	10	29	16	15	31	105
3:30 PM	12	5	17	13	9	22	16	18	34	16	27	43	116
3:45 PM	13	18	31	4	5	9	10	15	25	10	21	31	96
4:00 PM	8	1	9	13	6	19	13	12	25	14	19	33	86
4:15 PM	2	7	9	22	12	34	12	7	19	10	19	29	91
4:30 PM	15	10	25	27	6	33	11	8	19	12	29	41	118
4:45 PM	13	7	20	23	14	37	9	1	10	17	21	38	105
5:00 PM	31	12	43	21	12	33	11	7	18	15	27	42	136
5:15 PM	27	15	42	22	14	36	12	4	16	16	24	40	134
5:30 PM	22	10	32	27	5	32	6	9	15	19	20	39	118
5:45 PM	11	20	31	12	12	24	17	2	19	11	13	24	98
Subtotals	258	320	578	307	276	583	188	206	394	400	292	692	2247
Totals By Leg	578			583			394			692			

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Hourly totals	Southbound Street - Craig St Southbound			Westbound Street - Fifth Ave Westbound			Northbound Street - Craig St Northbound			Eastbound Street - Fifth Ave Eastbound			Intersection Totals
Beginning @	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	Peds CCW	Peds CW	Subtotals	
7:00 AM	10	33	43	35	37	72	8	16	24	37	7	44	183
7:15 AM	16	39	55	38	41	79	10	18	28	48	12	60	222
7:30 AM	20	55	75	37	44	81	13	33	46	69	19	88	290
7:45 AM	18	64	82	32	56	88	14	40	54	88	22	110	334
8:00 AM	17	78	95	25	56	81	16	43	59	105	22	127	362
8:15 AM	32	96	128	27	60	87	20	47	67	124	22	146	428
8:30 AM	42	88	130	24	52	76	23	37	60	115	16	131	397
8:45 AM	50	90	140	19	56	75	21	38	59	97	16	113	387
9:00 AM	60	85	145	21	67	88	18	39	57	93	16	109	399
9:15 AM													
9:30 AM													
9:45 AM													
3:00 PM	42	42	84	59	35	94	55	58	113	51	75	126	417
3:15 PM	40	36	76	45	31	76	58	55	113	56	82	138	403
3:30 PM	35	31	66	52	32	84	51	52	103	50	86	136	389
3:45 PM	38	36	74	66	29	95	46	42	88	46	88	134	391
4:00 PM	38	25	63	85	38	123	45	28	73	53	88	141	400
4:15 PM	61	36	97	93	44	137	43	23	66	54	96	150	450
4:30 PM	86	44	130	93	46	139	43	20	63	60	101	161	493
4:45 PM	93	44	137	93	45	138	38	21	59	67	92	159	493
5:00 PM	91	57	148	82	43	125	46	22	68	61	84	145	486
5:15 PM													
5:30 PM													
5:45 PM													
Peak Hour	4:45 PM	8:15 AM	5:00 PM	4:15 PM	9:00 AM	4:30 PM	3:15 PM	3:00 PM	3:00 PM	8:15 AM	4:30 PM	4:30 PM	4:30 PM
Volume	93	96	148	93	67	139	58	58	113	124	101	161	493
PHF	0.75	0.89	0.86	0.86	0.67	0.94	0.76	0.81	0.83	0.94	0.87	0.96	0.91

Study Name: Oakland/CMU - Fifth Ave and Craig Street
Start Date: 09/14/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Craig St Southbound			Westbound Street - Fifth Ave Westbound			Northbound Street - Craig St Northbound			Eastbound Street - Fifth Ave Eastbound			Intersection Totals
Start Time	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	1	0	0	0	0	1	1	0	0	0	2
7:30 AM	0	3	3	0	0	0	0	0	0	1	0	1	4
7:45 AM	0	5	5	0	0	0	0	0	0	0	0	0	5
8:00 AM	0	3	3	0	0	0	0	0	0	0	0	0	3
8:15 AM	0	7	7	0	0	0	0	0	0	0	0	0	7
8:30 AM	0	2	2	0	1	1	0	1	1	0	0	0	4
8:45 AM	0	7	7	0	0	0	0	0	0	0	0	0	7
9:00 AM	0	4	4	0	0	0	0	0	0	0	0	0	4
9:15 AM	0	5	5	0	1	1	0	0	0	2	0	2	8
9:30 AM	0	3	3	0	0	0	0	0	0	0	0	0	3
9:45 AM	0	1	1	0	0	0	0	2	2	0	0	0	3
3:00 PM	0	0	0	0	0	0	0	0	0	0	2	2	2
3:15 PM	0	3	3	0	0	0	0	1	1	0	0	0	4
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	2	2	0	0	0	1	0	1	0	1	1	4
4:00 PM	0	0	0	0	0	0	1	0	1	0	0	0	1
4:15 PM	0	1	1	1	0	1	0	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	1	2	0	0	0	0	0	0	0	0	0	2
5:00 PM	1	2	3	1	0	1	0	0	0	0	0	0	4
5:15 PM	1	0	1	1	0	1	0	0	0	0	1	1	3
5:30 PM	1	3	4	0	1	1	0	0	0	0	0	0	5
5:45 PM	0	3	3	0	0	0	0	0	0	0	0	0	3
Subtotals	4	56	60	3	3	6	2	5	7	3	4	7	80
Totals By Leg	60			6			7			7			

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Hourly totals	Southbound Street - Craig St Southbound			Westbound Street - Fifth Ave Westbound			Northbound Street - Craig St Northbound			Eastbound Street - Fifth Ave Eastbound			Intersection Totals
Beginning @	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	Bikes CCW	Bikes CW	Subtotals	
7:00 AM	0	9	9	0	0	0	0	1	1	1	0	1	11
7:15 AM	0	12	12	0	0	0	0	1	1	1	0	1	14
7:30 AM	0	18	18	0	0	0	0	0	0	1	0	1	19
7:45 AM	0	17	17	0	1	1	0	1	1	0	0	0	19
8:00 AM	0	19	19	0	1	1	0	1	1	0	0	0	21
8:15 AM	0	20	20	0	1	1	0	1	1	0	0	0	22
8:30 AM	0	18	18	0	2	2	0	1	1	2	0	2	23
8:45 AM	0	19	19	0	1	1	0	0	0	2	0	2	22
9:00 AM	0	13	13	0	1	1	0	2	2	2	0	2	18
9:15 AM													
9:30 AM													
9:45 AM													
3:00 PM	0	5	5	0	0	0	1	1	2	0	3	3	10
3:15 PM	0	5	5	0	0	0	2	1	3	0	1	1	9
3:30 PM	0	3	3	1	0	1	2	0	2	0	1	1	7
3:45 PM	0	3	3	1	0	1	2	0	2	0	1	1	7
4:00 PM	1	2	3	1	0	1	1	0	1	0	0	0	5
4:15 PM	2	4	6	2	0	2	0	0	0	0	0	0	8
4:30 PM	3	3	6	2	0	2	0	0	0	0	1	1	9
4:45 PM	4	6	10	2	1	3	0	0	0	0	1	1	14
5:00 PM	3	8	11	2	1	3	0	0	0	0	1	1	15
5:15 PM													
5:30 PM													
5:45 PM													
Peak Hour	4:45 PM	8:15 AM	8:15 AM	4:15 PM	8:30 AM	4:45 PM	3:15 PM	9:00 AM	3:15 PM	8:30 AM	3:00 PM	3:00 PM	8:30 AM
Volume	4	20	20	2	2	3	2	2	3	2	3	3	23
PHF	1.00	0.71	0.71	0.50	0.50	0.75	0.50	0.25	0.75	0.25	0.38	0.38	0.72

Study Name: Oakland/CMU - Fifth Avenue & Margret Morrison
Start Date: 09/22/2010
Start Time: 7:00 AM
Site Code:

	Westbound Street Westbound			Northbound Street Northbound			Eastbound Street Eastbound		
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn
7:00 AM	63	2	0	2	18	0	18	26	0
7:15 AM	79	7	0	1	16	0	27	41	0
7:30 AM	105	4	0	2	25	0	19	44	0
7:45 AM	131	6	0	1	19	0	22	46	0
8:00 AM	127	5	0	3	20	0	48	44	0
8:15 AM	139	17	0	6	36	0	55	40	0
8:30 AM	110	17	0	12	45	0	62	36	0
8:45 AM	105	9	0	10	39	0	29	41	0
9:00 AM	56	7	0	5	25	0	42	51	0
9:15 AM	89	10	0	3	22	0	39	47	0
9:30 AM	73	5	0	1	26	0	31	45	0
9:45 AM	60	7	0	0	20	0	17	47	0
3:00 PM	50	5	0	7	18	0	38	111	0
3:15 PM	71	6	0	4	18	0	50	116	0
3:30 PM	67	10	0	9	24	0	35	136	0
3:45 PM	42	7	0	4	29	0	48	114	0
4:00 PM	54	7	0	4	29	0	54	144	0
4:15 PM	51	5	0	3	31	0	52	162	0
4:30 PM	53	5	0	8	30	0	47	142	0
4:45 PM	61	2	0	3	20	0	61	178	0
5:00 PM	61	5	0	11	40	0	54	182	0
5:15 PM	77	6	0	8	30	0	58	189	0
5:30 PM	68	4	0	4	36	0	43	150	0
5:45 PM	75	7	0	11	30	0	51	127	0

Study Name: Oakland/CMU - Fifth & M. Morrison
Start Date: 09/22/2010
Start Time: 7:00 AM
Site Code:

	Westbound Street Westbound			Northbound Street Northbound			Eastbound Street Eastbound		
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn
7:00 AM	2	0	0	0	0	0	2	3	0
7:15 AM	1	0	0	1	0	0	1	2	0
7:30 AM	0	0	0	0	0	0	2	3	0
7:45 AM	3	0	0	0	1	0	1	1	0
8:00 AM	2	0	0	0	0	0	1	2	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	1	0	0	1	0	1	3	0
8:45 AM	3	0	0	0	0	0	3	8	0
9:00 AM	2	0	0	0	1	0	2	2	0
9:15 AM	1	0	0	0	1	0	1	0	0
9:30 AM	0	1	0	0	0	0	1	2	0
9:45 AM	1	0	0	1	1	0	2	1	0
3:00 PM	3	0	0	0	0	0	1	1	0
3:15 PM	0	0	0	0	0	0	0	1	0
3:30 PM	0	0	0	0	2	0	1	2	0
3:45 PM	0	0	0	0	0	0	0	1	0
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	1	0
4:30 PM	1	0	0	0	1	0	0	4	0
4:45 PM	0	0	0	0	0	0	2	3	0
5:00 PM	1	0	0	0	1	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	1	0	0
5:45 PM	0	0	0	0	0	0	2	1	0

Study Name: Oakland/CMU - Fifth & M. Morrison
Start Date: 09/22/2010
Start Time: 7:00 AM
Site Code:

	Westbound Street Westbound			Northbound Street Northbound			Eastbound Street Eastbound		
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn
7:00 AM	5	0	0	0	0	0	0	3	0
7:15 AM	4	0	0	0	0	0	0	1	0
7:30 AM	4	0	0	0	0	0	0	4	0
7:45 AM	4	0	0	0	0	0	0	4	0
8:00 AM	3	0	0	0	0	0	0	4	0
8:15 AM	6	0	0	0	0	0	0	2	0
8:30 AM	6	0	0	0	0	0	1	6	0
8:45 AM	5	0	0	0	0	0	0	0	0
9:00 AM	6	0	0	0	0	0	0	4	0
9:15 AM	4	0	0	0	0	0	0	4	0
9:30 AM	3	0	0	0	0	0	0	9	0
9:45 AM	1	0	0	0	0	0	0	5	0
3:00 PM	5	0	0	0	0	0	0	6	0
3:15 PM	3	0	0	0	0	0	0	5	0
3:30 PM	7	0	0	0	0	0	0	5	0
3:45 PM	4	0	0	0	0	0	0	6	0
4:00 PM	2	0	0	0	0	0	0	4	0
4:15 PM	5	0	0	0	0	0	0	3	0
4:30 PM	4	0	0	0	0	0	0	3	0
4:45 PM	2	0	0	0	0	0	0	6	0
5:00 PM	5	0	0	0	0	0	0	2	0
5:15 PM	4	0	0	0	0	0	0	4	0
5:30 PM	1	0	0	0	0	0	0	1	0
5:45 PM	2	0	0	0	0	0	3	3	0

Study Name: Oakland/CMU - Fifth & M. Morrison
Start Date: 09/22/2010
Start Time: 7:00 AM
Site Code:

	Westbound Street Westbound			Northbound Street Northbound			Eastbound Street Eastbound		
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn
7:00 AM	5	0	0	0	0	0	0	3	0
7:15 AM	4	0	0	0	0	0	0	1	0
7:30 AM	4	0	0	0	0	0	0	4	0
7:45 AM	4	0	0	0	0	0	0	4	0
8:00 AM	3	0	0	0	0	0	0	4	0
8:15 AM	6	0	0	0	0	0	0	2	0
8:30 AM	6	0	0	0	0	0	1	6	0
8:45 AM	5	0	0	0	0	0	0	0	0
9:00 AM	6	0	0	0	0	0	0	4	0
9:15 AM	4	0	0	0	0	0	0	4	0
9:30 AM	3	0	0	0	0	0	0	9	0
9:45 AM	1	0	0	0	0	0	0	5	0
3:00 PM	5	0	0	0	0	0	0	6	0
3:15 PM	3	0	0	0	0	0	0	5	0
3:30 PM	7	0	0	0	0	0	0	5	0
3:45 PM	4	0	0	0	0	0	0	6	0
4:00 PM	2	0	0	0	0	0	0	4	0
4:15 PM	5	0	0	0	0	0	0	3	0
4:30 PM	4	0	0	0	0	0	0	3	0
4:45 PM	2	0	0	0	0	0	0	6	0
5:00 PM	5	0	0	0	0	0	0	2	0
5:15 PM	4	0	0	0	0	0	0	4	0
5:30 PM	1	0	0	0	0	0	0	1	0
5:45 PM	2	0	0	0	0	0	3	3	0

Study Name: Oakland/CMU - Fifth Avenue & Margret Morrison
Start Date: 09/22/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Does Not Exist Southbound					Westbound Street - Forbes Avenue Westbound					Northbound Street - Margert Morrison Northbound					Eastbound Street - Forbes Avenue Eastbound					Intersection Totals
Start Time	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	
7:00 AM	0	0	0	0	0	0	70	2	0	72	2	0	18	0	20	20	32	0	0	52	144
7:15 AM	0	0	0	0	0	0	84	7	0	91	2	0	16	0	18	28	44	0	0	72	181
7:30 AM	0	0	0	0	0	0	109	4	0	113	2	0	25	0	27	21	51	0	0	72	212
7:45 AM	0	0	0	0	0	0	138	6	0	144	1	0	20	0	21	23	51	0	0	74	239
8:00 AM	0	0	0	0	0	0	132	5	0	137	3	0	20	0	23	49	50	0	0	99	259
8:15 AM	0	0	0	0	0	0	145	17	0	162	6	0	36	0	42	55	42	0	0	97	301
8:30 AM	0	0	0	0	0	0	116	18	0	134	12	0	46	0	58	64	45	0	0	109	301
8:45 AM	0	0	0	0	0	0	113	9	0	122	10	0	39	0	49	32	49	0	0	81	252
9:00 AM	0	0	0	0	0	0	64	7	0	71	5	0	26	0	31	44	57	0	0	101	203
9:15 AM	0	0	0	0	0	0	94	10	0	104	3	0	23	0	26	40	51	0	0	91	221
9:30 AM	0	0	0	0	0	0	76	6	0	82	1	0	26	0	27	32	56	0	0	88	197
9:45 AM	0	0	0	0	0	0	62	7	0	69	1	0	21	0	22	19	53	0	0	72	163
3:00 PM	0	0	0	0	0	0	58	5	0	63	7	0	18	0	25	39	118	0	0	157	245
3:15 PM	0	0	0	0	0	0	74	6	0	80	4	0	18	0	22	50	122	0	0	172	274
3:30 PM	0	0	0	0	0	0	74	10	0	84	9	0	26	0	35	36	143	0	0	179	298
3:45 PM	0	0	0	0	0	0	46	7	0	53	4	0	29	0	33	48	121	0	0	169	255
4:00 PM	0	0	0	0	0	0	56	7	0	63	4	0	29	0	33	54	148	0	0	202	298
4:15 PM	0	0	0	0	0	0	56	5	0	61	3	0	31	0	34	52	166	0	0	218	313
4:30 PM	0	0	0	0	0	0	58	5	0	63	8	0	31	0	39	47	149	0	0	196	298
4:45 PM	0	0	0	0	0	0	63	2	0	65	3	0	20	0	23	63	187	0	0	250	338
5:00 PM	0	0	0	0	0	0	67	5	0	72	11	0	41	0	52	54	184	0	0	238	362
5:15 PM	0	0	0	0	0	0	81	6	0	87	8	0	30	0	38	58	193	0	0	251	376
5:30 PM	0	0	0	0	0	0	69	4	0	73	4	0	36	0	40	44	151	0	0	195	308
5:45 PM	0	0	0	0	0	0	77	7	0	84	11	0	30	0	41	56	131	0	0	187	312
Subtotals	0	0	0	0	0	0	1982	167	0	2149	124	0	655	0	779	1028	2394	0	0	3422	6350
Totals By Leg	0					2149					779					3422					
Heavy Vehicles	0	0	0	0		0	95	0	0		0	0	0	0		4	94	0	0		
% Heavy of Movement	---	---	---	---		---	4.79%	0.00%	---		0.00%	---	0.00%	---		0.39%	3.93%	---	---		
Total Heavy Vehicles	0					95					0					98					193
% Heavy By Leg	---					4.42%					0.00%					2.86%					3.04%

Hourly totals	Southbound Street - Does Not Exist Southbound					Westbound Street - Forbes Avenue Westbound					Northbound Street - Margert Morrison Northbound					Eastbound Street - Forbes Avenue Eastbound					Intersection Totals
Beginning @	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	
7:00 AM	0	0	0	0	0	0	401	19	0	420	7	0	79	0	86	92	178	0	0	270	776
7:15 AM	0	0	0	0	0	0	463	22	0	485	8	0	81	0	89	121	196	0	0	317	891
7:30 AM	0	0	0	0	0	0	524	32	0	556	12	0	101	0	113	148	194	0	0	342	1011
7:45 AM	0	0	0	0	0	0	531	46	0	577	22	0	122	0	144	191	188	0	0	379	1100
8:00 AM	0	0	0	0	0	0	506	49	0	555	31	0	141	0	172	200	186	0	0	386	1113
8:15 AM	0	0	0	0	0	0	438	51	0	489	33	0	147	0	180	195	193	0	0	388	1057
8:30 AM	0	0	0	0	0	0	387	44	0	431	30	0	134	0	164	180	202	0	0	382	977
8:45 AM	0	0	0	0	0	0	347	32	0	379	19	0	114	0	133	148	213	0	0	361	873
9:00 AM	0	0	0	0	0	0	296	30	0	326	10	0	96	0	106	135	217	0	0	352	784
9:15 AM																					
9:30 AM																					
9:45 AM																					
3:00 PM	0	0	0	0	0	0	252	28	0	280	24	0	91	0	115	173	504	0	0	677	1072
3:15 PM	0	0	0	0	0	0	250	30	0	280	21	0	102	0	123	188	534	0	0	722	1125
3:30 PM	0	0	0	0	0	0	232	29	0	261	20	0	115	0	135	190	578	0	0	768	1164
3:45 PM	0	0	0	0	0	0	216	24	0	240	19	0	120	0	139	201	584	0	0	785	1164
4:00 PM	0	0	0	0	0	0	233	19	0	252	18	0	111	0	129	216	650	0	0	866	1247
4:15 PM	0	0	0	0	0	0	244	17	0	261	25	0	123	0	148	216	686	0	0	902	1311
4:30 PM	0	0	0	0	0	0	269	18	0	287	30	0	122	0	152	222	713	0	0	935	1374
4:45 PM	0	0	0	0	0	0	280	17	0	297	26	0	127	0	153	219	715	0	0	934	1384
5:00 PM	0	0	0	0	0	0	294	22	0	316	34	0	137	0	171	212	659	0	0	871	1358
5:15 PM																					
5:30 PM																					
5:45 PM																					
Peak Hour	---	---	---	---	---	---	7:45 AM	8:15 AM	---	7:45 AM	5:00 PM	---	8:15 AM	---	8:15 AM	4:30 PM	4:45 PM	---	---	4:30 PM	4:45 PM
Volume	0	0	0	0	0	0	531	51	0	577	34	0	147	0	180	222	715	0	0	935	1384
PHF	---	---	---	---	---	---	0.92	0.71	---	0.89	0.77	---	0.80	---	0.78	0.88	0.93	---	---	0.93	0.92

Study Name: CMU/Oakland - Fobres Ave & Beeler St
Start Date: 09/22/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	18	3	5	0	2	67	6	0	2	0	0	0	0	32	13	0
7:15 AM	29	1	9	0	0	93	3	0	2	1	0	0	1	55	6	0
7:30 AM	44	1	8	0	3	122	8	0	0	1	4	0	1	50	14	0
7:45 AM	41	7	7	0	4	124	14	0	2	1	0	0	1	56	15	0
8:00 AM	52	3	22	0	2	138	12	0	1	0	0	0	4	66	8	0
8:15 AM	64	10	26	0	2	155	21	0	0	0	0	0	1	74	10	0
8:30 AM	42	9	19	0	6	126	15	0	0	0	0	0	1	78	14	0
8:45 AM	42	7	12	0	3	125	12	0	0	0	0	0	4	61	9	0
9:00 AM	29	7	16	0	7	74	13	0	0	0	0	0	0	77	8	0
9:15 AM	19	10	14	0	7	102	9	0	1	0	0	0	3	69	10	0
9:30 AM	24	7	13	0	4	72	13	0	1	0	1	0	1	63	7	0
9:45 AM	20	8	9	0	2	77	10	0	0	0	1	0	3	56	16	0
3:00 PM	3	0	7	0	13	52	1	0	2	1	1	0	0	147	31	0
3:15 PM	7	2	11	0	9	77	0	0	6	2	0	0	0	140	28	0
3:30 PM	12	1	12	0	13	71	2	0	4	2	1	0	1	159	19	0
3:45 PM	12	0	7	0	16	52	2	0	6	0	2	0	0	151	31	0
4:00 PM	13	1	12	0	9	71	1	0	5	1	0	0	0	183	37	0
4:15 PM	11	1	13	0	15	62	3	0	12	2	1	0	0	180	37	0
4:30 PM	10	2	8	0	8	81	0	0	8	7	2	0	0	192	35	0
4:45 PM	9	0	9	0	13	70	1	0	15	5	4	0	0	202	35	0
5:00 PM	22	0	6	0	18	70	0	0	16	8	4	0	0	205	56	0
5:15 PM	15	0	9	0	11	91	0	0	18	10	5	0	0	218	42	0
5:30 PM	17	0	14	0	11	97	0	0	10	9	3	0	0	180	44	0
5:45 PM	16	0	7	0	16	84	0	0	14	11	2	0	0	151	35	0

Study Name: CMU/Oakland - Fobres Ave & Beeler St
Start Date: 09/22/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	0	0	0	1	0	1	0	0	0	0	0	0	0	5	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0
7:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	7	0	0
7:45 AM	1	0	0	0	0	3	0	0	0	0	0	0	0	4	0	0
8:00 AM	4	0	0	0	0	1	0	0	0	0	0	0	0	3	2	0
8:15 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	4	1	0
8:45 AM	1	0	0	0	1	1	0	0	0	0	0	0	0	3	1	0
9:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0
9:15 AM	1	0	0	0	0	2	0	0	0	0	0	0	0	1	1	0
9:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0
9:45 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0
3:00 PM	0	0	0	0	1	2	0	0	0	0	0	0	0	2	2	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
3:30 PM	1	0	0	0	0	1	0	0	0	0	0	0	0	5	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
4:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	1	0	1	0	0	1	0	0	0	0	0	0	0	3	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0

Study Name: CMU/Oakland - Fobres Ave & Beeler St
Start Date: 09/22/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	1	0	0	0	0	5	0	0	0	0	0	0	0	0	1	0
7:15 AM	4	0	0	0	0	7	0	0	0	0	0	0	0	0	3	0
7:30 AM	5	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
7:45 AM	1	0	0	0	1	5	0	0	0	0	0	0	0	3	1	0
8:00 AM	3	0	0	0	0	3	0	0	0	0	0	0	0	4	1	0
8:15 AM	1	0	0	0	0	6	0	0	0	0	0	0	0	4	0	0
8:30 AM	1	0	0	0	0	5	0	0	0	0	0	0	0	4	1	0
8:45 AM	2	0	0	0	1	4	0	0	0	0	0	0	0	0	1	0
9:00 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	4	1	0
9:15 AM	2	0	0	0	0	4	0	0	0	0	0	0	0	6	2	0
9:30 AM	2	0	0	0	0	3	0	0	0	0	0	0	0	6	1	0
9:45 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	5	0	0
3:00 PM	1	0	0	0	0	5	0	0	0	0	0	0	0	5	1	0
3:15 PM	1	0	0	0	0	3	0	0	0	0	0	0	0	4	0	0
3:30 PM	2	0	1	0	0	6	0	0	0	0	0	0	0	3	3	0
3:45 PM	2	0	0	0	0	5	0	0	0	0	0	0	0	4	1	0
4:00 PM	0	0	1	0	0	2	0	0	0	0	0	0	0	2	0	0
4:15 PM	2	0	0	0	0	4	0	0	0	0	0	0	0	3	2	0
4:30 PM	1	0	0	0	0	5	0	0	0	0	0	0	0	3	3	0
4:45 PM	1	0	0	0	0	2	0	0	0	0	0	0	0	6	0	0
5:00 PM	1	0	0	0	1	5	0	0	0	0	0	0	0	2	1	0
5:15 PM	0	0	0	0	0	3	0	0	0	1	0	0	0	6	3	0
5:30 PM	1	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
5:45 PM	1	0	0	0	0	2	0	0	0	0	0	0	0	7	0	0

Study Name: CMU/Oakland - Fobres Ave & Beeler St
Start Date: 09/22/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Beeler Street Southbound					Westbound Street - Forbes Avenue Westbound					Northbound Street - Parking Garage Northbound					Eastbound Street - Forbes Avenue Eastbound					Intersection Totals
Start Time	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	
7:00 AM	19	3	5	1	28	2	73	6	0	81	2	0	0	0	2	0	37	14	0	51	162
7:15 AM	33	1	9	0	43	0	100	3	0	103	2	1	0	0	3	1	59	9	0	69	218
7:30 AM	49	1	9	0	59	3	125	8	0	136	0	1	4	0	5	1	57	14	0	72	272
7:45 AM	43	7	7	0	57	5	132	14	0	151	2	1	0	0	3	1	63	16	0	80	291
8:00 AM	59	3	22	0	84	2	142	12	0	156	1	0	0	0	1	4	73	11	0	88	329
8:15 AM	66	10	26	0	102	2	161	21	0	184	0	0	0	0	0	1	79	10	0	90	376
8:30 AM	43	9	19	0	71	6	132	15	0	153	0	0	0	0	0	1	86	16	0	103	327
8:45 AM	45	7	12	0	64	5	130	12	0	147	0	0	0	0	0	4	64	11	0	79	290
9:00 AM	29	7	16	0	52	7	81	13	0	101	0	0	0	0	0	0	84	9	0	93	246
9:15 AM	22	10	14	0	46	7	108	9	0	124	1	0	0	0	1	3	76	13	0	92	263
9:30 AM	26	7	13	0	46	4	76	13	0	93	1	0	1	0	2	1	72	8	0	81	222
9:45 AM	21	8	9	0	38	2	80	10	0	92	0	0	1	0	1	3	64	18	0	85	216
3:00 PM	4	0	7	0	11	14	59	1	0	74	2	1	1	0	4	0	154	34	0	188	277
3:15 PM	8	2	11	0	21	9	80	0	0	89	6	2	0	0	8	0	146	28	0	174	292
3:30 PM	15	1	13	0	29	13	78	2	0	93	4	2	1	0	7	1	167	22	0	190	319
3:45 PM	14	0	7	0	21	16	57	2	0	75	6	0	2	0	8	0	157	32	0	189	293
4:00 PM	14	1	13	0	28	9	73	1	0	83	5	1	0	0	6	0	185	38	0	223	340
4:15 PM	13	1	13	0	27	15	66	3	0	84	12	2	1	0	15	0	183	39	0	222	348
4:30 PM	12	2	9	0	23	8	87	0	0	95	8	7	2	0	17	0	198	38	0	236	371
4:45 PM	10	0	9	0	19	13	72	1	0	86	15	5	4	0	24	0	212	35	0	247	376
5:00 PM	23	0	6	0	29	19	75	0	0	94	16	8	4	0	28	0	208	59	0	267	418
5:15 PM	15	0	9	0	24	11	94	0	0	105	18	11	5	0	34	0	225	47	0	272	435
5:30 PM	18	0	14	0	32	11	99	0	0	110	10	9	3	0	22	0	184	44	0	228	392
5:45 PM	17	0	7	0	24	16	86	0	0	102	14	11	2	0	27	0	160	35	0	195	348
Subtotals	618	80	279	1	978	199	2266	146	0	2611	125	62	31	0	218	21	2993	600	0	3614	7421
Totals By Leg	978					2611					218					3614					
Heavy Vehicles	35	0	2	0		3	98	0	0		0	1	0	0		0	82	26	0		
% Heavy of Movement	5.66%	0.00%	0.72%	0.00%		1.51%	4.32%	0.00%	---		0.00%	1.61%	0.00%	---		0.00%	2.74%	4.33%	---		
Total Heavy Vehicles	37					101					1					108					247
% Heavy By Leg	3.78%					3.87%					0.46%					2.99%					3.33%

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Hourly totals	Southbound Street - Beeler Street Southbound					Westbound Street - Forbes Avenue Westbound					Northbound Street - Parking Garage Northbound					Eastbound Street - Forbes Avenue Eastbound					Intersection Totals
Beginning @	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	
7:00 AM	144	12	30	1	187	10	430	31	0	471	6	3	4	0	13	3	216	53	0	272	943
7:15 AM	184	12	47	0	243	10	499	37	0	546	5	3	4	0	12	7	252	50	0	309	1110
7:30 AM	217	21	64	0	302	12	560	55	0	627	3	2	4	0	9	7	272	51	0	330	1268
7:45 AM	211	29	74	0	314	15	567	62	0	644	3	1	0	0	4	7	301	53	0	361	1323
8:00 AM	213	29	79	0	321	15	565	60	0	640	1	0	0	0	1	10	302	48	0	360	1322
8:15 AM	183	33	73	0	289	20	504	61	0	585	0	0	0	0	0	6	313	46	0	365	1239
8:30 AM	139	33	61	0	233	25	451	49	0	525	1	0	0	0	1	8	310	49	0	367	1126
8:45 AM	122	31	55	0	208	23	395	47	0	465	2	0	1	0	3	8	296	41	0	345	1021
9:00 AM	98	32	52	0	182	20	345	45	0	410	2	0	2	0	4	7	296	48	0	351	947
9:15 AM																					
9:30 AM																					
9:45 AM																					
3:00 PM	41	3	38	0	82	52	274	5	0	331	18	5	4	0	27	1	624	116	0	741	1181
3:15 PM	51	4	44	0	99	47	288	5	0	340	21	5	3	0	29	1	655	120	0	776	1244
3:30 PM	56	3	46	0	105	53	274	8	0	335	27	5	4	0	36	1	692	131	0	824	1300
3:45 PM	53	4	42	0	99	48	283	6	0	337	31	10	5	0	46	0	723	147	0	870	1352
4:00 PM	49	4	44	0	97	45	298	5	0	348	40	15	7	0	62	0	778	150	0	928	1435
4:15 PM	58	3	37	0	98	55	300	4	0	359	51	22	11	0	84	0	801	171	0	972	1513
4:30 PM	60	2	33	0	95	51	328	1	0	380	57	31	15	0	103	0	843	179	0	1022	1600
4:45 PM	66	0	38	0	104	54	340	1	0	395	59	33	16	0	108	0	829	185	0	1014	1621
5:00 PM	73	0	36	0	109	57	354	0	0	411	58	39	14	0	111	0	777	185	0	962	1593
5:15 PM																					
5:30 PM																					
5:45 PM																					
Peak Hour	7:30 AM	8:15 AM	8:00 AM	---	8:00 AM	5:00 PM	7:45 AM	7:45 AM	---	7:45 AM	4:45 PM	5:00 PM	4:45 PM	---	5:00 PM	8:00 AM	4:30 PM	4:45 PM	---	4:30 PM	4:45 PM
Volume	217	33	79	0	321	57	567	62	0	644	59	39	16	0	111	10	843	185	0	1022	1621
PHF	0.82	0.83	0.76	---	0.79	0.75	0.88	0.74	---	0.88	0.82	0.89	0.80	---	0.82	0.63	0.94	0.78	---	0.94	0.93

Study Name: Oakland/CMU - Fifth Ave & Neville St AM
Start Date: 09/21/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	57	15	5	0	4	218	31	0	14	17	1	0	2	56	3	0
7:15 AM	75	32	11	0	6	179	17	0	12	19	4	0	3	65	8	0
7:30 AM	92	47	18	0	5	128	13	0	14	19	8	0	5	69	6	0
7:45 AM	76	54	15	0	4	166	13	0	24	29	6	0	3	67	3	0
8:00 AM	89	32	9	0	3	156	18	0	5	23	0	0	1	54	7	0
8:15 AM	86	45	14	0	5	149	14	0	7	14	2	0	1	73	7	0
8:30 AM	102	63	12	0	6	112	21	0	12	20	0	0	1	75	11	0
8:45 AM	78	42	18	0	3	142	13	0	15	16	0	0	3	67	10	0
9:00 AM	47	46	12	0	14	164	16	0	14	14	1	0	1	89	19	0
9:15 AM	58	32	11	0	9	143	16	0	12	14	1	0	4	89	18	0
9:30 AM	53	27	18	0	19	138	9	0	11	12	0	0	3	87	14	0
9:45 AM	44	23	13	0	5	151	8	0	8	11	2	0	3	92	20	0
3:00 PM	32	26	26	0	16	160	15	0	27	15	2	0	2	136	20	1
3:15 PM	38	19	17	0	8	134	24	0	19	11	6	0	5	140	36	0
3:30 PM	31	32	14	0	12	153	17	0	14	19	1	0	1	162	29	0
3:45 PM	43	30	13	0	13	143	21	0	23	24	0	0	4	139	25	0
4:00 PM	34	23	27	0	10	144	17	0	30	26	1	0	2	153	16	0
4:15 PM	33	18	16	0	8	140	22	0	33	22	2	0	6	159	28	0
4:30 PM	26	19	18	0	7	135	6	0	42	44	1	0	2	167	22	0
4:45 PM	31	15	29	0	5	134	12	0	38	27	0	0	2	187	20	0
5:00 PM	37	27	24	0	8	130	12	0	36	33	3	0	2	133	30	0
5:15 PM	54	32	19	0	11	143	21	0	40	43	1	0	1	143	25	0
5:30 PM	29	24	16	0	13	156	15	0	39	35	1	0	1	143	18	0
5:45 PM	60	24	18	0	8	148	19	0	37	30	1	0	2	174	18	0

Study Name: Oakland/CMU - Fifth Ave & Neville St AM
Start Date: 09/21/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	1	0	0
7:15 AM	1	1	2	0	0	0	0	0	0	0	1	0	0	5	0	0
7:30 AM	1	1	5	0	0	0	0	0	0	0	0	0	0	2	0	0
7:45 AM	3	0	3	0	0	6	0	0	0	1	0	0	0	5	0	0
8:00 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	7	0	0
8:15 AM	2	1	0	0	0	6	0	0	0	0	0	0	1	4	0	0
8:30 AM	2	1	1	0	0	6	0	0	0	0	0	0	1	7	0	0
8:45 AM	3	1	1	0	0	3	0	0	0	0	0	0	0	1	0	0
9:00 AM	1	3	1	0	0	11	0	0	0	1	0	0	0	4	1	0
9:15 AM	2	1	0	0	0	8	0	0	0	1	0	0	0	4	0	0
9:30 AM	0	1	0	0	2	5	0	0	0	0	0	0	0	4	0	0
9:45 AM	4	1	1	0	0	4	0	0	0	0	1	0	0	7	1	0
3:00 PM	0	1	2	0	0	1	0	0	1	0	0	0	0	1	0	0
3:15 PM	0	0	1	0	0	3	1	0	1	0	0	0	0	4	0	0
3:30 PM	2	0	0	0	0	0	0	0	1	1	0	0	0	7	0	0
3:45 PM	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
4:00 PM	0	0	1	0	0	2	0	0	0	0	0	0	0	2	0	0
4:15 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	0	0	0	0	1	0	0	2	0	1	0	0	0	1	0
5:00 PM	1	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0
5:15 PM	0	0	0	0	2	4	0	0	0	0	0	0	0	2	0	0
5:30 PM	2	0	0	0	0	1	0	0	0	1	0	0	1	2	0	0
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0

Study Name: Oakland/CMU - Fifth Ave & Neville St AM
Start Date: 09/21/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	7	0	1	0	0	4	0	0	0	0	0	0	0	3	4	0
7:15 AM	7	0	2	0	0	6	0	0	0	0	0	0	0	3	4	0
7:30 AM	6	0	4	0	0	4	0	0	0	0	0	0	0	4	3	0
7:45 AM	5	0	7	0	0	1	0	0	0	0	0	0	0	6	2	0
8:00 AM	7	0	3	0	0	2	0	0	0	0	0	0	0	4	2	0
8:15 AM	8	0	1	0	0	3	0	0	0	0	0	0	0	3	2	0
8:30 AM	7	0	1	0	0	2	0	0	0	0	0	0	0	2	3	0
8:45 AM	4	0	0	0	1	4	0	0	0	0	0	0	0	3	6	0
9:00 AM	7	0	0	0	0	2	0	0	0	0	0	0	0	9	2	0
9:15 AM	4	0	1	0	0	6	0	0	0	0	0	0	0	3	3	0
9:30 AM	1	0	0	0	0	4	0	0	0	0	0	0	0	4	5	0
9:45 AM	3	0	1	0	1	4	0	0	0	0	0	0	0	4	5	0
3:00 PM	6	0	1	0	0	8	0	0	0	0	0	0	0	9	4	0
3:15 PM	8	0	1	0	0	11	0	0	0	0	0	0	0	4	1	0
3:30 PM	6	0	2	0	0	4	0	0	0	0	0	0	0	3	4	0
3:45 PM	6	0	1	0	0	7	0	0	0	0	0	0	0	4	3	0
4:00 PM	6	0	2	0	0	3	0	0	0	0	0	0	0	7	3	0
4:15 PM	11	0	0	0	1	5	0	0	0	0	0	0	0	2	4	0
4:30 PM	5	0	2	0	0	2	0	0	0	0	0	0	0	3	3	0
4:45 PM	6	0	0	0	0	2	0	0	0	0	0	0	0	4	6	0
5:00 PM	6	0	2	0	0	4	0	0	0	0	0	0	0	2	4	0
5:15 PM	5	0	1	0	0	0	0	0	0	0	0	0	0	3	2	0
5:30 PM	9	0	1	0	0	1	0	0	0	0	0	0	0	1	6	0
5:45 PM	4	0	1	0	0	3	0	0	0	0	0	0	0	5	4	0

Study Name: Oakland/CMU - Fifth Ave & Neville St AM
Start Date: 09/21/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Neville Street Southbound					Westbound Street - Fifth Avenue Westbound					Northbound Street - Neville Street Northbound					Eastbound Street - Fifth Avenue Eastbound					Intersection Totals
Start Time	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	
7:00 AM	64	15	6	0	85	4	230	31	0	265	14	17	1	0	32	2	60	7	0	69	451
7:15 AM	83	33	15	0	131	6	185	17	0	208	12	19	5	0	36	3	73	12	0	88	463
7:30 AM	99	48	27	0	174	5	132	13	0	150	14	19	8	0	41	5	75	9	0	89	454
7:45 AM	84	54	25	0	163	4	173	13	0	190	24	30	6	0	60	3	78	5	0	86	499
8:00 AM	96	32	12	0	140	3	162	18	0	183	5	23	0	0	28	1	65	9	0	75	426
8:15 AM	96	46	15	0	157	5	158	14	0	177	7	14	2	0	23	2	80	9	0	91	448
8:30 AM	111	64	14	0	189	6	120	21	0	147	12	20	0	0	32	2	84	14	0	100	468
8:45 AM	85	43	19	0	147	4	149	13	0	166	15	16	0	0	31	3	71	16	0	90	434
9:00 AM	55	49	13	0	117	14	177	16	0	207	14	15	1	0	30	1	102	22	0	125	479
9:15 AM	64	33	12	0	109	9	157	16	0	182	12	15	1	0	28	4	96	21	0	121	440
9:30 AM	54	28	18	0	100	21	147	9	0	177	11	12	0	0	23	3	95	19	0	117	417
9:45 AM	51	24	15	0	90	6	159	8	0	173	8	11	3	0	22	3	103	26	0	132	417
3:00 PM	38	27	29	0	94	16	169	15	0	200	28	15	2	0	45	2	146	24	1	173	512
3:15 PM	46	19	19	0	84	8	148	25	0	181	20	11	6	0	37	5	148	37	0	190	492
3:30 PM	39	32	16	0	87	12	157	17	0	186	15	20	1	0	36	1	172	33	0	206	515
3:45 PM	51	30	14	0	95	13	150	21	0	184	23	25	0	0	48	4	143	28	0	175	502
4:00 PM	40	23	30	0	93	10	149	17	0	176	30	26	1	0	57	2	162	19	0	183	509
4:15 PM	44	18	16	0	78	9	149	22	0	180	33	22	2	0	57	6	161	32	0	199	514
4:30 PM	31	19	20	0	70	7	140	6	0	153	42	44	1	0	87	2	170	25	0	197	507
4:45 PM	38	15	29	0	82	5	137	12	0	154	40	27	1	0	68	2	191	27	0	220	524
5:00 PM	44	28	26	0	98	8	135	12	0	155	36	34	3	0	73	2	136	34	0	172	498
5:15 PM	59	32	20	0	111	13	147	21	0	181	40	43	1	0	84	1	148	27	0	176	552
5:30 PM	40	24	17	0	81	13	158	15	0	186	39	36	1	0	76	2	146	24	0	172	515
5:45 PM	64	24	19	0	107	8	152	19	0	179	37	30	1	0	68	2	179	22	0	203	557
Subtotals	1476	760	446	0	2682	209	3740	391	0	4340	531	544	47	0	1122	63	2884	501	1	3449	11593
Totals By Leg	2682					4340					1122					3449					

Heavy Vehicles	144	0	35	0		3	92	0	0		0	0	0	0		0	95	85	0	
% Heavy of Movement	9.76%	0.00%	7.85%	---		1.44%	2.46%	0.00%	---		0.00%	0.00%	0.00%	---		0.00%	3.29%	16.97%	0.00%	
Total Heavy Vehicles	179					95					0					180				454
% Heavy By Leg	6.67%					2.19%					0.00%					5.22%				3.92%

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ENGINEERS AND PLANNERS

gai consultants

Hourly totals	Southbound Street - Neville Street Southbound					Westbound Street - Fifth Avenue Westbound					Northbound Street - Neville Street Northbound					Eastbound Street - Fifth Avenue Eastbound					Intersection Totals
Beginning @	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	
7:00 AM	330	150	73	0	553	19	720	74	0	813	64	85	20	0	169	13	286	33	0	332	1867
7:15 AM	362	167	79	0	608	18	652	61	0	731	55	91	19	0	165	12	291	35	0	338	1842
7:30 AM	375	180	79	0	634	17	625	58	0	700	50	86	16	0	152	11	298	32	0	341	1827
7:45 AM	387	196	66	0	649	18	613	66	0	697	48	87	8	0	143	8	307	37	0	352	1841
8:00 AM	388	185	60	0	633	18	589	66	0	673	39	73	2	0	114	8	300	48	0	356	1776
8:15 AM	347	202	61	0	610	29	604	64	0	697	48	65	3	0	116	8	337	61	0	406	1829
8:30 AM	315	189	58	0	562	33	603	66	0	702	53	66	2	0	121	10	353	73	0	436	1821
8:45 AM	258	153	62	0	473	48	630	54	0	732	52	58	2	0	112	11	364	78	0	453	1770
9:00 AM	224	134	58	0	416	50	640	49	0	739	45	53	5	0	103	11	396	88	0	495	1753
9:15 AM																					
9:30 AM																					
9:45 AM																					
3:00 PM	174	108	78	0	360	49	624	78	0	751	86	71	9	0	166	12	609	122	1	744	2021
3:15 PM	176	104	79	0	359	43	604	80	0	727	88	82	8	0	178	12	625	117	0	754	2018
3:30 PM	174	103	76	0	353	44	605	77	0	726	101	93	4	0	198	13	638	112	0	763	2040
3:45 PM	166	90	80	0	336	39	588	66	0	693	128	117	4	0	249	14	636	104	0	754	2032
4:00 PM	153	75	95	0	323	31	575	57	0	663	145	119	5	0	269	12	684	103	0	799	2054
4:15 PM	157	80	91	0	328	29	561	52	0	642	151	127	7	0	285	12	658	118	0	788	2043
4:30 PM	172	94	95	0	361	33	559	51	0	643	158	148	6	0	312	7	645	113	0	765	2081
4:45 PM	181	99	92	0	372	39	577	60	0	676	155	140	6	0	301	7	621	112	0	740	2089
5:00 PM	207	108	82	0	397	42	592	67	0	701	152	143	6	0	301	7	609	107	0	723	2122
5:15 PM																					
5:30 PM																					
5:45 PM																					
Peak Hour	8:00 AM	8:15 AM	4:00 PM	---	7:45 AM	9:00 AM	7:00 AM	3:15 PM	---	7:00 AM	4:30 PM	4:30 PM	7:00 AM	---	4:30 PM	3:45 PM	4:00 PM	3:00 PM	3:00 PM	4:00 PM	5:00 PM
Volume	388	202	95	0	649	50	720	80	0	813	158	148	20	0	312	14	684	122	1	799	2122
PHF	0.87	0.79	0.79	---	0.86	0.60	0.78	0.80	---	0.77	0.94	0.84	0.63	---	0.90	0.58	0.90	0.82	0.25	0.91	0.95

Study Name: Oakland/CMU - Fifth Ave and Craig Street
Start Date: 09/14/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	28	15	9	0	19	256	2	0	14	34	4	0	0	43	0	0
7:15 AM	23	19	12	0	17	203	2	0	10	48	6	0	1	57	3	0
7:30 AM	28	20	15	0	22	229	4	0	14	52	12	0	3	63	10	0
7:45 AM	36	35	12	0	5	218	3	0	20	27	8	0	4	60	2	0
8:00 AM	35	28	11	0	8	247	4	0	13	29	9	0	4	51	4	0
8:15 AM	33	30	9	0	4	202	2	0	17	30	9	0	7	62	3	0
8:30 AM	31	36	16	0	4	235	4	0	21	36	9	0	3	57	0	0
8:45 AM	36	31	9	0	17	214	3	0	9	36	8	0	3	50	3	0
9:00 AM	30	27	10	0	7	204	7	0	21	34	8	0	1	61	1	0
9:15 AM	18	30	11	0	9	183	5	0	17	31	4	0	1	57	2	0
9:30 AM	21	21	7	0	14	203	13	0	15	29	4	0	3	67	3	0
9:45 AM	16	23	18	0	13	169	7	0	15	19	14	0	2	60	1	0
3:00 PM	22	19	13	0	8	138	6	0	24	23	9	0	4	106	3	0
3:15 PM	22	18	21	0	7	190	2	0	17	26	10	0	5	85	1	0
3:30 PM	19	28	22	0	16	183	12	0	27	27	15	0	5	114	4	0
3:45 PM	26	25	18	0	7	159	6	0	26	25	10	0	3	109	5	0
4:00 PM	17	20	24	0	7	171	3	0	31	37	9	0	2	124	7	0
4:15 PM	17	16	22	0	15	166	5	0	19	25	9	0	6	109	9	0
4:30 PM	15	26	22	0	16	143	6	0	22	35	10	0	7	143	4	0
4:45 PM	29	24	20	0	18	174	5	0	35	30	12	0	4	165	3	0
5:00 PM	23	30	29	0	16	118	6	0	35	30	18	0	3	171	0	0
5:15 PM	23	28	30	0	11	177	6	0	29	35	15	0	7	171	4	0
5:30 PM	22	27	25	0	8	151	8	0	34	39	13	0	4	146	6	0
5:45 PM	25	23	20	0	11	198	5	0	25	38	15	0	4	152	2	0

Study Name: Oakland/CMU - Fifth Ave and Craig Street
Start Date: 09/14/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	4	2	1	0	0	18	0	0	0	3	0	0	0	9	3	0
7:15 AM	5	1	2	0	3	14	0	0	1	8	0	0	0	10	3	0
7:30 AM	3	4	2	0	4	12	1	0	1	4	1	0	0	6	3	0
7:45 AM	5	1	0	0	1	9	0	0	2	7	0	0	1	9	1	0
8:00 AM	4	1	1	0	0	15	0	0	0	1	1	0	0	11	3	0
8:15 AM	2	0	0	0	0	17	0	0	2	2	1	0	0	8	1	0
8:30 AM	3	2	2	0	0	15	0	0	0	4	0	0	0	10	3	0
8:45 AM	2	2	0	0	0	17	1	0	0	2	0	0	0	12	2	0
9:00 AM	5	2	1	0	0	17	0	0	2	2	0	0	1	10	2	0
9:15 AM	3	0	0	0	1	15	0	0	1	2	0	0	0	11	1	0
9:30 AM	5	1	1	0	0	9	0	0	2	3	2	0	0	8	2	0
9:45 AM	6	3	0	0	1	14	0	0	0	5	0	0	0	8	3	0
3:00 PM	7	2	0	1	0	15	1	0	0	1	0	0	1	12	0	0
3:15 PM	2	2	2	0	1	16	0	0	2	2	1	0	1	13	3	0
3:30 PM	4	2	0	0	3	16	0	0	2	2	0	0	0	8	1	0
3:45 PM	5	3	0	0	1	14	0	0	1	2	0	0	0	12	3	0
4:00 PM	3	0	0	0	2	14	0	0	0	1	0	0	0	8	0	0
4:15 PM	4	1	0	0	0	13	0	0	1	3	0	0	0	10	2	0
4:30 PM	4	1	1	0	0	9	0	0	1	1	0	0	0	6	1	0
4:45 PM	4	0	1	0	0	8	0	0	0	1	0	0	0	8	1	0
5:00 PM	2	2	0	0	0	12	0	0	0	1	0	0	0	6	0	0
5:15 PM	4	1	0	0	1	11	0	0	0	2	0	0	0	13	0	0
5:30 PM	1	0	1	0	0	10	0	0	0	1	0	0	0	3	3	0
5:45 PM	2	1	0	0	0	6	0	0	0	0	0	0	0	7	0	0

Study Name: Oakland/CMU - Fifth Ave and Craig Street
Start Date: 09/14/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
7:45 AM	1	1	0	0	0	5	0	0	0	0	0	0	0	1	0	0
8:00 AM	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
8:15 AM	0	1	0	0	0	3	1	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	5	0	0	1	0	0	0	0	0	0	0
8:45 AM	1	1	0	0	0	2	1	0	0	0	2	0	0	0	0	0
9:00 AM	2	1	0	0	0	4	0	0	1	0	0	0	0	0	0	0
9:15 AM	1	1	0	0	0	2	0	0	1	0	1	0	0	0	0	0
9:30 AM	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0
9:45 AM	4	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0
3:00 PM	0	3	0	0	0	3	0	0	4	0	0	0	0	1	0	0
3:15 PM	2	2	0	0	0	2	0	0	1	1	0	0	0	3	0	0
3:30 PM	0	1	0	0	0	2	1	0	3	2	0	0	0	1	0	0
3:45 PM	1	2	0	0	0	1	1	0	0	1	1	0	0	4	0	0
4:00 PM	1	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0
4:15 PM	1	0	0	0	0	1	0	0	1	2	1	0	0	5	0	0
4:30 PM	0	2	0	0	0	1	0	0	0	1	0	0	0	3	0	0
4:45 PM	0	0	1	0	0	0	1	0	1	1	1	0	0	7	0	0
5:00 PM	0	4	0	0	0	3	0	0	0	1	0	0	0	3	2	0
5:15 PM	0	3	0	0	0	1	0	0	0	3	0	0	0	3	0	0
5:30 PM	2	2	0	0	0	0	0	0	1	1	0	0	0	2	0	0
5:45 PM	0	1	0	0	0	3	0	0	1	3	1	0	0	3	0	0

Study Name: Oakland/CMU - Fifth Ave and Craig Street
Start Date: 09/14/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Craig Street Southbound					Westbound Street - Fifth Avenue Westbound					Northbound Street - Craig Street Northbound					Eastbound Street - Fifth Avenue Eastbound					Intersection Totals
Start Time	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	
7:00 AM	32	18	10	0	60	19	276	2	0	297	14	37	4	0	55	0	52	3	0	55	467
7:15 AM	28	20	14	0	62	20	222	2	0	244	11	56	6	0	73	1	67	6	0	74	453
7:30 AM	31	24	17	0	72	26	242	6	0	274	15	56	13	0	84	3	69	13	0	85	515
7:45 AM	42	37	12	0	91	6	232	3	0	241	22	34	8	0	64	5	70	3	0	78	474
8:00 AM	40	29	12	0	81	8	262	4	0	274	13	32	10	0	55	4	62	7	0	73	483
8:15 AM	35	31	9	0	75	4	222	3	0	229	19	32	10	0	61	7	70	4	0	81	446
8:30 AM	34	38	18	0	90	4	255	4	0	263	22	40	9	0	71	3	67	3	0	73	497
8:45 AM	39	34	9	0	82	17	233	5	0	255	9	38	10	0	57	3	62	5	0	70	464
9:00 AM	37	30	11	0	78	7	225	7	0	239	24	36	8	0	68	2	71	3	0	76	461
9:15 AM	22	31	11	0	64	10	200	5	0	215	19	33	5	0	57	1	68	3	0	72	408
9:30 AM	26	25	8	0	59	14	215	13	0	242	17	32	6	0	55	3	75	5	0	83	439
9:45 AM	26	26	18	0	70	14	187	7	0	208	15	24	14	0	53	2	70	4	0	76	407
3:00 PM	29	24	13	1	67	8	156	7	0	171	28	24	9	0	61	5	119	3	0	127	426
3:15 PM	26	22	23	0	71	8	208	2	0	218	20	29	11	0	60	6	101	4	0	111	460
3:30 PM	23	31	22	0	76	19	201	13	0	233	32	31	15	0	78	5	123	5	0	133	520
3:45 PM	32	30	18	0	80	8	174	7	0	189	27	28	11	0	66	3	125	8	0	136	471
4:00 PM	21	20	24	0	65	9	185	3	0	197	32	38	9	0	79	2	134	7	0	143	484
4:15 PM	22	17	22	0	61	15	180	5	0	200	21	30	10	0	61	6	124	11	0	141	463
4:30 PM	19	29	23	0	71	16	153	6	0	175	23	37	10	0	70	7	152	5	0	164	480
4:45 PM	33	24	22	0	79	18	182	6	0	206	36	32	13	0	81	4	180	4	0	188	554
5:00 PM	25	36	29	0	90	16	133	6	0	155	35	32	18	0	85	3	180	2	0	185	515
5:15 PM	27	32	30	0	89	12	189	6	0	207	29	40	15	0	84	7	187	4	0	198	578
5:30 PM	25	29	26	0	80	8	161	8	0	177	35	41	13	0	89	4	151	9	0	164	510
5:45 PM	27	25	20	0	72	11	207	5	0	223	26	41	16	0	83	4	162	2	0	168	546
Subtotals	701	662	421	1	1785	297	4900	135	0	5332	544	853	253	0	1650	90	2541	123	0	2754	11521
Totals By Leg	1785					5332					1650					2754					

Heavy Vehicles	89	34	15	1		18	316	3	0		18	60	6	0		4	218	41	0	
% Heavy of Movement	12.70%	5.14%	3.56%	100.00%		6.06%	6.45%	2.22%	---		3.31%	7.03%	2.37%	---		4.44%	8.58%	33.33%	---	
Total Heavy Vehicles	139					337					84					263				823
% Heavy By Leg	7.79%					6.32%					5.09%					9.55%				7.14%

Hourly totals	Southbound Street - Craig Street Southbound					Westbound Street - Fifth Avenue Westbound					Northbound Street - Craig Street Northbound					Eastbound Street - Fifth Avenue Eastbound					Intersection Totals
Beginning @	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	
7:00 AM	133	99	53	0	285	71	972	13	0	1056	62	183	31	0	276	9	258	25	0	292	1909
7:15 AM	141	110	55	0	306	60	958	15	0	1033	61	178	37	0	276	13	268	29	0	310	1925
7:30 AM	148	121	50	0	319	44	958	16	0	1018	69	154	41	0	264	19	271	27	0	317	1918
7:45 AM	151	135	51	0	337	22	971	14	0	1007	76	138	37	0	251	19	269	17	0	305	1900
8:00 AM	148	132	48	0	328	33	972	16	0	1021	63	142	39	0	244	17	261	19	0	297	1890
8:15 AM	145	133	47	0	325	32	935	19	0	986	74	146	37	0	257	15	270	15	0	300	1868
8:30 AM	132	133	49	0	314	38	913	21	0	972	74	147	32	0	253	9	268	14	0	291	1830
8:45 AM	124	120	39	0	283	48	873	30	0	951	69	139	29	0	237	9	276	16	0	301	1772
9:00 AM	111	112	48	0	271	45	827	32	0	904	75	125	33	0	233	8	284	15	0	307	1715
9:15 AM																					
9:30 AM																					
9:45 AM																					
3:00 PM	110	107	76	1	294	43	739	29	0	811	107	112	46	0	265	19	468	20	0	507	1877
3:15 PM	102	103	87	0	292	44	768	25	0	837	111	126	46	0	283	16	483	24	0	523	1935
3:30 PM	98	98	86	0	282	51	740	28	0	819	112	127	45	0	284	16	506	31	0	553	1938
3:45 PM	94	96	87	0	277	48	692	21	0	761	103	133	40	0	276	18	535	31	0	584	1898
4:00 PM	95	90	91	0	276	58	700	20	0	778	112	137	42	0	291	19	590	27	0	636	1981
4:15 PM	99	106	96	0	301	65	648	23	0	736	115	131	51	0	297	20	636	22	0	678	2012
4:30 PM	104	121	104	0	329	62	657	24	0	743	123	141	56	0	320	21	699	15	0	735	2127
4:45 PM	110	121	107	0	338	54	665	26	0	745	135	145	59	0	339	18	698	19	0	735	2157
5:00 PM	104	122	105	0	331	47	690	25	0	762	125	154	62	0	341	18	680	17	0	715	2149
5:15 PM																					
5:30 PM																					
5:45 PM																					
Peak Hour	7:45 AM	7:45 AM	4:45 PM	3:00 PM	4:45 PM	7:00 AM	7:00 AM	9:00 AM	---	7:00 AM	4:45 PM	7:00 AM	5:00 PM	---	5:00 PM	4:30 PM	4:30 PM	3:30 PM	---	4:30 PM	4:45 PM
Volume	151	135	107	1	338	71	972	32	0	1056	135	183	62	0	341	21	699	31	0	735	2157
PHF	0.90	0.89	0.89	0.25	0.94	0.68	0.88	0.62	---	0.89	0.94	0.82	0.86	---	0.96	0.75	0.93	0.70	---	0.93	0.93

Study Name: Oakland/CMU Fifth & Morewood
Start Date: 09/22/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	2	16	7	0	18	248	4	0	28	37	3	0	3	86	2	0
7:15 AM	12	21	9	0	35	226	23	0	32	35	3	0	4	73	2	0
7:30 AM	9	23	10	0	35	132	38	0	49	47	4	0	3	77	5	0
7:45 AM	8	52	15	0	33	149	28	0	34	50	5	0	15	102	2	0
8:00 AM	6	52	16	0	34	167	40	0	28	60	2	0	8	67	4	0
8:15 AM	10	67	16	0	32	147	37	0	25	35	7	0	7	54	1	0
8:30 AM	5	62	12	0	39	154	47	0	34	42	2	0	4	81	3	0
8:45 AM	5	66	12	0	54	144	45	0	36	47	6	0	7	86	2	0
9:00 AM	9	61	9	0	26	167	25	0	24	30	9	0	6	71	1	0
9:15 AM	12	42	18	0	14	187	18	0	33	25	8	0	9	107	6	0
9:30 AM	13	28	9	0	26	212	17	0	30	27	7	0	6	89	1	0
9:45 AM	8	38	11	0	18	182	14	0	22	30	7	0	2	99	2	0
3:00 PM	14	46	26	0	27	161	9	0	58	37	4	0	16	161	8	0
3:15 PM	10	54	36	0	27	164	9	0	50	50	9	0	11	133	4	0
3:30 PM	8	53	37	0	10	168	10	0	57	49	4	0	13	169	4	0
3:45 PM	11	35	22	0	26	148	14	0	59	35	6	0	15	200	0	0
4:00 PM	18	61	25	0	30	168	17	0	58	44	8	0	24	203	6	0
4:15 PM	13	62	25	0	22	188	13	0	57	46	10	0	12	174	6	0
4:30 PM	11	51	20	0	21	195	8	0	65	56	14	0	10	188	3	0
4:45 PM	3	49	14	0	26	176	17	0	68	54	7	0	29	223	2	0
5:00 PM	11	69	23	0	26	167	11	0	77	53	8	0	13	251	12	0
5:15 PM	13	67	17	0	29	163	22	0	69	59	11	0	20	229	5	0
5:30 PM	12	69	23	0	28	193	27	0	71	78	11	0	10	216	4	0
5:45 PM	9	61	13	0	26	212	16	0	57	54	6	0	11	178	9	0

Study Name: Oakland/CMU Fifth & Morewood
Start Date: 09/22/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	0	0	0	0	0	2	2	0	2	0	1	0	0	1	0	0
7:15 AM	0	1	0	0	0	4	1	0	0	1	1	0	1	2	0	0
7:30 AM	0	1	0	0	0	1	1	0	2	0	0	0	2	3	0	0
7:45 AM	0	3	0	0	2	2	0	0	3	0	1	0	1	3	0	0
8:00 AM	0	1	0	0	1	4	1	0	2	1	0	0	1	4	1	0
8:15 AM	0	1	0	0	4	4	0	0	0	0	0	0	0	2	1	0
8:30 AM	0	0	1	0	3	7	2	0	0	0	0	0	1	2	0	0
8:45 AM	1	0	0	0	1	10	2	0	0	2	0	0	1	3	1	0
9:00 AM	0	2	1	0	0	3	0	0	3	0	0	0	0	4	0	0
9:15 AM	0	1	2	0	0	8	0	0	0	3	0	0	0	6	0	0
9:30 AM	2	0	1	0	1	7	0	0	1	2	0	0	3	5	0	0
9:45 AM	1	1	0	0	1	4	1	0	1	1	1	0	1	9	2	0
3:00 PM	0	0	0	0	1	2	1	0	3	1	0	0	0	5	0	0
3:15 PM	0	1	1	0	0	7	0	0	0	1	0	0	0	3	0	0
3:30 PM	0	4	0	0	1	8	1	0	2	0	0	0	1	5	0	0
3:45 PM	0	0	0	0	1	4	0	0	0	0	0	0	0	2	0	0
4:00 PM	0	0	1	0	2	3	1	0	0	1	0	0	0	2	0	0
4:15 PM	0	0	1	0	0	3	0	0	2	0	0	0	0	1	0	0
4:30 PM	1	3	0	0	1	4	0	0	1	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	1	4	0	0	0	0	0	0	0	1	0	0
5:00 PM	1	1	0	0	0	4	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	1	4	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	0	1	1	0	0	0	0	0	1	4	0	0
5:45 PM	0	0	0	0	0	2	0	0	0	1	0	0	3	1	0	0

Study Name: Oakland/CMU Fifth & Morewood
Start Date: 09/22/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	0	0	0	0	0	2	0	0	0	0	1	0	1	2	0	0
7:15 AM	0	0	0	0	1	5	1	0	1	2	0	0	1	3	0	0
7:30 AM	0	0	0	0	0	5	1	0	0	1	0	0	3	7	0	0
7:45 AM	0	0	0	0	1	1	0	0	0	2	0	0	2	3	2	0
8:00 AM	0	0	0	0	1	2	1	0	0	0	0	0	2	4	1	0
8:15 AM	0	0	0	0	0	4	1	0	0	2	0	0	2	2	0	0
8:30 AM	0	0	0	0	0	4	1	0	0	0	0	0	2	3	0	0
8:45 AM	0	0	0	0	0	2	0	0	0	4	1	0	1	3	0	0
9:00 AM	0	0	0	0	0	1	1	0	0	0	0	0	2	4	0	0
9:15 AM	0	0	0	0	0	2	1	0	0	1	0	0	3	3	0	0
9:30 AM	0	0	0	0	0	2	0	0	0	0	0	0	1	3	0	0
9:45 AM	0	0	0	0	0	2	0	0	0	1	0	0	1	1	0	0
3:00 PM	0	1	0	0	1	4	0	0	1	0	0	0	2	6	0	0
3:15 PM	0	0	1	0	3	3	0	0	0	1	0	0	3	7	0	0
3:30 PM	0	0	0	0	0	1	0	0	0	2	0	0	0	4	0	0
3:45 PM	0	0	0	0	0	3	0	0	0	0	0	0	2	3	0	0
4:00 PM	0	0	0	0	0	2	0	0	0	1	0	0	2	2	0	0
4:15 PM	0	0	0	0	0	3	0	0	0	1	0	0	2	5	0	0
4:30 PM	0	1	0	0	0	0	1	0	1	0	0	0	2	1	0	0
4:45 PM	0	0	0	0	0	4	0	0	1	1	0	0	1	2	0	0
5:00 PM	0	0	0	0	0	4	1	0	1	2	0	0	3	3	0	0
5:15 PM	0	0	0	0	0	0	0	0	1	1	0	0	1	2	0	0
5:30 PM	0	0	0	0	0	3	0	0	1	0	0	0	0	2	0	0
5:45 PM	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0

Study Name: Oakland/CMU Fifth & Morewood
Start Date: 09/22/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Morewood Avenue Southbound					Westbound Street - Fifth Avenue Westbound					Northbound Street - Morewood Avenue Northbound					Eastbound Street - Fifth Avenue Eastbound					Intersection Totals
Start Time	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	
7:00 AM	2	16	7	0	25	18	252	6	0	276	30	37	5	0	72	4	89	2	0	95	468
7:15 AM	12	22	9	0	43	36	235	25	0	296	33	38	4	0	75	6	78	2	0	86	500
7:30 AM	9	24	10	0	43	35	138	40	0	213	51	48	4	0	103	8	87	5	0	100	459
7:45 AM	8	55	15	0	78	36	152	28	0	216	37	52	6	0	95	18	108	4	0	130	519
8:00 AM	6	53	16	0	75	36	173	42	0	251	30	61	2	0	93	11	75	6	0	92	511
8:15 AM	10	68	16	0	94	36	155	38	0	229	25	37	7	0	69	9	58	2	0	69	461
8:30 AM	5	62	13	0	80	42	165	50	0	257	34	42	2	0	78	7	86	3	0	96	511
8:45 AM	6	66	12	0	84	55	156	47	0	258	36	53	7	0	96	9	92	3	0	104	542
9:00 AM	9	63	10	0	82	26	171	26	0	223	27	30	9	0	66	8	79	1	0	88	459
9:15 AM	12	43	20	0	75	14	197	19	0	230	33	29	8	0	70	12	116	6	0	134	509
9:30 AM	15	28	10	0	53	27	221	17	0	265	31	29	7	0	67	10	97	1	0	108	493
9:45 AM	9	39	11	0	59	19	188	15	0	222	23	32	8	0	63	4	109	4	0	117	461
3:00 PM	14	47	26	0	87	29	167	10	0	206	62	38	4	0	104	18	172	8	0	198	595
3:15 PM	10	55	38	0	103	30	174	9	0	213	50	52	9	0	111	14	143	4	0	161	588
3:30 PM	8	57	37	0	102	11	177	11	0	199	59	51	4	0	114	14	178	4	0	196	611
3:45 PM	11	35	22	0	68	27	155	14	0	196	59	35	6	0	100	17	205	0	0	222	586
4:00 PM	18	61	26	0	105	32	173	18	0	223	58	46	8	0	112	26	207	6	0	239	679
4:15 PM	13	62	26	0	101	22	194	13	0	229	59	47	10	0	116	14	180	6	0	200	646
4:30 PM	12	55	20	0	87	22	199	9	0	230	67	56	14	0	137	12	189	3	0	204	658
4:45 PM	3	49	14	0	66	27	184	17	0	228	69	55	7	0	131	30	226	2	0	258	683
5:00 PM	12	70	23	0	105	26	175	12	0	213	78	55	8	0	141	16	254	12	0	282	741
5:15 PM	13	68	17	0	98	30	167	22	0	219	70	60	11	0	141	21	231	5	0	257	715
5:30 PM	12	70	23	0	105	28	197	28	0	253	72	78	11	0	161	11	222	4	0	237	756
5:45 PM	9	64	13	0	86	26	217	16	0	259	57	55	6	0	118	14	179	9	0	202	665
Subtotals	238	1232	434	0	1904	690	4382	532	0	5604	1150	1116	167	0	2433	313	3460	102	0	3875	13816
Totals By Leg	1904					5604					2433					3875					

Heavy Vehicles	0	5	1	0		7	62	9	0		7	22	2	0		39	75	3	0	
% Heavy of Movement	0.00%	0.41%	0.23%	---		1.01%	1.41%	1.69%	---		0.61%	1.97%	1.20%	---		12.46%	2.17%	2.94%	---	
Total Heavy Vehicles	6					78					31					117				232
% Heavy By Leg	0.32%					1.39%					1.27%					3.02%				1.68%

	Southbound Street - Morewood Avenue Southbound					Westbound Street - Fifth Avenue Westbound					Northbound Street - Morewood Avenue Northbound					Eastbound Street - Fifth Avenue Eastbound					Intersection Totals
Start Time	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	

Hourly totals	Southbound Street - Morewood Avenue Southbound					Westbound Street - Fifth Avenue Westbound					Northbound Street - Morewood Avenue Northbound					Eastbound Street - Fifth Avenue Eastbound					Intersection Totals
Beginning @	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	
7:00 AM	31	117	41	0	189	125	777	99	0	1001	151	175	19	0	345	36	362	13	0	411	1946
7:15 AM	35	154	50	0	239	143	698	135	0	976	151	199	16	0	366	43	348	17	0	408	1989
7:30 AM	33	200	57	0	290	143	618	148	0	909	143	198	19	0	360	46	328	17	0	391	1950
7:45 AM	29	238	60	0	327	150	645	158	0	953	126	192	17	0	335	45	327	15	0	387	2002
8:00 AM	27	249	57	0	333	169	649	177	0	995	125	193	18	0	336	36	311	14	0	361	2025
8:15 AM	30	259	51	0	340	159	647	161	0	967	122	162	25	0	309	33	315	9	0	357	1973
8:30 AM	32	234	55	0	321	137	689	142	0	968	130	154	26	0	310	36	373	13	0	422	2021
8:45 AM	42	200	52	0	294	122	745	109	0	976	127	141	31	0	299	39	384	11	0	434	2003
9:00 AM	45	173	51	0	269	86	777	77	0	940	114	120	32	0	266	34	401	12	0	447	1922
9:15 AM																					
9:30 AM																					
9:45 AM																					
3:00 PM	43	194	123	0	360	97	673	44	0	814	230	176	23	0	429	63	698	16	0	777	2380
3:15 PM	47	208	123	0	378	100	679	52	0	831	226	184	27	0	437	71	733	14	0	818	2464
3:30 PM	50	215	111	0	376	92	699	56	0	847	235	179	28	0	442	71	770	16	0	857	2522
3:45 PM	54	213	94	0	361	103	721	54	0	878	243	184	38	0	465	69	781	15	0	865	2569
4:00 PM	46	227	86	0	359	103	750	57	0	910	253	204	39	0	496	82	802	17	0	901	2666
4:15 PM	40	236	83	0	359	97	752	51	0	900	273	213	39	0	525	72	849	23	0	944	2728
4:30 PM	40	242	74	0	356	105	725	60	0	890	284	226	40	0	550	79	900	22	0	1001	2797
4:45 PM	40	257	77	0	374	111	723	79	0	913	289	248	37	0	574	78	933	23	0	1034	2895
5:00 PM	46	272	76	0	394	110	756	78	0	944	277	248	36	0	561	62	886	30	0	978	2877
5:15 PM																					
5:30 PM																					
5:45 PM																					
Peak Hour	3:45 PM	5:00 PM	3:00 PM	---	5:00 PM	8:00 AM	7:00 AM	8:00 AM	---	7:00 AM	4:45 PM	5:00 PM	4:30 PM	---	4:45 PM	4:00 PM	4:45 PM	5:00 PM	---	4:45 PM	4:45 PM
Volume	54	272	123	0	394	169	777	177	0	1001	289	248	40	0	574	82	933	30	0	1034	2895
PHF	0.75	0.97	0.81	---	0.94	0.77	0.77	0.89	---	0.85	0.93	0.79	0.71	---	0.89	0.68	0.92	0.63	---	0.92	0.96

Study Name: Oakland/CMU - Forbes Ave & Craig Street
Start Date: 09/21/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	2	3	12	0	14	39	2	0	2	4	0	0	4	62	41	0
7:15 AM	1	9	12	0	40	48	3	0	2	2	0	0	19	81	42	0
7:30 AM	6	13	17	0	49	70	2	0	1	1	0	0	24	88	49	0
7:45 AM	6	24	13	0	70	91	7	0	0	1	0	0	19	83	39	0
8:00 AM	4	14	25	0	29	66	11	0	0	2	0	0	26	70	34	0
8:15 AM	7	13	15	0	32	69	11	0	0	0	1	0	23	91	34	0
8:30 AM	3	9	26	0	27	70	15	0	1	2	0	0	18	85	32	0
8:45 AM	7	12	14	0	51	54	14	0	1	1	0	0	25	80	28	0
9:00 AM	5	10	12	0	23	49	8	0	1	1	0	0	21	71	31	0
9:15 AM	9	9	16	0	18	33	4	0	0	0	1	0	21	73	33	0
9:30 AM	6	9	12	0	20	36	6	0	2	3	1	0	15	88	46	0
9:45 AM	5	4	11	0	16	36	8	0	1	3	1	0	17	89	35	0
3:00 PM	3	1	25	0	12	31	0	0	10	3	4	0	3	133	28	0
3:15 PM	8	4	25	0	15	23	0	0	6	6	5	0	2	114	40	0
3:30 PM	4	0	30	0	16	26	2	0	14	15	18	0	3	90	43	0
3:45 PM	6	2	33	0	16	25	4	0	6	10	5	0	5	130	36	0
4:00 PM	11	0	32	0	14	28	2	0	10	13	11	0	2	129	41	0
4:15 PM	7	0	37	0	12	33	1	0	6	7	4	0	1	160	36	0
4:30 PM	4	1	38	0	17	27	0	0	10	11	7	0	2	165	41	0
4:45 PM	7	1	33	0	21	38	0	0	18	22	9	0	2	168	42	0
5:00 PM	6	2	39	0	25	42	2	0	29	24	13	0	5	151	47	0
5:15 PM	11	2	41	0	25	24	0	0	22	15	7	0	3	188	38	0
5:30 PM	14	5	50	0	13	45	2	0	12	9	5	0	3	148	34	0
5:45 PM	3	2	38	1	22	32	3	0	12	9	8	0	6	176	39	0

Study Name: Oakland/CMU - Forbes Ave & Craig Street
Start Date: 09/21/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0
7:15 AM	0	0	0	0	1	1	0	0	0	0	0	0	0	1	2	0
7:30 AM	0	1	0	0	1	2	1	0	0	0	1	0	0	1	4	0
7:45 AM	0	0	0	0	0	3	0	0	1	0	0	0	0	7	2	0
8:00 AM	0	0	1	0	0	5	0	0	0	0	1	0	0	3	0	0
8:15 AM	0	0	1	0	1	3	0	0	0	0	0	0	1	5	1	0
8:30 AM	1	0	0	0	0	0	1	0	0	0	0	0	0	4	2	0
8:45 AM	0	1	0	0	0	5	0	0	0	0	1	0	0	3	3	0
9:00 AM	0	1	2	0	2	0	0	0	1	0	0	0	1	7	2	0
9:15 AM	1	0	1	0	1	2	0	0	0	0	0	0	1	7	1	0
9:30 AM	2	0	2	0	0	1	0	0	1	0	0	0	0	4	1	0
9:45 AM	0	0	0	0	2	3	0	0	0	0	0	0	0	7	2	0
3:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	6	0	0
3:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	6	1	0
3:30 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	3	2	0
3:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	5	0	0
4:00 PM	0	0	0	0	0	2	0	0	0	1	0	0	0	1	1	0
4:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
4:30 PM	0	0	1	0	0	3	0	0	0	0	0	0	0	6	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
5:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	1	0

Study Name: Oakland/CMU - Forbes Ave & Craig Street
Start Date: 09/21/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	3	1	0
7:15 AM	2	0	0	0	1	7	0	0	0	0	0	0	0	6	1	0
7:30 AM	0	1	0	0	4	6	0	0	0	0	0	0	0	4	0	0
7:45 AM	1	0	0	0	0	13	0	0	0	0	0	0	0	6	2	0
8:00 AM	1	0	0	0	0	4	0	0	0	0	0	0	0	5	0	0
8:15 AM	0	0	0	0	1	7	0	0	0	0	0	0	0	8	1	0
8:30 AM	1	0	0	0	0	6	0	0	0	0	0	0	0	5	1	0
8:45 AM	1	0	0	0	0	7	0	0	0	0	0	0	0	4	1	0
9:00 AM	1	0	3	0	0	12	0	0	1	0	0	0	0	4	0	0
9:15 AM	1	0	0	0	1	10	0	0	1	0	0	0	0	2	3	0
9:30 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	7	0	0
9:45 AM	1	0	0	0	0	5	0	0	0	0	0	0	0	8	1	0
3:00 PM	1	0	0	0	0	5	0	0	0	0	0	0	0	3	2	0
3:15 PM	2	0	0	0	0	9	0	0	0	0	0	0	0	5	0	0
3:30 PM	1	0	0	0	0	7	0	0	0	0	0	0	0	7	1	0
3:45 PM	0	0	0	0	0	8	0	0	0	0	0	0	0	3	2	0
4:00 PM	1	0	0	0	0	6	0	0	0	0	0	0	0	8	1	0
4:15 PM	1	0	1	0	0	8	0	0	0	0	0	0	0	8	5	0
4:30 PM	1	0	0	0	0	9	0	0	0	0	0	0	0	5	1	0
4:45 PM	0	0	1	0	0	10	0	0	0	0	0	0	0	5	1	0
5:00 PM	0	0	0	0	0	7	0	0	0	0	0	0	0	6	1	0
5:15 PM	2	0	0	0	0	5	0	0	0	0	0	0	0	5	2	0
5:30 PM	1	0	0	0	0	6	0	0	0	0	0	0	0	11	0	0
5:45 PM	1	0	0	0	0	6	0	0	0	0	0	0	0	10	1	0

Study Name: Oakland/CMU - Forbes Ave & Craig Street
Start Date: 09/21/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Craig Street Southbound					Westbound Street - Forbes Avenue Westbound					Northbound Street - Museum Parking Lot Northbound					Eastbound Street - Forbes Avenue Eastbound					Intersection Totals
Start Time	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	
7:00 AM	2	3	12	0	17	14	44	2	0	60	2	4	0	0	6	4	67	43	0	114	197
7:15 AM	3	9	12	0	24	42	56	3	0	101	2	2	0	0	4	19	88	45	0	152	281
7:30 AM	6	15	17	0	38	54	78	3	0	135	1	1	1	0	3	24	93	53	0	170	346
7:45 AM	7	24	13	0	44	70	107	7	0	184	1	1	0	0	2	19	96	43	0	158	388
8:00 AM	5	14	26	0	45	29	75	11	0	115	0	2	1	0	3	26	78	34	0	138	301
8:15 AM	7	13	16	0	36	34	79	11	0	124	0	0	1	0	1	24	104	36	0	164	325
8:30 AM	5	9	26	0	40	27	76	16	0	119	1	2	0	0	3	18	94	35	0	147	309
8:45 AM	8	13	14	0	35	51	66	14	0	131	1	1	1	0	3	25	87	32	0	144	313
9:00 AM	6	11	17	0	34	25	61	8	0	94	3	1	0	0	4	22	82	33	0	137	269
9:15 AM	11	9	17	0	37	20	45	4	0	69	1	0	1	0	2	22	82	37	0	141	249
9:30 AM	8	9	14	0	31	20	43	6	0	69	3	3	1	0	7	15	99	47	0	161	268
9:45 AM	6	4	11	0	21	18	44	8	0	70	1	3	1	0	5	17	104	38	0	159	255
3:00 PM	4	1	25	0	30	12	37	0	0	49	10	3	4	0	17	3	142	30	0	175	271
3:15 PM	10	4	25	0	39	15	34	0	0	49	6	6	5	0	17	2	125	41	0	168	273
3:30 PM	5	0	31	0	36	16	34	2	0	52	14	15	18	0	47	3	100	46	0	149	284
3:45 PM	6	2	33	0	41	16	34	4	0	54	6	10	5	0	21	5	138	38	0	181	297
4:00 PM	12	0	32	0	44	14	36	2	0	52	10	14	11	0	35	2	138	43	0	183	314
4:15 PM	8	0	38	0	46	12	43	1	0	56	6	7	4	0	17	1	169	41	0	211	330
4:30 PM	5	1	39	0	45	17	39	0	0	56	10	11	7	0	28	2	176	42	0	220	349
4:45 PM	7	1	34	0	42	21	48	0	0	69	18	22	9	0	49	2	173	43	0	218	378
5:00 PM	6	2	39	0	47	25	49	2	0	76	29	24	13	0	66	5	159	48	0	212	401
5:15 PM	13	2	41	0	56	25	30	0	0	55	22	15	7	0	44	3	194	40	0	237	392
5:30 PM	15	5	50	0	70	13	52	2	0	67	12	9	5	0	26	3	159	34	0	196	359
5:45 PM	4	2	38	1	45	22	39	3	0	64	12	9	8	0	29	6	189	41	0	236	374
Subtotals	169	153	620	1	943	612	1249	109	0	1970	171	165	103	0	439	272	2936	963	0	4171	7523
Totals By Leg	943					1970					439					4171					

Heavy Vehicles	20	1	5	0		7	174	0	0		2	0	0	0		0	138	28	0	
% Heavy of Movement	11.83%	0.65%	0.81%	0.00%		1.14%	13.93%	0.00%	---		1.17%	0.00%	0.00%	---		0.00%	4.70%	2.91%	---	
Total Heavy Vehicles	26					181					2					166				375
% Heavy By Leg	2.76%					9.19%					0.46%					3.98%				4.98%

PCTI

T. W. CONSULTANTS, INCORPORATED
ENGINEERS AND PLANNERS

gai consultants

Hourly totals	Southbound Street - Craig Street Southbound					Westbound Street - Forbes Avenue Westbound					Northbound Street - Museum Parking Lot Northbound					Eastbound Street - Forbes Avenue Eastbound					Intersection Totals
Beginning @	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	
7:00 AM	18	51	54	0	123	180	285	15	0	480	6	8	1	0	15	66	344	184	0	594	1212
7:15 AM	21	62	68	0	151	195	316	24	0	535	4	6	2	0	12	88	355	175	0	618	1316
7:30 AM	25	66	72	0	163	187	339	32	0	558	2	4	3	0	9	93	371	166	0	630	1360
7:45 AM	24	60	81	0	165	160	337	45	0	542	2	5	2	0	9	87	372	148	0	607	1323
8:00 AM	25	49	82	0	156	141	296	52	0	489	2	5	3	0	10	93	363	137	0	593	1248
8:15 AM	26	46	73	0	145	137	282	49	0	468	5	4	2	0	11	89	367	136	0	592	1216
8:30 AM	30	42	74	0	146	123	248	42	0	413	6	4	2	0	12	87	345	137	0	569	1140
8:45 AM	33	42	62	0	137	116	215	32	0	363	8	5	3	0	16	84	350	149	0	583	1099
9:00 AM	31	33	59	0	123	83	193	26	0	302	8	7	3	0	18	76	367	155	0	598	1041
9:15 AM																					
9:30 AM																					
9:45 AM																					
3:00 PM	25	7	114	0	146	59	139	6	0	204	36	34	32	0	102	13	505	155	0	673	1125
3:15 PM	33	6	121	0	160	61	138	8	0	207	36	45	39	0	120	12	501	168	0	681	1168
3:30 PM	31	2	134	0	167	58	147	9	0	214	36	46	38	0	120	11	545	168	0	724	1225
3:45 PM	31	3	142	0	176	59	152	7	0	218	32	42	27	0	101	10	621	164	0	795	1290
4:00 PM	32	2	143	0	177	64	166	3	0	233	44	54	31	0	129	7	656	169	0	832	1371
4:15 PM	26	4	150	0	180	75	179	3	0	257	63	64	33	0	160	10	677	174	0	861	1458
4:30 PM	31	6	153	0	190	88	166	2	0	256	79	72	36	0	187	12	702	173	0	887	1520
4:45 PM	41	10	164	0	215	84	179	4	0	267	81	70	34	0	185	13	685	165	0	863	1530
5:00 PM	38	11	168	1	218	85	170	7	0	262	75	57	33	0	165	17	701	163	0	881	1526
5:15 PM																					
5:30 PM																					
5:45 PM																					
Peak Hour	4:45 PM	7:30 AM	5:00 PM	5:00 PM	5:00 PM	7:15 AM	7:30 AM	8:00 AM	---	7:30 AM	4:45 PM	4:30 PM	3:15 PM	---	4:30 PM	8:00 AM	4:30 PM	7:00 AM	---	4:30 PM	4:45 PM
Volume	41	66	168	1	218	195	339	52	0	558	81	72	39	0	187	93	702	184	0	887	1530
PHF	0.68	0.69	0.84	0.25	0.78	0.70	0.79	0.81	---	0.76	0.70	0.75	0.54	---	0.71	0.89	0.90	0.87	---	0.94	0.95

Study Name: Oakland/CMU Forbes Ave & Morewood Avenue
Start Date: 09/22/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	7	0	20	0	23	63	0	0	0	0	0	0	0	30	55	0
7:15 AM	25	0	25	0	27	88	0	0	0	0	0	0	0	54	41	0
7:30 AM	33	0	25	0	29	127	0	0	0	0	0	0	0	44	71	0
7:45 AM	40	0	62	0	39	136	0	0	0	0	0	0	0	46	44	0
8:00 AM	40	0	52	0	48	117	0	0	0	0	0	0	0	55	39	0
8:15 AM	55	0	63	0	32	186	0	0	0	0	0	0	0	47	34	0
8:30 AM	74	0	65	0	26	166	0	0	0	0	0	0	0	56	52	0
8:45 AM	65	0	59	0	37	148	0	0	0	0	0	0	0	40	37	0
9:00 AM	23	0	49	0	11	75	0	0	0	0	0	0	0	38	44	0
9:15 AM	19	0	52	0	25	91	0	0	0	0	0	0	0	68	38	0
9:30 AM	23	0	40	0	22	61	0	0	0	0	0	0	0	48	44	1
9:45 AM	21	0	41	0	25	75	0	0	0	0	0	0	0	53	33	0
3:00 PM	10	5	78	0	31	54	0	0	0	0	0	0	0	95	71	5
3:15 PM	7	0	66	0	40	58	0	0	0	0	0	0	0	102	57	0
3:30 PM	7	0	78	0	34	62	0	0	0	0	0	0	0	96	64	0
3:45 PM	9	0	68	0	31	36	0	0	0	0	0	0	0	120	61	0
4:00 PM	20	0	106	0	44	49	0	0	0	0	0	0	0	108	73	0
4:15 PM	13	0	80	0	53	50	0	0	0	0	0	0	0	124	71	0
4:30 PM	13	0	67	0	47	61	0	0	0	0	0	0	0	132	60	0
4:45 PM	21	0	100	0	37	48	0	0	0	0	0	0	0	146	84	0
5:00 PM	11	0	113	0	39	61	0	0	0	0	0	0	0	167	68	0
5:15 PM	17	0	114	0	46	62	0	0	0	0	0	0	0	152	59	0
5:30 PM	24	0	89	0	37	79	0	0	0	0	0	0	0	142	79	0
	0	0	91	0	30	7			0	0	0	0	0	106	59	0

PCTI PENNSYLVANIA COMMUNITY TRANSPORTATION INITIATIVE

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Study Name: Oakland/CMU Forbes Ave & Morewood
Start Date: 09/22/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	1	0	1	0	0	2	0	0	0	0	0	0	0	2	2	0
7:15 AM	0	0	2	0	0	1	0	0	0	0	0	0	0	0	1	0
7:30 AM	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	0
7:45 AM	3	0	0	0	1	5	0	0	0	0	0	0	0	0	1	0
8:00 AM	0	0	1	0	0	5	0	0	0	0	0	0	0	3	3	0
8:15 AM	1	0	1	0	0	2	0	0	0	0	0	0	0	2	0	0
8:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	5	1	0
8:45 AM	2	0	3	0	1	2	0	0	0	0	0	0	0	3	2	0
9:00 AM	0	0	1	0	1	2	0	0	0	0	0	0	0	4	2	0
9:15 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0
9:30 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
9:45 AM	1	0	3	0	0	1	0	0	0	0	0	0	0	6	1	0
3:00 PM	1	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0
3:15 PM	1	0	1	0	0	1	0	0	0	0	0	0	0	2	0	0
3:30 PM	0	0	3	0	1	0	0	0	0	0	0	0	0	0	1	0
3:45 PM	1	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0
4:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	3	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
4:30 PM	0	0	4	0	0	0	0	0	0	0	0	0	0	3	0	0
4:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0
5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	2	1	0
5:15 PM	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
5:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0
5:45 PM	1	0	1	0	1	0	0	0	0	0	0	0	0	3	0	0

Study Name: Oakland/CMU Forbes Ave & Morewood
Start Date: 09/22/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street Southbound				Westbound Street Westbound				Northbound Street Northbound				Eastbound Street Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	1	0	2	0	0	5	0	0	0	0	0	0	0	5	1	0
7:15 AM	2	0	0	0	0	8	0	0	0	0	0	0	0	5	1	0
7:30 AM	4	0	2	0	0	8	0	0	0	0	0	0	0	5	1	0
7:45 AM	1	0	3	0	0	4	0	0	0	0	0	0	0	6	1	0
8:00 AM	2	0	0	0	0	5	0	0	0	0	0	0	0	3	0	0
8:15 AM	2	0	1	0	0	7	0	0	0	0	0	0	0	3	2	0
8:30 AM	1	0	0	0	0	4	0	0	0	0	0	0	0	4	0	0
8:45 AM	2	0	0	0	1	8	0	0	0	0	0	0	0	1	3	0
9:00 AM	2	0	0	0	1	6	0	0	0	0	0	0	0	5	0	0
9:15 AM	2	0	0	0	1	7	0	0	0	0	0	0	0	9	1	0
9:30 AM	2	0	0	0	2	3	0	0	0	0	0	0	0	10	1	0
9:45 AM	1	0	0	0	1	4	0	0	0	0	0	0	0	6	1	0
3:00 PM	3	0	0	0	4	7	0	0	0	0	0	0	0	5	2	0
3:15 PM	3	0	0	0	1	5	0	0	0	0	0	0	0	5	1	0
3:30 PM	0	0	0	0	2	5	0	0	0	0	0	0	0	5	1	0
3:45 PM	2	0	0	0	0	5	0	0	0	0	0	0	0	5	1	0
4:00 PM	2	0	0	0	0	4	0	0	0	0	0	0	0	2	1	0
4:15 PM	3	0	0	0	0	6	0	0	0	0	0	0	0	5	2	0
4:30 PM	2	0	1	0	1	7	0	0	0	0	0	0	0	6	1	0
4:45 PM	1	0	0	0	1	3	0	0	0	0	0	0	0	5	0	0
5:00 PM	3	0	0	0	0	5	0	0	0	0	0	0	0	4	0	0
5:15 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	6	0	0
5:30 PM	1	0	0	0	0	3	0	0	0	0	0	0	0	2	0	0
5:45 PM	3	0	3	0	0	3	0	0	0	0	0	0	0	2	0	0

Study Name: Oakland/CMU Forbes Ave & Morewood Avenue
Start Date: 09/22/2010
Start Time: 7:00 AM
Site Code:

	Southbound Street - Morewood Avenue Southbound					Westbound Street - Forbes Avenue Westbound					Northbound Street - Does Not Exist Northbound					Eastbound Street - Forbes Avenue Eastbound					Intersection Totals
Start Time	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	
7:00 AM	9	0	23	0	32	23	70	0	0	93	0	0	0	0	0	0	37	58	0	95	220
7:15 AM	27	0	27	0	54	27	97	0	0	124	0	0	0	0	0	0	59	43	0	102	280
7:30 AM	39	0	29	0	68	29	135	0	0	164	0	0	0	0	0	0	50	73	0	123	355
7:45 AM	44	0	65	0	109	40	145	0	0	185	0	0	0	0	0	0	52	46	0	98	392
8:00 AM	42	0	53	0	95	48	127	0	0	175	0	0	0	0	0	0	61	42	0	103	373
8:15 AM	58	0	65	0	123	32	195	0	0	227	0	0	0	0	0	0	52	36	0	88	438
8:30 AM	75	0	66	0	141	26	170	0	0	196	0	0	0	0	0	0	65	53	0	118	455
8:45 AM	69	0	62	0	131	39	158	0	0	197	0	0	0	0	0	0	44	42	0	86	414
9:00 AM	25	0	50	0	75	13	83	0	0	96	0	0	0	0	0	0	47	46	0	93	264
9:15 AM	22	0	52	0	74	27	98	0	0	125	0	0	0	0	0	0	79	39	0	118	317
9:30 AM	26	0	40	0	66	24	64	0	0	88	0	0	0	0	0	0	59	47	1	107	261
9:45 AM	23	0	44	0	67	26	80	0	0	106	0	0	0	0	0	0	65	35	0	100	273
3:00 PM	14	5	78	0	97	35	65	0	0	100	0	0	0	0	0	0	102	73	5	180	377
3:15 PM	11	0	67	0	78	41	64	0	0	105	0	0	0	0	0	0	109	58	0	167	350
3:30 PM	7	0	81	0	88	37	67	0	0	104	0	0	0	0	0	0	101	66	0	167	359
3:45 PM	12	0	70	0	82	31	41	0	0	72	0	0	0	0	0	0	126	62	0	188	342
4:00 PM	22	0	107	0	129	44	53	0	0	97	0	0	0	0	0	0	113	74	0	187	413
4:15 PM	16	0	80	0	96	53	56	0	0	109	0	0	0	0	0	0	130	73	0	203	408
4:30 PM	15	0	72	0	87	48	68	0	0	116	0	0	0	0	0	0	141	61	0	202	405
4:45 PM	22	0	101	0	123	38	51	0	0	89	0	0	0	0	0	0	153	84	0	237	449
5:00 PM	14	0	113	0	127	40	66	0	0	106	0	0	0	0	0	0	173	69	0	242	475
5:15 PM	18	0	115	0	133	46	66	0	0	112	0	0	0	0	0	0	159	59	0	218	463
5:30 PM	25	0	90	0	115	37	82	0	0	119	0	0	0	0	0	0	145	80	0	225	459
5:45 PM	24	0	95	0	119	31	74	0	0	105	0	0	0	0	0	0	111	59	0	170	394
Subtotals	659	5	1645	0	2309	835	2175	0	0	3010	0	0	0	0	0	0	2233	1378	6	3617	8936
Totals By Leg	2309					3010					0					3617					

Heavy Vehicles	45	0	12	0		15	126	0	0		0	0	0	0		0	114	21	0	
% Heavy of Movement	6.83%	0.00%	0.73%	---		1.80%	5.79%	---	---		---	---	---	---		---	5.11%	1.52%	0.00%	
Total Heavy Vehicles	57					141					0					135				333
% Heavy By Leg	2.47%					4.68%					---					3.73%				3.73%

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Start Time	Southbound Street - Morewood Avenue Southbound					Westbound Street - Forbes Avenue Westbound					Northbound Street - Does Not Exist Northbound					Eastbound Street - Forbes Avenue Eastbound					Intersection Totals
	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	Right	Thru	Left	U-Turn	Subtotals	

Hourly totals Beginning @	Southbound Street - Morewood Avenue Southbound					Westbound Street - Forbes Avenue Westbound					Northbound Street - Does Not Exist Northbound					Eastbound Street - Forbes Avenue Eastbound					Intersection Totals
	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	Right	Thru	Left	U-Turn	Totals	
7:00 AM	119	0	144	0	263	119	447	0	0	566	0	0	0	0	0	0	198	220	0	418	1247
7:15 AM	152	0	174	0	326	144	504	0	0	648	0	0	0	0	0	0	222	204	0	426	1400
7:30 AM	183	0	212	0	395	149	602	0	0	751	0	0	0	0	0	0	215	197	0	412	1558
7:45 AM	219	0	249	0	468	146	637	0	0	783	0	0	0	0	0	0	230	177	0	407	1658
8:00 AM	244	0	246	0	490	145	650	0	0	795	0	0	0	0	0	0	222	173	0	395	1680
8:15 AM	227	0	243	0	470	110	606	0	0	716	0	0	0	0	0	0	208	177	0	385	1571
8:30 AM	191	0	230	0	421	105	509	0	0	614	0	0	0	0	0	0	235	180	0	415	1450
8:45 AM	142	0	204	0	346	103	403	0	0	506	0	0	0	0	0	0	229	174	1	404	1256
9:00 AM	96	0	186	0	282	90	325	0	0	415	0	0	0	0	0	0	250	167	1	418	1115
9:15 AM																					
9:30 AM																					
9:45 AM																					
3:00 PM	44	5	296	0	345	144	237	0	0	381	0	0	0	0	0	0	438	259	5	702	1428
3:15 PM	52	0	325	0	377	153	225	0	0	378	0	0	0	0	0	0	449	260	0	709	1464
3:30 PM	57	0	338	0	395	165	217	0	0	382	0	0	0	0	0	0	470	275	0	745	1522
3:45 PM	65	0	329	0	394	176	218	0	0	394	0	0	0	0	0	0	510	270	0	780	1568
4:00 PM	75	0	360	0	435	183	228	0	0	411	0	0	0	0	0	0	537	292	0	829	1675
4:15 PM	67	0	366	0	433	179	241	0	0	420	0	0	0	0	0	0	597	287	0	884	1737
4:30 PM	69	0	401	0	470	172	251	0	0	423	0	0	0	0	0	0	626	273	0	899	1792
4:45 PM	79	0	419	0	498	161	265	0	0	426	0	0	0	0	0	0	630	292	0	922	1846
5:00 PM	81	0	413	0	494	154	288	0	0	442	0	0	0	0	0	0	588	267	0	855	1791
5:15 PM																					
5:30 PM																					
5:45 PM																					
Peak Hour	8:00 AM	3:00 PM	4:45 PM	---	4:45 PM	4:00 PM	8:00 AM	---	---	8:00 AM	---	---	---	---	---	---	4:45 PM	4:45 PM	3:00 PM	4:45 PM	4:45 PM
Volume	244	5	419	0	498	183	650	0	0	795	0	0	0	0	0	0	630	292	5	922	1846
PHF	0.81	0.25	0.91	---	0.94	0.86	0.83	---	---	0.88	---	---	---	---	---	---	0.91	0.87	0.25	0.95	0.97

Appendix C

Signal Timings and Capacity Analyses

This Appendix summarizes traffic operations analysis performed by Kittelson & Associates, Inc. (KAI) to support the Oakland/CMU Pedestrian Safety Mobility Study. This study is recommending a comprehensive set of solutions to improve walking and bicycling conditions in the vicinity of the Carnegie Mellon University campus. Supporting documentation for the study's Immediate Action Recommendations is contained herein. Analyses of existing traffic operations along the study corridors and evaluations of the impacts of proposed improvements to traffic operations were performed.

The analyses focused on signal timing changes and geometric modifications to the study area roadway network, which were considered on the basis of improving safety conditions for pedestrians and careful consideration of need for the roadways to function adequately for all modes. The analyses also assessed signal timings in order to optimize the splits for cars, as well as upgrade the pedestrian phases to meet the 2009 Manual on Uniform Traffic Control Devices (MUTCD) standard walking speed of 3.5 ft/s for pedestrian clearance intervals.

Implications for Immediate Action Items

The timing change recommendations could be implemented at some of the intersections where current equipment can implement the changes, but overall implementation would be part of Immediate Action Recommendation 1 – Upgrade of all Signals and Infrastructure.

Immediate Action Recommendation 2 – The road diet on Forbes Avenue to reduce the number of through travel lanes to one (1) in each direction between Craig Street and Morewood Street would have limited operational impacts and would maintain adequate operations at all study intersections.

Immediate Action Recommendation 3 – The creation of the sidewalk systems is only further reinforced by the analyses, which serves to maintain the motorized vehicle capacity on Morewood.

Table 1 summarizes operations at study intersections under both existing proposed signal timing and lane configurations.

Table 1 Operations Summary for Existing Conditions and Recommended Changes

Intersection	Operations						
	Time Period	Cycle Length		V/C Ratio		LOS	
		Existing	Recommended	Existing	With Changes	Existing	With Changes
[1]Fifth Ave & Bellefield Ave	AM	80	80	0.98	0.97	C	C
	PM	80	80	0.81	0.88	C	C
[1]Fifth Ave & Dithridge St.	AM	80	80	0.58	0.66	C	B
	PM	80	80	0.56	0.59	B	C
[2]Fifth Ave & Craig St.	AM	80	80	1.19	0.86	F	C
	PM	80	80	0.93	0.65	E	B
[3]Fifth Ave & Neville St.	AM	80	80	0.80	0.82	C	C
	PM	80	80	0.81	0.72	C	D
[3]Fifth Ave & Morewood Ave	AM	80	80	0.82	0.68	C	C
	PM	80	80	0.99	0.90	D	C
[4]Forbes Ave & Craig St.	AM	80	100	0.64	0.72	B	C
	PM	80	98	1.03	0.92	F	D
[5]Forbes Ave & Hamburg Hall	AM	79	80.5	0.31	0.53	A	A
	PM	79	80	0.63	0.83	B	B
[5]Forbes Ave & Morewood Ave	AM	124	150	1.24	1.14	F	F
	PM	124	109	0.72	0.81	C	C
[6]Forbes Ave & Beeler St.	AM	80	88	0.69	0.91	C	D
	PM	80	88	0.45	0.71	B	C

Intersection	Operations						
	Time Period	Cycle Length		V/C Ratio		LOS	
		Existing	Recommended	Existing	With Changes	Existing	With Changes
[7]Forbes Ave & Margaret Morrison St.	AM	80	85	0.41	0.66	B	B
	PM	80	87	0.65	0.66	B	B

[1] Recommended changes along Fifth Avenue at the Bellefield Avenue and Dithridge Street intersections include vehicular signal timing modifications as well as the addition of pedestrian indications crossings concurrent with parallel traffic flow and crossing times to meet current 2009 MUTCD standards.

[2]Recommended changes along Fifth Avenue at the Craig Street intersection include vehicular signal timing modifications, removal of the exclusive pedestrian phase, addition of pedestrian crossings concurrent with parallel traffic flow and updating the crossing times to meet current 2009 MUTCD standards

[3]Recommended changes along Fifth Avenue at the Neville Street and Morewood Avenue intersections include vehicular signal timing modifications as well as updating the pedestrian crossing times to meet current 2009 MUTCD standards.

[4]Recommended changes along Forbes Avenue at the Craig Street intersection include the removal of one (1) through lane "road diet" along Forbes Avenue to provide for one (1) through lane, addition of exclusive eastbound left turn lane, vehicular signal timing modifications, removal of the exclusive pedestrian phase, addition of pedestrian crossings concurrent with parallel traffic flow and updating the crossing times to meet current 2009 MUTCD standards.

[5]Recommended changes along Forbes Avenue at the Hamburg Hall and Morewood Avenue intersections include the "road diet" along Forbes Avenue which provides for one (1) through lane, vehicular signal timing modifications, removal of the exclusive pedestrian phase at Hamburg Hall, addition of pedestrian crossings concurrent with parallel traffic flow at the Hamburg Hall intersection and updating the crossing times at Morewood Avenue to meet current 2009 MUTCD standards.

[6]Recommended changes along Forbes Avenue at the Beeler Street intersection include the "road diet" along Forbes Avenue which provides for one (1) through lane, vehicular signal timing modifications, addition of pedestrian crossings concurrent with parallel traffic flow and updating the pedestrian crossing clearance times to meet current 2009 MUTCD standards.

[7]Recommended changes along Forbes Avenue at the Margaret Morrison Street intersection include the removal of one (1) through lane "road diet" along Forbes Avenue to provide for one (1) through lane, removal of exclusive eastbound right turn lane, addition of exclusive westbound left turn lane, vehicular signal timing modifications, addition of pedestrian indications & crossings concurrent with parallel traffic flow and crossing times to meet current 2009 MUTCD standards.

Methodology

The analysis presented in this memorandum is based on traffic volume data collected during September 2010, during mid-week AM and PM peak hours. Eastbound and westbound volumes along Fifth Avenue were balanced between Bellefield Ave. and Neville St., to ensure that volumes match between adjacent intersections. Balancing was not done between other intersections, as the presence of unsignalized intersections and driveways make it feasible for volumes to change significantly between signals.

To best understand the study area, KAI analyzed the study intersections by modeling the signal timings provided by the City of Pittsburgh in Synchro 7.0 software. The signal timing summary sheets provided, however, did not include the tables that provided the force-off points. This made it difficult to determine the splits for some of the intersections where the cycle length varied from the peak and off-peak hours. In these cases, the signal timings were estimated based on the split percentages calculated from the timings provided in the summary sheets. Synchro was then adjusted to simulate and evaluate pedestrian improvements alternatives. More specifically, this analysis includes:

- Year 2010 existing traffic conditions at intersections within the study area;
- Analysis of signal performance with changes that meet MUTCD compliance;
- Analysis of proposed geometric changes to roads for improvements for pedestrians and cyclists;
- Conclusions and recommendations.

The volume to capacity (v/c) ratios, Level of Service (LOS), and intersection delay of each intersection were the main indicators in determining the operation of each intersection for existing conditions and recommendations. These performance measures were estimated using *2000 Highway Capacity Manual* procedures, and consistent with the Pennsylvania Department of Transportation Policies and Procedures for Traffic Impact Studies.

The improvements evaluated were based on recommendations made by KAI in an initial review of existing conditions along the roadways, including current intersection facilities and historic crash data. Signal timing changes and geometric changes were analyzed to determine their effect on motor vehicle traffic operations in the study area. The signal timing changes examined represent one aspect of recommended intersection improvements intended to deal with various issues identified at existing intersections, including a lack of standard pedestrian signal heads, and unnecessary exclusive pedestrian phases. Most significantly, the geometric changes examined included Immediate Action Recommendation 1 – the proposed lane reduction, road diet along Forbes Avenue.

Existing Conditions

KAI completed an analysis of the existing pedestrian conditions as well as the pedestrian and traffic signal operations. 0 summarizes the existing conditions for each of the intersections studied during the AM and PM peak hours. Figure 1 shows the existing lane configuration and Figures 2 and 3 shows the existing intersection operations for the AM and the PM peak hours.

Table 2 Summary of Existing Conditions

Intersection	Pedestrian Accommodations			Operations			
	Ped. Signals	Exclusive Ped. Phase	Adequate Clearance?	Time Period	V/C Ratio	LOS	Average Delay
Fifth Ave. & Bellefield Ave.	No	No	[8]N/A	AM	0.98	C	34.9
				PM	0.81	C	26.8
Fifth Ave. & Dithridge St.	No	No	[8]N/A	AM	0.58	C	23.7
				PM	0.56	B	18.1
Fifth Ave. & Craig St.	Yes	Yes	No	AM	1.19	F	92.7
				PM	0.93	E	67.6
Fifth Ave. & Neville St.	Yes	No	No	AM	0.80	C	26.9
				PM	0.81	C	27.1
Fifth Ave. & Morewood Ave.	Yes	No	No	AM	0.82	C	24.5
				PM	0.99	D	44.7
Forbes Ave. & Craig St.	Yes	Yes	No	AM	0.64	B	14.3
				PM	1.03	F	91.7
Forbes Ave. & Hamburg Hall	Yes	Yes	Yes	AM	0.31	A	3.8
				PM	0.63	B	14.7
Forbes Ave. & Morewood Ave	Yes	Yes	No	AM	1.24	F	120.6
				PM	0.72	C	21.9
Forbes Ave. & Beeler St.	Yes	No	No	AM	0.69	C	26.0
				PM	0.45	B	13.0
Forbes Ave. & Margaret Morrison St.	No	No	[8]N/A	AM	0.41	B	10.2
				PM	0.65	B	13.9

[8]Pedestrian indications "walk/don't walk" currently do not exist at these intersections. Pedestrian movements are controlled by smaller 8" vehicular signals and timings are from vehicle phasing times.

All intersections do not meet 2009 MUTCD standards for pedestrian signals. This is largely because these intersections do not meet the minimum time clearance time for a Flash Don't Walk signal required by the MUTCD. The 2009 MUTCD Flash Don't Walk signal timing requirements are based on a pedestrian walking speed of 3.5 feet per second, compared to 4 feet per second in the 2003 MUTCD, a significant reduction, and one which will certainly help to accommodate the crossing of elderly pedestrians, an issue recently brought to GAI's attention by the City of Pittsburgh.

A major issue at many of the intersections is a lack of pedestrian head signals. Instead, smaller traffic signals are in place of where pedestrian signals typically are and are programmed to turn yellow for the pedestrian movements at the same time it turns yellow for the vehicle movement. This allots the pedestrian the same amount of time to finish crossing the intersection as the vehicle movements. The MUTCD clearance time is meant to provide enough time for most people crossing the street to be able to finish crossing once the Flash Don't Walk signal phase begins. The necessary time for the Flash Don't Walk phase was calculated based on the longest crossing distance in each direction for each intersection.

Four (4) study intersections have exclusive pedestrian phases. While exclusive pedestrian phases benefit pedestrians by providing them with a dedicated phase, they can also negatively impact pedestrian movements by increasing delay (cycle lengths are longer and pedestrians are prohibited from crossing during concurrently with parallel traffic). For this reason, exclusive pedestrian phases are most applicable only in locations with very high pedestrian volumes. The potential to replace exclusive pedestrian phases with alternative pedestrian enhancements was tested in the alternatives analysis, and is achieved at three (3) of the four (4) intersections, Morewood Avenue at Forbes the only exception.

Most cycle lengths on Fifth Avenue are 80 seconds. These short cycle lengths work well for pedestrians by reducing delay, but also limit the cycle time available for the WALK phase. Standard practice provides 7 to 12 seconds of WALK time, but several intersections on Fifth Avenue have time for only 4 to 5 seconds to maintain the 80-second cycle length, and provide adequate pedestrian clearance time. Despite the short resulting WALK phase, the analysis performed maintained a consistent 80-second cycle length to both reduce delay and allow for coordinated signal operations.

Summary of Analyses

Signalization, Immediate Action Recommendation Item 1

Table 3 summarizes the intersections lacking pedestrian signal heads and provides the necessary pedestrian clearance intervals for each study intersection.

Table 3 Summary of Signal Changes to Meet MUTCD Standards

Intersection	Existing PedestrianSignals?	Existing Pedestrian [9]Times	Necessary [11]Clearance (Flashing Don't Walk) East-West/ North-South
Fifth Ave & Bellefield Ave	No	[10]N/A	18/25
Fifth Ave & Dithridge St.	No	[10]N/A	18/18
Fifth Ave & Craig St.	Yes	28/28	20/23
Fifth Ave & Neville St.	Yes	20/17	21/18
Fifth Ave & Morewood Ave	Yes	19/19	15/11
Forbes Ave & Craig St.	Yes	23/23	13 /17
Forbes Ave & Hamburg Hall	Yes	17/17	12/9
Forbes Ave & Morewood Ave	Yes	22/22	18 (All Pedestrian Phase)
Forbes Ave & Beeler St.	Yes	22/17	19/14
Forbes Ave & Margaret Morrison St.	No	[9]N/A	11/13

[9]Includes both "Walk" and "Don't Walk" times as indicated on the City of Pittsburgh Traffic Signal Timing summary sheets.

[10]Pedestrian indications "walk/don't walk" and timings currently do not exist at these intersections. Pedestrian movements are controlled by smaller 8" vehicular signals and timings are from vehicle phasing times.

[11]Does not include the minimum 7 second "Walk" time required as indicated in MUTCD 2009.

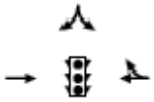
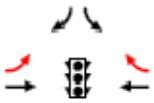
The following list summarizes the recommended signal timing and hardware changes to enhance pedestrian operations:

- All signals should provide adequate pedestrian clearance based on the values in Table 3.
- All study intersections should have pedestrian signal heads on each approach to improve pedestrian safety.
- The exclusive pedestrian phase at Forbes Ave./Morewood Ave. should be retained due to the very high pedestrian volumes and the high volume of turning vehicles.
- All other exclusive pedestrian phases within the study area should be removed.
- Leading pedestrian intervals (LPI's) should be installed at all study intersections (with the exception of Forbes Ave./Morewood Ave.) for all pedestrian movements. These movements should be prioritized for LPI's due to the potential for conflicts between pedestrians and traffic turning from side streets onto Fifth Avenue and Forbes Avenue.
- All of the above recommendations will be incorporated into Immediate Action Item 1 – Upgrade of All Signals.

<u>The Forbes Avenue Road Diet, Immediate Action Item 2</u>

During the multiple field visits to the study area, it was noted and reported in the existing conditions report that Forbes Avenue is particularly wide and may have excess capacity given the current volume of traffic on the roadway. A "road diet" was considered and analyzed in Synchro on Forbes Ave., assuming one (1) through lane in each direction along the corridor. Such a lane reduction would provide space on the roadway to create dedicated bike facilities, meeting one of the key desires of stakeholders. 0 summarizes the operations of the intersections on Forbes Avenue with the proposed road diet, and shows that all study intersections would continue to operate under capacity, in most cases well under capacity, in both the AM and PM peak periods.

Table 4 Operations of Forbes Avenue with the Forbes Road Diet in the AM and PM Peak Hour

Intersection	New Lane Configuration	v/c Ratio	LOS
Forbes Ave & Craig St.			
AM		0.72	C
PM		0.92	D
Forbes Ave & Hamburg Hall			
AM		0.53	A
PM		0.83	B
Forbes Ave & Morewood Ave			
AM		1.14	F
PM		0.81	C
Forbes Ave & Beeler St.			
AM		0.91	D
PM		0.71	C
Forbes Ave & Margaret Morrison			
AM		0.66	B
PM		0.66	B

*Red lane movements are lanes that require 100 ft. of storage.

Figure 4 shows the proposed lane configurations with the recommended changes, including the Forbes Ave road diet and changes to pedestrian operations. Figure 5 and Figure 6 show the intersection operations with the proposed changes.

The proposed lane configurations and operations shown in 0 do not include any modifications to the existing signal equipment. As indicated in Table 4, the Forbes Ave./ Morewood Ave. intersection will fail in the AM peak period with the Forbes Ave. Road Diet. Further analysis, however, show that this could be mitigated by installing a southbound right-turn overlap phase at Forbes Ave./Morewood Ave., which would require installing a new signal head for southbound right-turning vehicles. This modification in the signal equipment would allow the Forbes Ave. Road Diet to operate at an acceptable level. This requirement could be incorporated as part of the Forbes Avenue road diet or be incorporated as a stand-alone signal upgrade project at Morewood Avenue along with the Forbes Avenue road diet improvements on a separate intersection under Immediate Action Item 1.

In addition, there is no reason from a pure capacity standpoint why Craig Street requires two (2) westbound through lanes. However, operationally, as relocation of the bus stop is not anticipated at this time, we feel the two-lane approach for westbound Forbes Avenue at Craig Street will minimize various delays at this intersection due to the high volume of bus roadways at this intersection. Four (4) bus systems operate at this intersection, Port Authority, and the CMU, Pitt, and Chatham shuttle services all utilizing the nearside stop. Additionally, reducing to one (1) through lane would require installation of a new mast arm to place the signal heads over the center travel lane rather than the curbside lane. By direct observations, significant pedestrian movements often delay turning vehicles, therefore the Forbes Avenue westbound approach to Craig Street will remain two-lanes.

Other options

Fifth Avenue Road Diet

In addition to the recommended changes described above, several other alternative changes were also considered but dismissed as infeasible or inappropriate. In particular, a road diet on Fifth Avenue was also considered. Similar to the Forbes Avenue road diet, this would reduce Fifth Avenue to one (1) lane in each direction, with a few intersections requiring a turning lane with storage. Table 5 shows that under this scenario most of the intersections on Fifth Avenue would fail or exceed capacity with a road diet. This is largely due to the high volume of traffic on Fifth Avenue during the AM and PM peak hours.

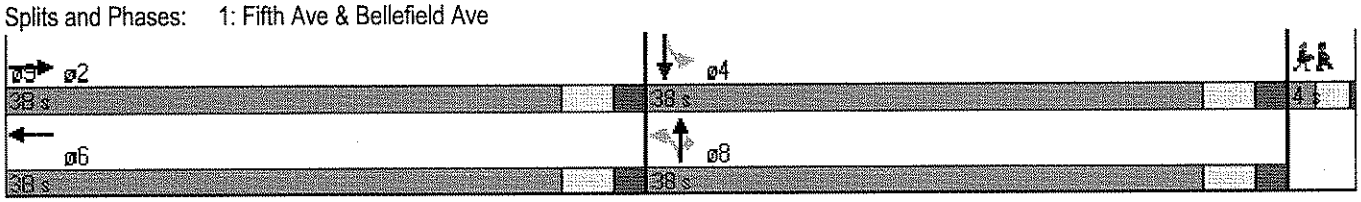
Table 5 Summary of Operations for Fifth Ave Road Diet

Intersection	Operations				
	Time Period	V/C Ratio		LOS	
		Existing	w/Road Diet	Existing	w/ Road Diet
Fifth Ave./ Bellefield Ave.	AM	1.15	1.41	F	F
	PM	0.82	1.15	C	F
Fifth Ave./ Dithridge St.	AM	0.56	1.07	F	F
	PM	0.56	1.35	F	F
Fifth Ave./ Craig St.	AM	1.27	1.30	C	F
	PM	0.95	1.65	C	F
Fifth Ave./ Neville St.	AM	0.85	1.22	E	F
	PM	0.74	1.27	C	F
Fifth Ave./ Morewood Ave	AM	0.65	0.97	E	D
	PM	0.96	1.66	C	F

Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT	ø9
Lane Configurations								
Volume (vph)	36	897	262	185	397	175	0	
Turn Type			Perm		Perm	Perm		
Protected Phases	2	6		8			4	9
Permitted Phases			8		8	4		
Detector Phase	2	6	8	8	8	4	4	
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	1.5
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0	38.0	38.0	4.0
Total Split (s)	38.0	38.0	38.0	38.0	38.0	38.0	38.0	4.0
Total Split (%)	47.5%	47.5%	47.5%	47.5%	47.5%	47.5%	47.5%	5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.5
Lost Time Adjust (s)	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	
Total Lost Time (s)	3.4	3.4	3.4	3.4	3.4	3.4	3.4	
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	34.6	34.6	34.6	34.6	34.6		34.6	
Actuated g/C Ratio	0.43	0.43	0.43	0.43	0.43		0.43	
v/c Ratio	0.12	0.77	0.99	0.49	0.51		0.89	
Control Delay	14.7	25.2	73.2	19.5	20.5		46.6	
Queue Delay	0.0	0.3	0.0	0.0	0.0		0.0	
Total Delay	14.7	25.5	73.2	19.5	20.5		46.6	
LOS	B	C	E	B	C		D	
Approach Delay	14.7	25.5		39.2			46.6	
Approach LOS	B	C		D			D	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 35 (44%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Pretimed	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 33.8	Intersection LOS: C
Intersection Capacity Utilization 88.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Fifth Ave & Bellefield Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	36	0	0	897	34	262	185	397	175	0	106
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.4			3.4		3.4	3.4	3.4		3.4	
Lane Util. Factor		1.00			0.95		1.00	0.95	0.95		1.00	
Frpb, ped/bikes		1.00			0.98		1.00	0.99	0.96		0.91	
Flpb, ped/bikes		1.00			1.00		0.89	1.00	1.00		0.99	
Frt		1.00			0.99		1.00	0.94	0.85		0.94	
Flt Protected		1.00			1.00		0.95	1.00	1.00		0.97	
Satd. Flow (prot)		921			3093		1340	1516	1322		1432	
Flt Permitted		1.00			1.00		0.57	1.00	1.00		0.53	
Satd. Flow (perm)		921			3093		803	1516	1322		779	
Peak-hour factor, PHF	0.94	0.75	0.25	1.00	0.91	0.78	0.76	0.95	0.95	0.92	0.25	0.76
Adj. Flow (vph)	0	48	0	0	986	44	345	195	418	190	0	139
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	32	0
Lane Group Flow (vph)	0	48	0	0	1030	0	345	320	293	0	297	0
Confl. Peds. (#/hr)	240		280	280		240	245		31	31		245
Confl. Bikes (#/hr)			14			9						7
Heavy Vehicles (%)	0%	90%	0%	0%	5%	1%	11%	1%	3%	1%	0%	2%
Turn Type							Perm		Perm	Perm		
Protected Phases		2			6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)		33.0			33.0		33.0	33.0	33.0		33.0	
Effective Green, g (s)		34.6			34.6		34.6	34.6	34.6		34.6	
Actuated g/C Ratio		0.43			0.43		0.43	0.43	0.43		0.43	
Clearance Time (s)		5.0			5.0		5.0	5.0	5.0		5.0	
Lane Grp Cap (vph)		398			1338		347	656	572		337	
v/s Ratio Prot		0.05			c0.33			0.21				
v/s Ratio Perm							c0.43		0.22		0.38	
v/c Ratio		0.12			0.77		0.99	0.49	0.51		0.88	
Uniform Delay, d1		13.6			19.3		22.6	16.3	16.5		20.8	
Progression Factor		1.00			1.10		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.6			3.5		46.9	2.6	3.3		26.4	
Delay (s)		14.2			24.7		69.5	18.9	19.8		47.2	
Level of Service		B			C		E	B	B		D	
Approach Delay (s)		14.2			24.7			37.4			47.2	
Approach LOS		B			C			D			D	

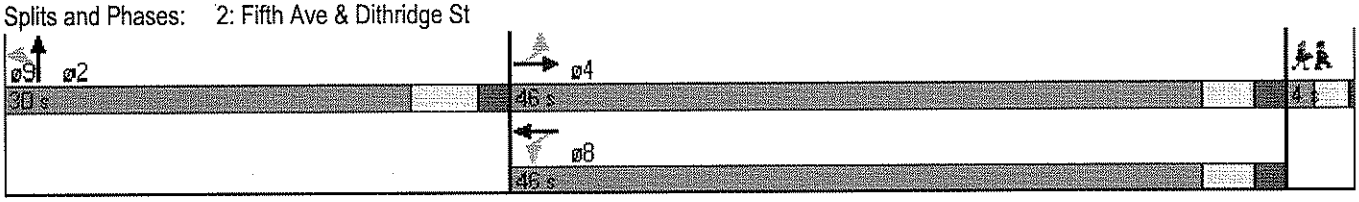
Intersection Summary			
HCM Average Control Delay	32.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.8
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	ø9
Lane Configurations							
Volume (vph)	15	529	14	813	118	83	
Turn Type	Perm		Perm		Perm		
Protected Phases		4		8		2	9
Permitted Phases	4		8		2		
Detector Phase	4	4	8	8	2	2	
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	1.5
Minimum Split (s)	33.0	33.0	33.0	33.0	29.0	29.0	4.0
Total Split (s)	46.0	46.0	46.0	46.0	30.0	30.0	4.0
Total Split (%)	57.5%	57.5%	57.5%	57.5%	37.5%	37.5%	5%
Yellow Time (s)	3.0	3.0	3.0	3.0	4.0	4.0	2.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	0.5
Lost Time Adjust (s)	-1.6	-1.6	-1.6	-1.6	-0.8	-0.8	
Total Lost Time (s)	3.4	3.4	3.4	3.4	5.2	5.2	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)		42.6		42.6	24.8	24.8	
Actuated g/C Ratio		0.53		0.53	0.31	0.31	
v/c Ratio		0.44		0.64	0.30	0.57	
Control Delay		22.8		24.4	23.2	20.5	
Queue Delay		0.0		0.5	0.0	0.0	
Total Delay		22.8		24.9	23.2	20.5	
LOS		C		C	C	C	
Approach Delay		22.8		24.9		21.4	
Approach LOS		C		C		C	

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 46 (58%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 70
Control Type: Pretimed
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 23.5 Intersection LOS: C
Intersection Capacity Utilization 63.1% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 2: Fifth Ave & Dithridge St



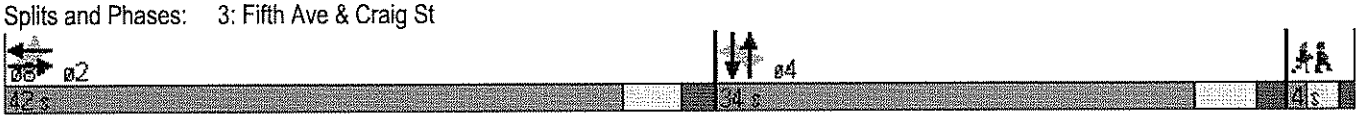
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	529	24	14	813	24	118	83	154	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.4			3.4		5.2	5.2				
Lane Util. Factor		0.95			0.95		1.00	1.00				
Frpb, ped/bikes		0.98			0.99		1.00	0.96				
Flpb, ped/bikes		1.00			1.00		0.92	1.00				
Frt		0.99			1.00		1.00	0.91				
Flt Protected		1.00			1.00		0.95	1.00				
Satd. Flow (prot)		2984			3128		1497	1502				
Flt Permitted		0.90			0.93		0.95	1.00				
Satd. Flow (perm)		2677			2920		1497	1502				
Peak-hour factor, PHF	0.61	0.93	0.75	0.59	0.86	0.80	0.85	0.67	0.88	0.25	0.75	0.25
Adj. Flow (vph)	25	569	32	24	945	30	139	124	175	0	0	0
RTOR Reduction (vph)	0	5	0	0	3	0	0	63	0	0	0	0
Lane Group Flow (vph)	0	621	0	0	996	0	139	236	0	0	0	0
Confl. Peds. (#/hr)	173		166	166		173	78		49	49		78
Confl. Bikes (#/hr)			29			2						
Heavy Vehicles (%)	5%	9%	1%	2%	5%	1%	2%	3%	2%	0%	0%	0%
Turn Type	Perm			Perm			Perm					
Protected Phases		4			8			2				
Permitted Phases	4			8			2					
Actuated Green, G (s)		41.0			41.0		24.0	24.0				
Effective Green, g (s)		42.6			42.6		24.8	24.8				
Actuated g/C Ratio		0.53			0.53		0.31	0.31				
Clearance Time (s)		5.0			5.0		6.0	6.0				
Lane Grp Cap (vph)		1426			1555		464	466				
v/s Ratio Prot								c0.16				
v/s Ratio Perm		0.23			c0.34		0.09					
v/c Ratio		0.44			0.64		0.30	0.51				
Uniform Delay, d1		11.4			13.3		21.0	22.6				
Progression Factor		1.93			1.68		1.00	1.00				
Incremental Delay, d2		0.8			1.6		1.7	3.9				
Delay (s)		22.7			23.9		22.6	26.5				
Level of Service		C			C		C	C				
Approach Delay (s)		22.7			23.9			25.3			0.0	
Approach LOS		C			C			C			A	

Intersection Summary			
HCM Average Control Delay	23.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.6
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	ø8
Lane Configurations									
Volume (vph)	18	647	27	682	59	145	107	121	
Turn Type	Perm		Perm		Perm		Perm		
Protected Phases		2		2		4		4	8
Permitted Phases	2		2		4		4		
Detector Phase	2	2	2	2	4	4	4	4	
Switch Phase									
Minimum Initial (s)	25.0	25.0	25.0	25.0	14.0	14.0	14.0	14.0	1.0
Minimum Split (s)	35.0	35.0	35.0	35.0	31.0	31.0	31.0	31.0	4.0
Total Split (s)	42.0	42.0	42.0	42.0	34.0	34.0	34.0	34.0	4.0
Total Split (%)	52.5%	52.5%	52.5%	52.5%	42.5%	42.5%	42.5%	42.5%	5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)		36.5		36.5	28.5	28.5	28.5	28.5	
Actuated g/C Ratio		0.46		0.46	0.36	0.36	0.36	0.36	
v/c Ratio		0.60		0.71	0.25	0.58	0.45	0.56	
Control Delay		19.0		14.2	21.2	26.4	26.5	26.1	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		19.0		14.2	21.2	26.4	26.5	26.1	
LOS		B		B	C	C	C	C	
Approach Delay		19.0		14.2		25.5		26.2	
Approach LOS		B		B		C		C	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 0 (0%), Referenced to phase 2:EBWB and 6:, Start of Green	
Natural Cycle: 70	
Control Type: Pretimed	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 19.5	Intersection LOS: B
Intersection Capacity Utilization 90.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Fifth Ave & Craig St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	18	647	18	27	682	55	59	145	135	107	121	110
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			0.98		1.00	0.93		1.00	0.92	
Flpb, ped/bikes		1.00			1.00		0.90	1.00		0.92	1.00	
Frt		1.00			0.99		1.00	0.93		1.00	0.93	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		2994			3040		1459	1438		1472	1380	
Flt Permitted		0.90			0.86		0.51	1.00		0.48	1.00	
Satd. Flow (perm)		2713			2631		786	1438		747	1380	
Peak-hour factor, PHF	0.70	0.93	0.75	0.54	0.92	0.90	0.86	0.94	0.94	0.89	0.85	0.83
Adj. Flow (vph)	26	696	24	50	741	61	69	154	144	120	142	133
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	746	0	0	852	0	69	298	0	120	275	0
Confl. Peds. (#/hr)	137		59	59		137	159		138	138		159
Confl. Bikes (#/hr)						10			3			1
Heavy Vehicles (%)	33%	9%	5%	3%	6%	6%	3%	7%	3%	4%	5%	12%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		36.5			36.5		28.5	28.5		28.5	28.5	
Effective Green, g (s)		36.5			36.5		28.5	28.5		28.5	28.5	
Actuated g/C Ratio		0.46			0.46		0.36	0.36		0.36	0.36	
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)		1238			1200		280	512		266	492	
v/s Ratio Prot								c0.21			0.20	
v/s Ratio Perm		0.27			c0.32		0.09			0.16		
v/c Ratio		0.60			0.71		0.25	0.58		0.45	0.56	
Uniform Delay, d1		16.3			17.5		18.2	20.9		19.8	20.7	
Progression Factor		1.02			0.66		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.0			2.2		2.1	4.8		5.4	4.5	
Delay (s)		18.6			13.8		20.3	25.7		25.2	25.2	
Level of Service		B			B		C	C		C	C	
Approach Delay (s)		18.6			13.8			24.7			25.2	
Approach LOS		B			B			C			C	

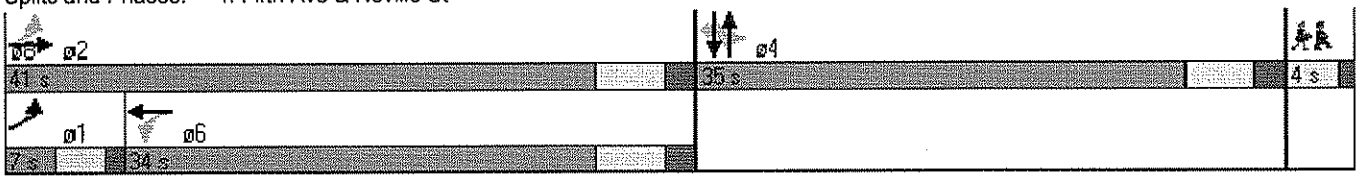
Intersection Summary			
HCM Average Control Delay	18.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	90.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR	ø8
Lane Configurations										
Volume (vph)	135	744	60	577	6	140	92	99	181	
Turn Type	pm+pt		Perm		Perm		Perm		Perm	
Protected Phases	1	2		6		4		4		8
Permitted Phases	2		6		4		4		4	
Detector Phase	1	2	6	6	4	4	4	4	4	
Switch Phase										
Minimum Initial (s)	4.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	1.0
Minimum Split (s)	8.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	5.0
Total Split (s)	7.0	41.0	34.0	34.0	35.0	35.0	35.0	35.0	35.0	4.0
Total Split (%)	8.8%	51.3%	42.5%	42.5%	43.8%	43.8%	43.8%	43.8%	43.8%	5%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.8	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	0.8	
Total Lost Time (s)	4.8	4.4	4.4	4.4	4.4	4.4	4.4	4.4	6.8	
Lead/Lag	Lead		Lag	Lag						
Lead-Lag Optimize?	Yes		Yes	Yes						
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)		36.6		29.6		30.6		30.6	28.2	
Actuated g/C Ratio		0.46		0.37		0.38		0.38	0.35	
v/c Ratio		1.13		0.86		0.59		0.59	0.49	
Control Delay		91.2		45.7		24.6		27.0	24.9	
Queue Delay		0.0		0.0		0.0		0.0	0.0	
Total Delay		91.2		45.7		24.6		27.0	24.9	
LOS		F		D		C		C	C	
Approach Delay		91.2		45.7		24.6		26.0		
Approach LOS		F		D		C		C		

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green
Natural Cycle: 85
Control Type: Pretimed
Maximum v/c Ratio: 1.13
Intersection Signal Delay: 57.2 — Intersection LOS: E
Intersection Capacity Utilization 106.6% — ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 4: Fifth Ave & Neville St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	744	10	60	577	39	6	140	155	92	99	181
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.4			4.4			4.4			4.4	6.8
Lane Util. Factor		0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes		1.00			0.99			0.97			1.00	0.95
Flpb, ped/bikes		1.00			1.00			1.00			0.99	1.00
Frt		1.00			0.99			0.94			1.00	0.85
Flt Protected		0.99			1.00			1.00			0.98	1.00
Satd. Flow (prot)		3083			3145			1578			1618	1286
Flt Permitted		0.60			0.74			0.98			0.63	1.00
Satd. Flow (perm)		1878			2354			1553			1040	1286
Peak-hour factor, PHF	0.82	0.90	0.58	0.80	0.92	0.77	0.38	0.84	0.94	0.79	0.84	0.81
Adj. Flow (vph)	165	827	17	75	627	51	16	167	165	116	118	223
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1009	0	0	753	0	0	348	0	0	234	223
Confl. Peds. (#/hr)	103		60	60		103	38		64	64		38
Confl. Bikes (#/hr)						8			1			5
Heavy Vehicles (%)	17%	4%	0%	0%	3%	2%	0%	0%	0%	8%	0%	10%
Turn Type	pm+pt			Perm			Perm			Perm		Perm
Protected Phases	1	2			6			4			4	
Permitted Phases	2			6			4			4		4
Actuated Green, G (s)		39.0			32.0			29.0			29.0	29.0
Effective Green, g (s)		40.6			33.6			30.6			30.6	28.2
Actuated g/C Ratio		0.51			0.42			0.38			0.38	0.35
Clearance Time (s)		6.0			6.0			6.0			6.0	6.0
Lane Grp Cap (vph)		1022			989			594			398	453
v/s Ratio Prot		c0.06										
v/s Ratio Perm		0.44			c0.32			0.22			c0.23	0.17
v/c Ratio		0.99			0.76			0.59			0.59	0.49
Uniform Delay, d1		19.4			19.8			19.7			19.7	20.3
Progression Factor		0.92			1.67			1.00			1.00	1.00
Incremental Delay, d2		23.0			2.8			4.2			6.2	3.8
Delay (s)		40.9			35.8			23.8			25.9	24.1
Level of Service		D			D			C			C	C
Approach Delay (s)		40.9			35.8			23.8			25.0	
Approach LOS		D			D			C			C	

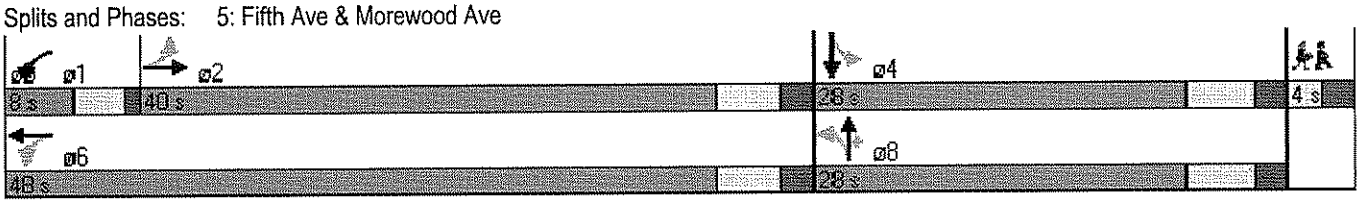
Intersection Summary			
HCM Average Control Delay	34.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	106.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	ø9
Lane Configurations										
Volume (vph)	23	933	79	723	37	248	289	77	257	
Turn Type	Perm		pm+pt		Perm		Perm	Perm		
Protected Phases		2	1	6		8			4	9
Permitted Phases	2		6		8		8	4		
Detector Phase	2	2	1	6	8	8	8	4	4	
Switch Phase										
Minimum Initial (s)	15.0	15.0	4.0	15.0	7.0	7.0	7.0	7.0	7.0	1.0
Minimum Split (s)	40.0	40.0	8.0	45.0	29.0	29.0	29.0	29.0	29.0	5.0
Total Split (s)	40.0	40.0	8.0	48.0	28.0	28.0	28.0	28.0	28.0	4.0
Total Split (%)	50.0%	50.0%	10.0%	60.0%	35.0%	35.0%	35.0%	35.0%	35.0%	5%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	2.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.6	-1.6	0.0	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	
Total Lost Time (s)	4.4	4.4	4.0	4.4	4.4	4.4	4.4	4.4	4.4	
Lead/Lag	Lag	Lag	Lead							
Lead-Lag Optimize?	Yes	Yes	Yes							
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)		35.6		43.6		23.6	23.6	23.6	23.6	
Actuated g/C Ratio		0.44		0.54		0.30	0.30	0.30	0.30	
v/c Ratio		0.94		0.86		0.94	0.67	0.64	0.64	
Control Delay		35.9		24.0		63.3	21.5	47.2	30.2	
Queue Delay		0.0		0.0		0.0	0.0	0.0	0.0	
Total Delay		35.9		24.0		63.3	21.5	47.2	30.2	
LOS		D		C		E	C	D	C	
Approach Delay		35.9		24.0		44.1			34.1	
Approach LOS		D		C		D			C	

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 85
Control Type: Pretimed
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 33.6 Intersection LOS: C
Intersection Capacity Utilization 109.2% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 5: Fifth Ave & Morewood Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	933	78	79	723	111	37	248	289	77	257	40
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.4			4.4			4.4	4.4	4.4	4.4	
Lane Util. Factor		0.95			0.95			1.00	1.00	1.00	1.00	
Frpb, ped/bikes		0.98			0.99			1.00	0.83	1.00	0.98	
Flpb, ped/bikes		1.00			1.00			0.99	1.00	0.93	1.00	
Frt		0.99			0.98			1.00	0.85	1.00	0.97	
Flt Protected		1.00			1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)		3115			3158			1694	1220	1536	1665	
Flt Permitted		0.89			0.66			0.77	1.00	0.31	1.00	
Satd. Flow (perm)		2766			2097			1319	1220	506	1665	
Peak-hour factor, PHF	0.63	0.92	0.68	0.89	0.87	0.93	0.71	0.79	0.93	0.81	0.97	0.75
Adj. Flow (vph)	37	1014	115	89	831	119	52	314	311	95	265	53
RTOR Reduction (vph)	0	10	0	0	11	0	0	0	101	0	9	0
Lane Group Flow (vph)	0	1156	0	0	1028	0	0	366	210	95	309	0
Confl. Peds. (#/hr)	34		72	72		34	59		115	115		59
Confl. Bikes (#/hr)						6			17			10
Heavy Vehicles (%)	3%	2%	13%	2%	2%	1%	2%	2%	1%	1%	1%	0%
Turn Type	Perm			pm+pt			Perm		Perm	Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)		38.0			46.0			22.0	22.0	22.0	22.0	
Effective Green, g (s)		39.6			47.6			23.6	23.6	23.6	23.6	
Actuated g/C Ratio		0.50			0.60			0.30	0.30	0.30	0.30	
Clearance Time (s)		6.0			6.0			6.0	6.0	6.0	6.0	
Lane Grp Cap (vph)		1369			1322			389	360	149	491	
v/s Ratio Prot					c0.05						0.19	
v/s Ratio Perm		c0.42			0.41			c0.28	0.17	0.19		
v/c Ratio		0.84			0.78			0.94	0.58	0.64	0.63	
Uniform Delay, d1		17.5			12.2			27.5	24.0	24.5	24.4	
Progression Factor		1.38			1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2		2.4			4.6			32.9	6.8	19.0	6.0	
Delay (s)		26.6			16.8			60.4	30.8	43.5	30.4	
Level of Service		C			B			E	C	D	C	
Approach Delay (s)		26.6			16.8			46.8			33.4	
Approach LOS		C			B			D			C	

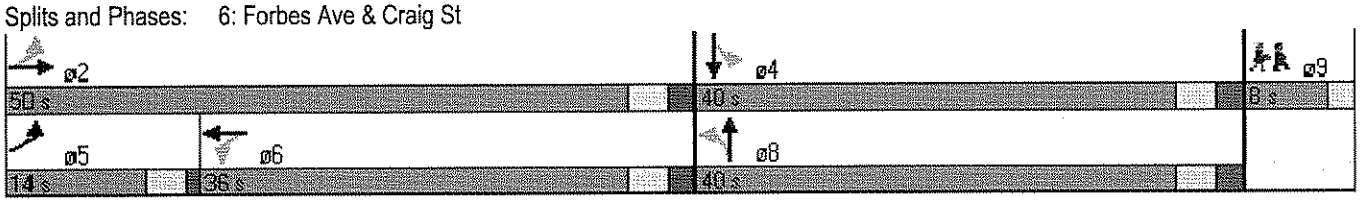
Intersection Summary			
HCM Average Control Delay	28.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	109.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	ø9
Lane Configurations									
Volume (vph)	165	685	4	179	34	70	164	10	
Turn Type	pm+pt		Perm		Perm		Perm		
Protected Phases	5	2		6		8		4	9
Permitted Phases	2		6		8		4		
Detector Phase	5	2	6	6	8	8	4	4	
Switch Phase									
Minimum Initial (s)	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	50.0	30.0	30.0	33.0	33.0	33.0	33.0	8.0
Total Split (s)	14.0	50.0	36.0	36.0	40.0	40.0	40.0	40.0	8.0
Total Split (%)	14.3%	51.0%	36.7%	36.7%	40.8%	40.8%	40.8%	40.8%	8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
Lost Time Adjust (s)	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead		Lag	Lag					
Lead-Lag Optimize?									
Recall Mode	Max	C-Max	C-Max	C-Max	Min	Min	Min	Min	None
Act Effct Green (s)	54.0	54.0		32.0	36.0	36.0		36.0	
Actuated g/C Ratio	0.55	0.55		0.33	0.37	0.37		0.37	
v/c Ratio	0.36	0.86		0.42	0.18	0.45		1.02	
Control Delay	13.4	30.3		27.9	22.8	18.5		91.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	13.4	30.3		27.9	22.8	18.5		91.5	
LOS	B	C		C	C	B		F	
Approach Delay		27.1		27.9		19.5		91.5	
Approach LOS		C		C		B		F	

Intersection Summary

Cycle Length: 98
Actuated Cycle Length: 98
Offset: 20 (20%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 35.8 Intersection LOS: D
Intersection Capacity Utilization 110.1% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 6: Forbes Ave & Craig St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	165	685	13	4	179	84	34	70	81	164	10	41
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00			0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.99			0.83		1.00	0.73			0.95	
Flpb, ped/bikes	0.88	1.00			1.00		0.89	1.00			0.77	
Frt	1.00	1.00			0.95		1.00	0.92			0.97	
Flt Protected	0.95	1.00			1.00		0.95	1.00			0.97	
Satd. Flow (prot)	1416	1648			2404		1460	1152			1156	
Flt Permitted	0.46	1.00			0.94		0.63	1.00			0.59	
Satd. Flow (perm)	682	1648			2257		962	1152			702	
Peak-hour factor, PHF	0.91	0.90	0.71	0.56	0.86	0.88	0.54	0.75	0.70	0.84	0.55	0.68
Adj. Flow (vph)	181	761	18	7	208	95	63	93	116	195	18	60
RTOR Reduction (vph)	0	0	0	0	0	0	0	46	0	0	10	0
Lane Group Flow (vph)	181	779	0	0	310	0	63	163	0	0	263	0
Confl. Peds. (#/hr)	260		144	144		260	170		235	235		170
Confl. Bikes (#/hr)						8			10			1
Heavy Vehicles (%)	3%	5%	1%	1%	14%	1%	1%	1%	1%	1%	1%	12%
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	53.0	53.0			31.0		35.0	35.0			35.0	
Effective Green, g (s)	53.0	54.0			32.0		36.0	36.0			36.0	
Actuated g/C Ratio	0.54	0.55			0.33		0.37	0.37			0.37	
Clearance Time (s)	4.0	5.0			5.0		5.0	5.0			5.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	504	908			737		353	423			258	
v/s Ratio Prot	0.07	c0.47						0.14				
v/s Ratio Perm	0.13				0.14		0.07				c0.37	
v/c Ratio	0.36	0.86			0.42		0.18	0.39			1.02	
Uniform Delay, d1	12.1	18.7			25.8		21.0	22.9			31.0	
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2	2.0	10.3			1.8		0.2	0.6			61.0	
Delay (s)	14.1	29.0			27.5		21.2	23.4			92.0	
Level of Service	B	C			C		C	C			F	
Approach Delay (s)		26.2			27.5			22.9			92.0	
Approach LOS		C			C			C			F	

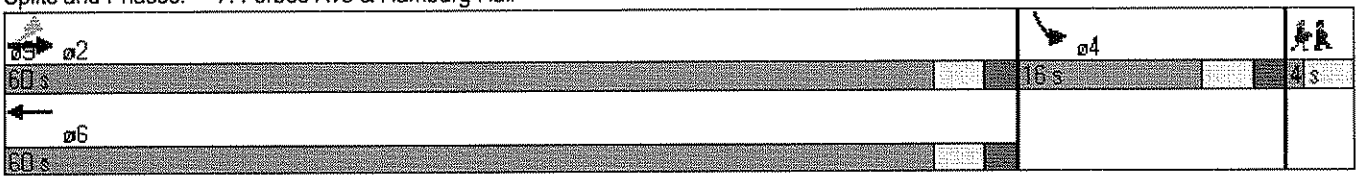
Intersection Summary			
HCM Average Control Delay	35.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	98.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	110.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	SBL	ø9
Lane Configurations					
Volume (vph)	1	943	252	64	
Turn Type	Perm				
Protected Phases		2	6	4	9
Permitted Phases	2				
Detector Phase	2	2	6	4	
Switch Phase					
Minimum Initial (s)	30.0	30.0	30.0	7.0	1.0
Minimum Split (s)	35.0	35.0	35.0	16.0	4.0
Total Split (s)	60.0	60.0	60.0	16.0	4.0
Total Split (%)	75.0%	75.0%	75.0%	20.0%	5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	Max	Max	Max	None	None
Act Effct Green (s)	59.9	59.9	59.9	10.9	
Actuated g/C Ratio	0.79	0.79	0.79	0.14	
v/c Ratio	0.01	0.84	0.23	0.54	
Control Delay	3.0	15.6	3.4	39.1	
Queue Delay	0.0	0.0	0.0	0.0	
Total Delay	3.0	15.6	3.4	39.1	
LOS	A	B	A	D	
Approach Delay		15.5	3.4	39.1	
Approach LOS		B	A	D	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 75.5	
Natural Cycle: 80	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 15.1	Intersection LOS: B
Intersection Capacity Utilization 43.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 7: Forbes Ave & Hamburg Hall



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	1	943	252	0	64	36
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	0.95	0.95	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	1.00		0.98	
Flpb, ped/bikes	0.92	1.00	1.00		1.00	
Frt	1.00	1.00	1.00		0.95	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1446	1583	1606		1588	
Flt Permitted	0.58	1.00	1.00		0.97	
Satd. Flow (perm)	881	1583	1606		1588	
Peak-hour factor, PHF	0.25	0.90	0.85	0.25	0.80	0.82
Adj. Flow (vph)	4	1048	296	0	80	44
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	4	1048	296	0	124	0
Confl. Peds. (#/hr)	139			139	156	14
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	0%	5%	9%	0%	0%	0%
Turn Type	Perm					
Protected Phases		2	6		4	
Permitted Phases	2					
Actuated Green, G (s)	58.0	58.0	58.0		8.4	
Effective Green, g (s)	59.0	59.0	59.0		9.4	
Actuated g/C Ratio	0.77	0.77	0.77		0.12	
Clearance Time (s)	5.0	5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	680	1222	1240		195	
v/s Ratio Prot			0.18		c0.08	
v/s Ratio Perm	0.00	0.66				
v/c Ratio	0.01	0.86	0.24		0.64	
Uniform Delay, d1	2.0	5.9	2.4		31.9	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.0	7.9	0.5		6.6	
Delay (s)	2.0	13.8	2.9		38.5	
Level of Service	A	B	A		D	
Approach Delay (s)		13.7	2.9		38.5	
Approach LOS		B	A		D	

Intersection Summary			
HCM Average Control Delay	13.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	76.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		

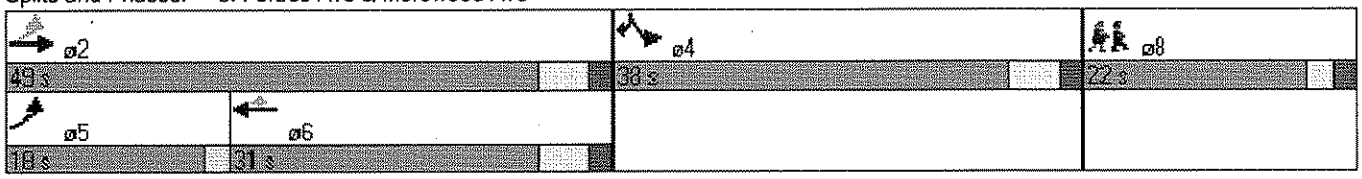
c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø8
Lane Configurations							
Volume (vph)	292	630	265	161	419	79	
Turn Type	pm+pt			Perm		custom	
Protected Phases	5	2	6		4	4	8
Permitted Phases	2			6		4	
Detector Phase	5	2	6	6	4	4	
Switch Phase							
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	4.0
Minimum Split (s)	16.0	16.5	16.5	16.5	38.0	38.0	22.0
Total Split (s)	18.0	49.0	31.0	31.0	38.0	38.0	22.0
Total Split (%)	16.5%	45.0%	28.4%	28.4%	34.9%	34.9%	20%
Yellow Time (s)	2.0	4.0	4.0	4.0	4.0	4.0	2.0
All-Red Time (s)	0.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	1.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?	Yes		Yes	Yes			
Recall Mode	None	Min	Min	Min	None	None	None
Act Effct Green (s)	46.1	43.0	25.0	25.0	30.5	30.5	
Actuated g/C Ratio	0.54	0.50	0.29	0.29	0.36	0.36	
v/c Ratio	0.66	0.83	0.62	0.58	0.78	0.20	
Control Delay	18.9	29.0	33.4	34.1	35.5	20.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	18.9	29.0	33.4	34.1	35.5	20.1	
LOS	B	C	C	C	D	C	
Approach Delay		25.7	33.7		32.8		
Approach LOS		C	C		C		

Intersection Summary

Cycle Length: 109
Actuated Cycle Length: 85.6
Natural Cycle: 105
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 29.5 — Intersection LOS: C
Intersection Capacity Utilization 71.2% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 8: Forbes Ave & Morewood Ave



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	292	630	265	161	419	79
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.86	1.00	1.00
Flpb, ped/bikes	0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1606	1667	1651	1259	1646	1390
Flt Permitted	0.38	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	645	1667	1651	1259	1646	1390
Peak-hour factor, PHF	0.87	0.91	0.88	0.78	0.91	0.81
Adj. Flow (vph)	336	692	301	206	460	98
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	336	692	301	206	460	98
Confl. Peds. (#/hr)	69			69	174	763
Confl. Bikes (#/hr)				1		3
Heavy Vehicles (%)	2%	5%	6%	2%	1%	7%
Turn Type	pm+pt			Perm		custom
Protected Phases	5	2	6		4	4
Permitted Phases	2			6		4
Actuated Green, G (s)	43.0	43.0	25.0	25.0	30.5	30.5
Effective Green, g (s)	42.0	43.0	25.0	25.0	30.5	30.5
Actuated g/C Ratio	0.49	0.50	0.29	0.29	0.36	0.36
Clearance Time (s)	2.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	485	838	483	368	587	496
v/s Ratio Prot	0.12	c0.42	0.18		c0.28	0.07
v/s Ratio Perm	0.22			0.16		
v/c Ratio	0.69	0.83	0.62	0.56	0.78	0.20
Uniform Delay, d1	14.7	18.1	26.2	25.6	24.6	19.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.6	7.0	2.8	2.3	7.2	0.3
Delay (s)	19.3	25.1	29.0	27.9	31.7	19.3
Level of Service	B	C	C	C	C	B
Approach Delay (s)		23.2	28.5		29.5	
Approach LOS		C	C		C	

Intersection Summary				
HCM Average Control Delay	26.2	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.81			
Actuated Cycle Length (s)	85.5	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	71.2%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NEL	NET	SWL	SWT
Lane Configurations								
Volume (vph)	185	829	1	340	16	33	38	0
Turn Type	D.P+P		Perm		Perm		Perm	
Protected Phases	9	2 9		2		4		4
Permitted Phases	2		2		4		4	
Detector Phase	9	2 9	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	1.5		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	5.5		41.0	41.0	20.0	20.0	20.0	20.0
Total Split (s)	5.5	60.5	55.0	55.0	27.5	27.5	27.5	27.5
Total Split (%)	6.3%	68.8%	62.5%	62.5%	31.3%	31.3%	31.3%	31.3%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total Lost Time (s)	4.0	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max		Max	Max	Max	Max	Max	Max
Act Effct Green (s)	52.5	49.5	49.5	49.5		22.0		22.0
Actuated g/C Ratio	0.60	0.56	0.56	0.56		0.25		0.25
v/c Ratio	0.56	0.92	0.01	0.50		0.34		0.32
Control Delay	15.9	34.8	9.0	13.5		16.4		14.6
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	15.9	34.8	9.0	13.5		16.4		14.6
LOS	B	C	A	B		B		B
Approach Delay		30.8		13.5		16.4		14.6
Approach LOS		C		B		B		B

Intersection Summary	
Cycle Length: 88	
Actuated Cycle Length: 88	
Offset: 56 (64%), Referenced to phase 2:EBWB and 6:, Start of Green	
Natural Cycle: 70	
Control Type: Pretimed	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 24.4	Intersection LOS: C
Intersection Capacity Utilization 77.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 9: Forbes Ave & Beeler St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	185	829	0	1	340	54	16	33	59	38	0	66
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	5.5		5.5	5.5			5.5			5.5	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.98			0.87			0.99	
Flpb, ped/bikes	0.98	1.00		1.00	1.00			1.00			0.94	
Frt	1.00	1.00		1.00	0.98			0.92			0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.98	
Satd. Flow (prot)	1566	1699		1646	1610			1385			1415	
Flt Permitted	0.43	1.00		0.13	1.00			0.95			0.85	
Satd. Flow (perm)	702	1699		223	1610			1323			1228	
Peak-hour factor, PHF	0.78	0.94	0.25	0.67	0.89	0.75	0.80	0.89	0.82	0.88	0.50	0.93
Adj. Flow (vph)	237	882	0	1	382	72	20	37	72	43	0	71
RTOR Reduction (vph)	0	0	0	0	8	0	0	52	0	0	53	0
Lane Group Flow (vph)	237	882	0	1	446	0	0	77	0	0	61	0
Confl. Peds. (#/hr)	63		63	63		63	1		106	106		1
Confl. Bikes (#/hr)			1			3			2			
Heavy Vehicles (%)	4%	3%	1%	1%	4%	3%	1%	1%	1%	6%	0%	1%
Turn Type	D.P+P			Perm			Perm			Perm		
Protected Phases	9	2 9			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	51.5	55.5		50.0	50.0			22.5			22.5	
Effective Green, g (s)	51.5	50.5		49.5	49.5			22.0			22.0	
Actuated g/C Ratio	0.59	0.57		0.56	0.56			0.25			0.25	
Clearance Time (s)	4.0			5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	426	975		125	906			331			307	
v/s Ratio Prot	0.01	c0.52			0.28							
v/s Ratio Perm	0.32			0.00				c0.06			0.05	
v/c Ratio	0.56	0.90		0.01	0.49			0.23			0.20	
Uniform Delay, d1	13.7	16.6		8.5	11.6			26.3			26.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	5.2	13.4		0.1	1.9			1.6			1.4	
Delay (s)	18.9	30.0		8.6	13.6			27.9			27.5	
Level of Service	B	C		A	B			C			C	
Approach Delay (s)		27.6			13.5			27.9			27.5	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM Average Control Delay	24.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	88.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	NBL	NBT	SBT	SBR	ø9
Lane Configurations						
Volume (vph)	127	17	280	715	219	
Turn Type		Perm			Perm	
Protected Phases	4		2	2		9
Permitted Phases		2			2	
Detector Phase	4	2	2	2	2	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	1.0
Minimum Split (s)	23.0	26.5	26.5	26.5	26.5	4.0
Total Split (s)	23.0	60.0	60.0	60.0	60.0	4.0
Total Split (%)	26.4%	69.0%	69.0%	69.0%	69.0%	5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	19.0		56.0	56.0	55.0	
Actuated g/C Ratio	0.22		0.64	0.64	0.63	
v/c Ratio	0.51		0.33	0.71	0.30	
Control Delay	33.7		8.1	14.8	8.5	
Queue Delay	0.0		0.0	0.8	0.0	
Total Delay	33.7		8.1	15.6	8.5	
LOS	C		A	B	A	
Approach Delay	33.7		8.1	13.9		
Approach LOS	C		A	B		

Intersection Summary	
Cycle Length: 87	
Actuated Cycle Length: 87	
Offset: 76 (87%), Referenced to phase 2:NBSB and 6:, Start of Green	
Natural Cycle: 65	
Control Type: Pretimed	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 15.0	Intersection LOS: B
Intersection Capacity Utilization 62.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 10: Margaret Morrison St & Forbes Ave

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	127	26	17	280	715	219
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0			4.0	4.0	5.0
Lane Util. Factor	1.00			1.00	1.00	1.00
Frpb, ped/bikes	0.99			1.00	1.00	0.89
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	0.98			1.00	1.00	0.85
Flt Protected	0.96			1.00	1.00	1.00
Satd. Flow (prot)	1608			1665	1683	1308
Flt Permitted	0.96			0.94	1.00	1.00
Satd. Flow (perm)	1608			1564	1683	1308
Peak-hour factor, PHF	0.84	0.77	0.75	0.91	0.93	0.88
Adj. Flow (vph)	151	34	23	308	769	249
RTOR Reduction (vph)	9	0	0	0	0	0
Lane Group Flow (vph)	176	0	0	331	769	249
Confl. Peds. (#/hr)	36	13	34			34
Confl. Bikes (#/hr)						2
Heavy Vehicles (%)	1%	1%	1%	5%	4%	1%
Turn Type			Perm			Perm
Protected Phases	4			2	2	
Permitted Phases			2			2
Actuated Green, G (s)	18.0			55.0	55.0	55.0
Effective Green, g (s)	19.0			56.0	56.0	55.0
Actuated g/C Ratio	0.22			0.64	0.64	0.63
Clearance Time (s)	5.0			5.0	5.0	5.0
Lane Grp Cap (vph)	351			1007	1083	827
v/s Ratio Prot	c0.11				c0.46	
v/s Ratio Perm				0.21		0.19
v/c Ratio	0.50			0.33	0.71	0.30
Uniform Delay, d1	29.8			7.0	10.2	7.3
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	5.0			0.9	4.0	0.9
Delay (s)	34.9			7.9	14.1	8.2
Level of Service	C			A	B	A
Approach Delay (s)	34.9			7.9	12.7	
Approach LOS	C			A	B	

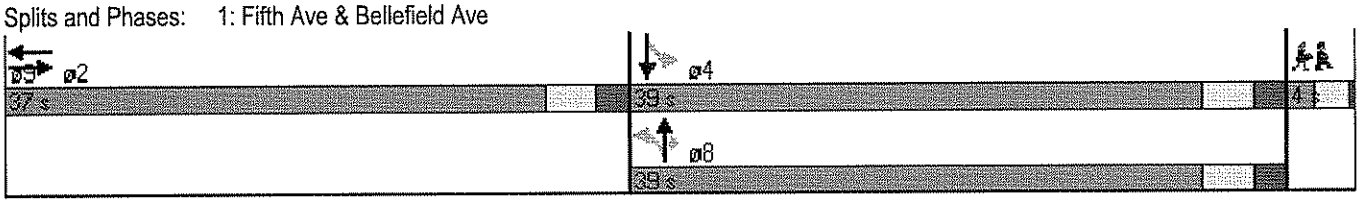
Intersection Summary			
HCM Average Control Delay	14.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

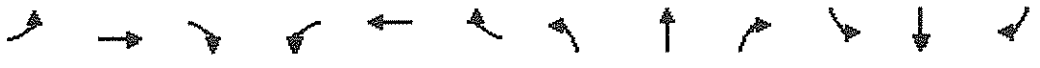
Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT	ø9
Lane Configurations								
Volume (vph)	26	1152	370	210	184	61	0	
Turn Type			Perm		Perm	Perm		
Protected Phases	2	2		8			4	9
Permitted Phases			8		8	4		
Detector Phase	2	2	8	8	8	4	4	
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	1.0
Minimum Split (s)	37.0	37.0	33.0	33.0	33.0	33.0	33.0	3.5
Total Split (s)	37.0	37.0	39.0	39.0	39.0	39.0	39.0	4.0
Total Split (%)	46.3%	46.3%	48.8%	48.8%	48.8%	48.8%	48.8%	5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.5
Lost Time Adjust (s)	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	
Total Lost Time (s)	3.4	3.4	3.4	3.4	3.4	3.4	3.4	
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	37.6	37.6	35.6	35.6	35.6		35.6	
Actuated g/C Ratio	0.47	0.47	0.44	0.44	0.44		0.44	
v/c Ratio	0.08	0.95	0.99	0.61	0.36		0.58	
Control Delay	12.5	27.0	75.3	23.1	17.0		18.7	
Queue Delay	0.0	1.5	0.0	0.0	0.0		0.0	
Total Delay	12.5	28.6	75.3	23.1	17.0		18.7	
LOS	B	C	E	C	B		B	
Approach Delay	12.5	28.6		41.2			18.7	
Approach LOS	B	C		D			B	

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 51 (64%), Referenced to phase 2:EBWB and 6:, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 31.5 Intersection LOS: C
Intersection Capacity Utilization 95.7% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 1: Fifth Ave & Bellefield Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	26	0	0	1152	21	370	210	184	61	0	201
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.4			3.4		3.4	3.4	3.4		3.4	
Lane Util. Factor		1.00			0.95		0.95	0.95	1.00		1.00	
Frpb, ped/bikes		1.00			0.99		1.00	1.00	0.97		0.96	
Flpb, ped/bikes		1.00			1.00		0.98	0.99	1.00		1.00	
Frt		1.00			1.00		1.00	1.00	0.85		0.90	
Flt Protected		1.00			1.00		0.95	0.98	1.00		0.99	
Satd. Flow (prot)		829			2826		1250	1405	1265		1321	
Flt Permitted		1.00			1.00		0.54	0.83	1.00		0.82	
Satd. Flow (perm)		829			2826		705	1177	1265		1095	
Peak-hour factor, PHF	0.94	0.81	0.25	0.94	0.93	0.78	0.90	0.95	0.91	0.74	0.25	0.93
Adj. Flow (vph)	0	32	0	0	1239	27	411	221	202	82	0	216
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	31	0
Lane Group Flow (vph)	0	32	0	0	1266	0	312	320	202	0	267	0
Confl. Peds. (#/hr)	160		91	91		160	52		19	19		52
Confl. Bikes (#/hr)			9			10						2
Heavy Vehicles (%)	0%	90%	0%	0%	5%	1%	11%	1%	3%	1%	0%	2%
Turn Type							Perm		Perm	Perm		
Protected Phases		2			2			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)		36.0			36.0		34.0	34.0	34.0		34.0	
Effective Green, g (s)		37.6			37.6		35.6	35.6	35.6		35.6	
Actuated g/C Ratio		0.47			0.47		0.45	0.45	0.45		0.45	
Clearance Time (s)		5.0			5.0		5.0	5.0	5.0		5.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)		390			1328		314	524	563		487	
v/s Ratio Prot		0.04			c0.45							
v/s Ratio Perm							c0.44	0.27	0.16		0.24	
v/c Ratio		0.08			0.95		0.99	0.61	0.36		0.55	
Uniform Delay, d1		11.7			20.4		22.1	16.9	14.7		16.3	
Progression Factor		1.00			0.64		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.4			12.2		48.8	2.1	0.4		1.3	
Delay (s)		12.1			25.2		70.9	19.0	15.1		17.6	
Level of Service		B			C		E	B	B		B	
Approach Delay (s)		12.1			25.2			37.5			17.6	
Approach LOS		B			C			D			B	

Intersection Summary			
HCM Average Control Delay	28.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	6.8
Intersection Capacity Utilization	95.7%	ICU Level of Service	F
Analysis Period (min)	15		

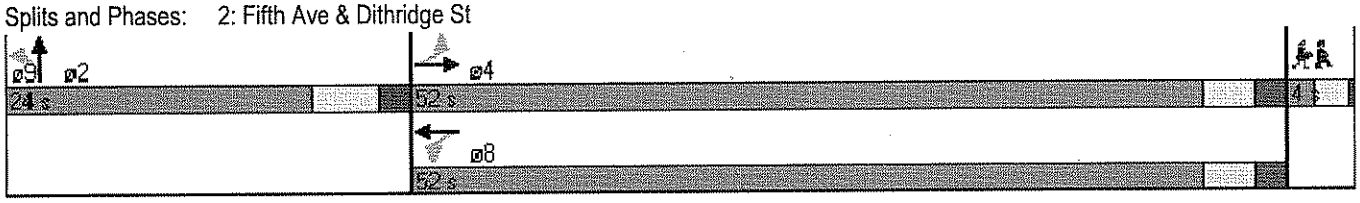
c Critical Lane Group

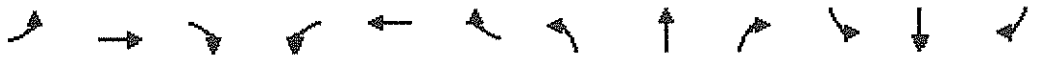
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	ø9
Lane Configurations							
Volume (vph)	13	231	18	1124	49	98	
Turn Type	Perm		Perm		Perm		
Protected Phases		4		8		2	9
Permitted Phases	4		8		2		
Detector Phase	4	4	8	8	2	2	
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	1.0
Minimum Split (s)	52.0	52.0	52.0	52.0	24.0	24.0	4.0
Total Split (s)	52.0	52.0	52.0	52.0	24.0	24.0	4.0
Total Split (%)	65.0%	65.0%	65.0%	65.0%	30.0%	30.0%	5%
Yellow Time (s)	3.0	3.0	3.0	3.0	4.0	4.0	2.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	0.5
Lost Time Adjust (s)	-1.6	-1.6	-1.6	-1.6	-0.8	-0.8	
Total Lost Time (s)	3.4	3.4	3.4	3.4	5.2	5.2	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)		48.6		48.6	18.8	18.8	
Actuated g/C Ratio		0.61		0.61	0.24	0.24	
v/c Ratio		0.21		0.75	0.17	0.47	
Control Delay		19.8		17.5	26.1	26.0	
Queue Delay		0.0		1.1	0.0	0.0	
Total Delay		19.8		18.7	26.1	26.0	
LOS		B		B	C	C	
Approach Delay		19.8		18.7		26.0	
Approach LOS		B		B		C	

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 48 (60%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 80
Control Type: Pretimed
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 19.8 Intersection LOS: B
Intersection Capacity Utilization 80.0% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: Fifth Ave & Dithridge St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	231	27	18	1124	28	49	98	51	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.4			3.4		5.2	5.2				
Lane Util. Factor		0.95			0.95		1.00	1.00				
Frpb, ped/bikes		0.99			1.00		1.00	0.98				
Flpb, ped/bikes		1.00			1.00		0.97	1.00				
Frt		0.98			1.00		1.00	0.95				
Flt Protected		1.00			1.00		0.95	1.00				
Satd. Flow (prot)		2686			2834		1419	1426				
Flt Permitted		0.87			0.95		0.95	1.00				
Satd. Flow (perm)		2335			2688		1419	1426				
Peak-hour factor, PHF	0.70	0.93	0.91	0.88	0.96	0.74	0.86	0.91	0.83	0.25	0.25	0.25
Adj. Flow (vph)	19	248	30	20	1171	38	57	108	61	0	0	0
RTOR Reduction (vph)	0	11	0	0	3	0	0	25	0	0	0	0
Lane Group Flow (vph)	0	286	0	0	1226	0	57	144	0	0	0	0
Confl. Peds. (#/hr)	10		61	61		10	30		34	34		30
Confl. Bikes (#/hr)			11			2						2
Heavy Vehicles (%)	5%	9%	1%	2%	5%	1%	2%	3%	2%	0%	0%	0%
Turn Type	Perm			Perm			Perm					
Protected Phases		4			8			2				
Permitted Phases	4			8			2					
Actuated Green, G (s)		47.0			47.0		18.0	18.0				
Effective Green, g (s)		48.6			48.6		18.8	18.8				
Actuated g/C Ratio		0.61			0.61		0.24	0.24				
Clearance Time (s)		5.0			5.0		6.0	6.0				
Lane Grp Cap (vph)		1419			1633		333	335				
v/s Ratio Prot								c0.10				
v/s Ratio Perm		0.12			c0.46		0.04					
v/c Ratio		0.20			0.75		0.17	0.43				
Uniform Delay, d1		7.0			11.3		24.4	26.0				
Progression Factor		3.02			1.34		1.00	1.00				
Incremental Delay, d2		0.3			1.8		1.1	4.0				
Delay (s)		21.5			16.9		25.5	30.0				
Level of Service		C			B		C	C				
Approach Delay (s)		21.5			16.9			28.9			0.0	
Approach LOS		C			B			C			A	

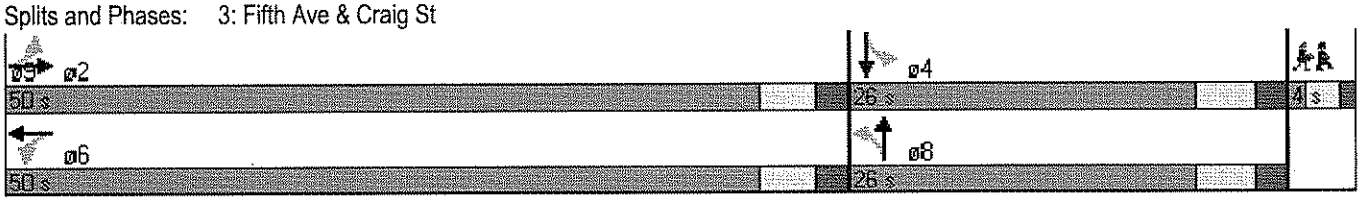
Intersection Summary			
HCM Average Control Delay	19.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.6
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

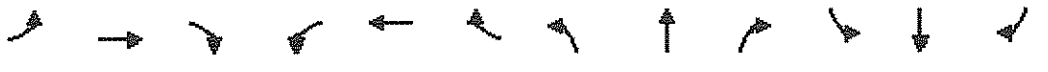
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	ø9
Lane Configurations									
Volume (vph)	16	249	14	972	37	138	51	135	
Turn Type	Perm		Perm		Perm		Perm		
Protected Phases		2		6		8		4	9
Permitted Phases	2		6		8		4		
Detector Phase	2	2	6	6	8	8	4	4	
Switch Phase									
Minimum Initial (s)	25.0	25.0	25.0	25.0	15.0	15.0	15.0	15.0	1.0
Minimum Split (s)	50.0	50.0	50.0	50.0	26.0	26.0	26.0	26.0	4.0
Total Split (s)	50.0	50.0	50.0	50.0	26.0	26.0	26.0	26.0	4.0
Total Split (%)	62.5%	62.5%	62.5%	62.5%	32.5%	32.5%	32.5%	32.5%	5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)		44.5		44.5	20.5	20.5	20.5	20.5	
Actuated g/C Ratio		0.56		0.56	0.26	0.26	0.26	0.26	
v/c Ratio		0.27		0.82	0.34	0.69	0.35	0.97	
Control Delay		24.8		10.9	32.5	38.0	31.1	74.3	
Queue Delay		0.0		0.7	0.7	0.0	0.0	37.1	
Total Delay		24.8		11.6	33.2	38.0	31.1	111.4	
LOS		C		B	C	D	C	F	
Approach Delay		24.8		11.6		37.2		98.2	
Approach LOS		C		B		D		F	

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 13 (16%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 80
Control Type: Pretimed
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 32.5 Intersection LOS: C
Intersection Capacity Utilization 94.6% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 3: Fifth Ave & Craig St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	249	17	14	972	22	37	138	76	51	135	151
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Lane Width	11	11	16	11	11	16	13	14	14	13	13	14
Total Lost time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.99			1.00		1.00	0.97		1.00	0.94	
Flpb, ped/bikes		1.00			1.00		0.94	1.00		0.94	1.00	
Frt		0.99			1.00		1.00	0.95		1.00	0.92	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		2539			2701		1411	1457		1403	1293	
Flt Permitted		0.82			0.94		0.36	1.00		0.47	1.00	
Satd. Flow (perm)		2084			2553		539	1457		698	1293	
Peak-hour factor, PHF	0.56	0.95	0.68	0.62	0.88	0.68	0.79	0.82	0.86	0.81	0.89	0.90
Adj. Flow (vph)	29	262	25	23	1105	32	47	168	88	63	152	168
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	316	0	0	1160	0	47	256	0	63	320	0
Confl. Peds. (#/hr)	82		54	54		82	110		88	88		110
Confl. Bikes (#/hr)			1			17			1			
Heavy Vehicles (%)	33%	9%	5%	3%	6%	6%	3%	7%	3%	4%	5%	12%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		44.5			44.5		20.5	20.5		20.5	20.5	
Effective Green, g (s)		44.5			44.5		20.5	20.5		20.5	20.5	
Actuated g/C Ratio		0.56			0.56		0.26	0.26		0.26	0.26	
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)		1159			1420		138	373		179	331	
v/s Ratio Prot								0.18			c0.25	
v/s Ratio Perm		0.15			c0.45		0.09			0.09		
v/c Ratio		0.27			0.82		0.34	0.69		0.35	0.97	
Uniform Delay, d1		9.3			14.4		24.2	26.8		24.3	29.4	
Progression Factor		2.56			0.57		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.6			2.1		6.6	9.9		5.4	41.7	
Delay (s)		24.3			10.3		30.8	36.7		29.7	71.1	
Level of Service		C			B		C	D		C	E	
Approach Delay (s)		24.3			10.3			35.8			64.3	
Approach LOS		C			B			D			E	

Intersection Summary			
HCM Average Control Delay	25.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	94.6%	ICU Level of Service	F
Analysis Period (min)	15		

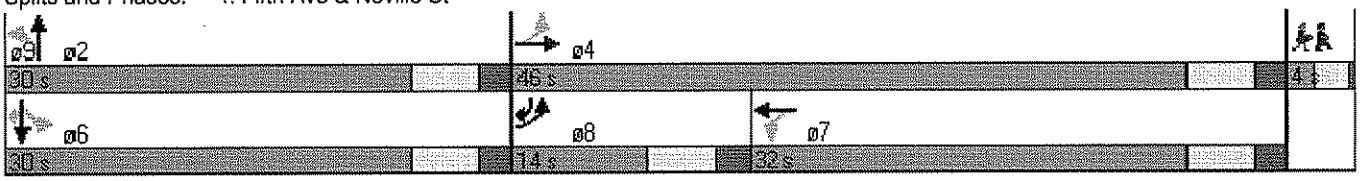
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR	ø9
Lane Configurations										
Volume (vph)	40	327	66	613	8	87	60	196	387	
Turn Type	pm+pt		Perm		Perm		Perm		pm+ov	
Protected Phases	8	4		7		2		6	8	9
Permitted Phases	4		7		2		6		6	
Detector Phase	8	4	7	7	2	2	6	6	8	
Switch Phase										
Minimum Initial (s)	1.0	1.0	1.0	1.0	2.4	2.4	24.0	24.0	1.0	1.5
Minimum Split (s)	9.0	34.0	32.0	32.0	30.0	30.0	30.0	30.0	9.0	4.0
Total Split (s)	14.0	46.0	32.0	32.0	30.0	30.0	30.0	30.0	14.0	4.0
Total Split (%)	17.5%	57.5%	40.0%	40.0%	37.5%	37.5%	37.5%	37.5%	17.5%	5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	2.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.5
Lost Time Adjust (s)	0.8	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	0.8	
Total Lost Time (s)	6.8	4.4	4.4	4.4	4.4	4.4	4.4	4.4	6.8	
Lead/Lag	Lead		Lag	Lag					Lead	
Lead-Lag Optimize?	Yes		Yes	Yes					Yes	
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)		41.6		27.6		25.6		25.6	30.4	
Actuated g/C Ratio		0.52		0.34		0.32		0.32	0.38	
v/c Ratio		0.31		0.95		0.39		0.70	0.88	
Control Delay		4.6		34.1		24.1		33.2	40.5	
Queue Delay		0.0		0.0		0.0		0.0	0.0	
Total Delay		4.6		34.1		24.1		33.2	40.5	
LOS		A		C		C		C	D	
Approach Delay		4.6		34.1		24.1		37.4		
Approach LOS		A		C		C		D		

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:EBL, Start of Green
Natural Cycle: 80
Control Type: Pretimed
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 29.1 Intersection LOS: C
Intersection Capacity Utilization 88.4% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 4: Fifth Ave & Neville St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	327	9	66	613	18	8	87	48	60	196	387
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.4			4.4			4.4			4.4	6.8
Lane Util. Factor		0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes		1.00			0.99			0.98			1.00	0.98
Flpb, ped/bikes		1.00			0.99			1.00			0.99	1.00
Frt		0.99			0.99			0.95			1.00	0.85
Flt Protected		0.99			1.00			1.00			0.99	1.00
Satd. Flow (prot)		3099			3170			1622			1681	1324
Flt Permitted		0.75			0.86			0.97			0.87	1.00
Satd. Flow (perm)		2353			2742			1577			1477	1324
Peak-hour factor, PHF	0.85	0.96	0.65	0.80	0.78	0.60	0.63	0.76	0.67	0.73	0.79	0.87
Adj. Flow (vph)	47	341	14	82	786	30	13	114	72	82	248	445
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	402	0	0	898	0	0	199	0	0	330	445
Confl. Peds. (#/hr)	92		73	73		92	16		51	51		16
Heavy Vehicles (%)	17%	4%	0%	0%	3%	2%	0%	0%	0%	8%	0%	10%
Turn Type	pm+pt			Perm			Perm			Perm		pm+ov
Protected Phases	8	4			7			2			6	8
Permitted Phases	4			7			2			6		6
Actuated Green, G (s)		40.0			26.0			24.0			24.0	32.0
Effective Green, g (s)		41.6			27.6			25.6			25.6	30.4
Actuated g/C Ratio		0.52			0.35			0.32			0.32	0.38
Clearance Time (s)		6.0			6.0			6.0			6.0	6.0
Lane Grp Cap (vph)		1313			946			505			473	616
v/s Ratio Prot		0.04										c0.07
v/s Ratio Perm		0.12			c0.33			0.13			0.22	0.27
v/c Ratio		0.31			0.95			0.39			0.70	0.72
Uniform Delay, d1		11.0			25.5			21.2			23.8	21.2
Progression Factor		0.38			0.85			1.00			1.00	1.00
Incremental Delay, d2		0.6			10.4			2.3			8.3	7.2
Delay (s)		4.7			32.2			23.5			32.1	28.4
Level of Service		A			C			C			C	C
Approach Delay (s)		4.7			32.2			23.5			30.0	
Approach LOS		A			C			C			C	

Intersection Summary			
HCM Average Control Delay	25.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.2
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		

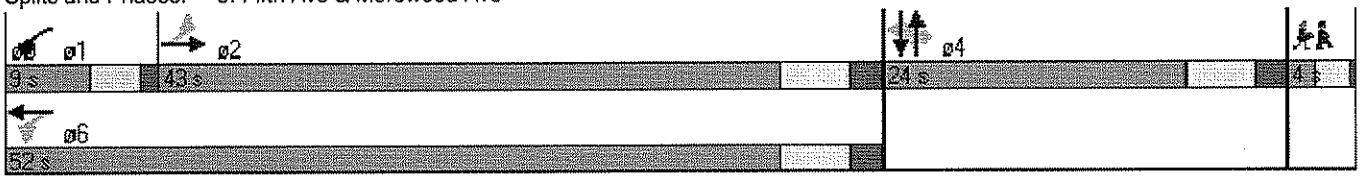
c Critical Lane Group

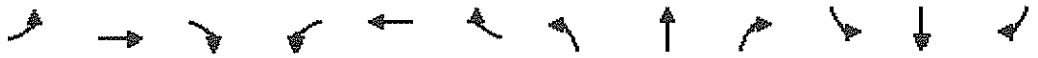
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	ø9
Lane Configurations										
Volume (vph)	15	327	158	645	17	192	126	60	238	
Turn Type	Perm		pm+pt		Perm		Perm	Perm		
Protected Phases		2	1	6		4			4	9
Permitted Phases	2		6		4		4	4		
Detector Phase	2	2	1	6	4	4	4	4	4	
Switch Phase										
Minimum Initial (s)	15.0	15.0	5.0	15.0	7.0	7.0	7.0	7.0	7.0	1.5
Minimum Split (s)	43.0	43.0	9.0	45.0	24.0	24.0	24.0	24.0	24.0	4.0
Total Split (s)	43.0	43.0	9.0	52.0	24.0	24.0	24.0	24.0	24.0	4.0
Total Split (%)	53.8%	53.8%	11.3%	65.0%	30.0%	30.0%	30.0%	30.0%	30.0%	5%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	2.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	0.5
Lost Time Adjust (s)	-1.6	-1.6	0.0	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	
Total Lost Time (s)	4.4	4.4	4.0	4.4	4.4	4.4	4.4	4.4	4.4	
Lead/Lag	Lag	Lag	Lead							
Lead-Lag Optimize?	Yes	Yes	Yes							
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)		38.6		47.6		19.6	19.6	19.6	19.6	
Actuated g/C Ratio		0.48		0.60		0.24	0.24	0.24	0.24	
v/c Ratio		0.36		0.91		0.65	0.42	0.40	0.70	
Control Delay		13.5		24.8		36.3	7.8	34.0	37.0	
Queue Delay		0.0		0.0		0.0	0.0	0.0	0.0	
Total Delay		13.5		24.8		36.3	7.8	34.0	37.0	
LOS		B		C		D	A	C	D	
Approach Delay		13.5		24.8		24.8			36.4	
Approach LOS		B		C		C			D	

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 68 (85%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 80
Control Type: Pretimed
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 24.3 Intersection LOS: C
Intersection Capacity Utilization 91.1% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 5: Fifth Ave & Morewood Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	327	45	158	645	150	17	192	126	60	238	29
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.4			4.4			4.4	4.4	4.4	4.4	
Lane Util. Factor		0.95			0.95			1.00	1.00	1.00	1.00	
Frpb, ped/bikes		0.99			0.97			1.00	0.78	1.00	0.98	
Flpb, ped/bikes		1.00			1.00			1.00	1.00	0.87	1.00	
Frt		0.98			0.98			1.00	0.85	1.00	0.98	
Flt Protected		1.00			0.99			1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3080			3055			1702	1142	1435	1672	
Flt Permitted		0.87			0.72			0.93	1.00	0.43	1.00	
Satd. Flow (perm)		2690			2209			1583	1142	656	1672	
Peak-hour factor, PHF	0.71	0.86	0.64	0.71	0.77	0.77	0.89	0.82	0.74	0.94	0.95	0.75
Adj. Flow (vph)	21	380	70	223	838	195	19	234	170	64	251	39
RTOR Reduction (vph)	0	18	0	0	19	0	0	0	128	0	7	0
Lane Group Flow (vph)	0	453	0	0	1237	0	0	253	42	64	283	0
Confl. Peds. (#/hr)	75		35	35		75	83		161	161		83
Confl. Bikes (#/hr)			1			7			4			3
Heavy Vehicles (%)	3%	2%	13%	2%	2%	1%	2%	2%	1%	1%	1%	0%
Turn Type	Perm			pm+pt			Perm		Perm	Perm		
Protected Phases		2		1	6			4			4	
Permitted Phases	2			6			4		4	4		
Actuated Green, G (s)		37.0			46.0			18.0	18.0	18.0	18.0	
Effective Green, g (s)		38.6			47.6			19.6	19.6	19.6	19.6	
Actuated g/C Ratio		0.48			0.60			0.25	0.25	0.25	0.25	
Clearance Time (s)		6.0			6.0			6.0	6.0	6.0	6.0	
Lane Grp Cap (vph)		1298			1384			388	280	161	410	
v/s Ratio Prot					c0.07						c0.17	
v/s Ratio Perm		0.17			0.46			0.16	0.04	0.10		
v/c Ratio		0.35			0.89			0.65	0.15	0.40	0.69	
Uniform Delay, d1		12.9			14.0			27.1	23.7	25.3	27.4	
Progression Factor		1.06			1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.7			9.2			8.3	1.1	7.2	9.2	
Delay (s)		14.3			23.2			35.4	24.8	32.4	36.6	
Level of Service		B			C			D	C	C	D	
Approach Delay (s)		14.3			23.2			31.1			35.9	
Approach LOS		B			C			C			D	

Intersection Summary			
HCM Average Control Delay	24.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.8
Intersection Capacity Utilization	91.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	ø9
Lane Configurations									
Volume (vph)	148	372	45	337	2	5	81	60	
Turn Type	pm+pt		Perm		Perm		Perm		
Protected Phases	5	2		6		8		4	9
Permitted Phases	2		6		8		4		
Detector Phase	5	2	6	6	8	8	4	4	
Switch Phase									
Minimum Initial (s)	1.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	5.5	35.0	27.0	27.0	31.0	31.0	31.0	31.0	8.0
Total Split (s)	12.0	61.0	49.0	49.0	31.0	31.0	31.0	31.0	8.0
Total Split (%)	12.0%	61.0%	49.0%	49.0%	31.0%	31.0%	31.0%	31.0%	8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.5
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.5
Lost Time Adjust (s)	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead		Lag	Lag					
Lead-Lag Optimize?									
Recall Mode	Max	C-Max	C-Max	C-Max	Min	Min	Min	Min	None
Act Effct Green (s)	68.7	68.7		45.0	23.3	23.3		23.3	
Actuated g/C Ratio	0.69	0.69		0.45	0.23	0.23		0.23	
v/c Ratio	0.36	0.52		0.75	0.02	0.03		0.82	
Control Delay	8.5	10.8		28.7	27.5	23.6		59.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	8.5	10.8		28.7	27.5	23.6		59.0	
LOS	A	B		C	C	C		E	
Approach Delay		10.2		28.7		24.5		59.0	
Approach LOS		B		C		C		E	

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 3 (3%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 25.1 Intersection LOS: C
Intersection Capacity Utilization 79.4% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 6: Forbes Ave & Craig St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	148	372	87	45	337	160	2	5	2	81	60	24
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00			0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.98			0.93		1.00	0.93			0.98	
Flpb, ped/bikes	0.99	1.00			1.00		0.95	1.00			0.90	
Frt	1.00	0.97			0.95		1.00	0.95			0.98	
Flt Protected	0.95	1.00			1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1439	1435			2426		1406	1383			1303	
Flt Permitted	0.27	1.00			0.87		0.55	1.00			0.85	
Satd. Flow (perm)	403	1435			2120		820	1383			1131	
Peak-hour factor, PHF	0.87	0.89	0.89	0.81	0.79	0.70	0.75	0.75	0.67	0.79	0.69	0.75
Adj. Flow (vph)	170	418	98	56	427	229	3	7	3	103	87	32
RTOR Reduction (vph)	0	0	0	0	0	0	0	2	0	0	6	0
Lane Group Flow (vph)	170	516	0	0	712	0	3	8	0	0	216	0
Confl. Peds. (#/hr)	68		36	36		68	68		97	97		68
Confl. Bikes (#/hr)			2						1			2
Heavy Vehicles (%)	3%	5%	1%	1%	14%	1%	1%	1%	1%	1%	1%	12%
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	67.7	67.7			44.0		22.3	22.3			22.3	
Effective Green, g (s)	67.7	68.7			45.0		23.3	23.3			23.3	
Actuated g/C Ratio	0.68	0.69			0.45		0.23	0.23			0.23	
Clearance Time (s)	4.0	5.0			5.0		5.0	5.0			5.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	477	986			954		191	322			264	
v/s Ratio Prot	0.07	c0.36						0.01				
v/s Ratio Perm	0.17				c0.34		0.00				c0.19	
v/c Ratio	0.36	0.52			0.75		0.02	0.02			0.82	
Uniform Delay, d1	7.4	7.6			22.8		29.5	29.6			36.3	
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2	2.1	2.0			5.3		0.0	0.0			17.5	
Delay (s)	9.5	9.6			28.1		29.6	29.6			53.9	
Level of Service	A	A			C		C	C			D	
Approach Delay (s)		9.6			28.1			29.6			53.9	
Approach LOS		A			C			C			D	

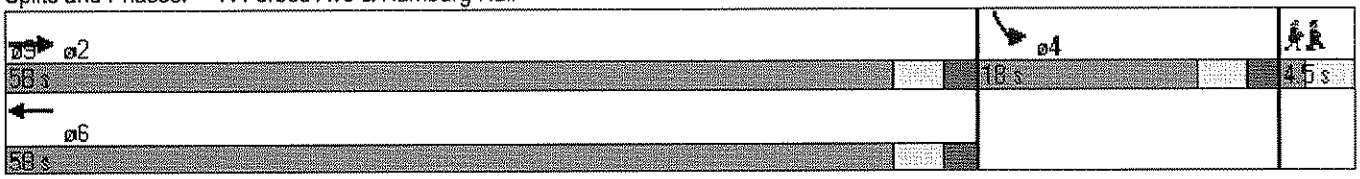
Intersection Summary			
HCM Average Control Delay	23.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	SBL	ø9
Lane Configurations				
Volume (vph)	449	557	2	
Turn Type				
Protected Phases	2	6	4	9
Permitted Phases				
Detector Phase	2	6	4	
Switch Phase				
Minimum Initial (s)	30.0	30.0	7.0	1.5
Minimum Split (s)	39.0	39.0	18.0	4.5
Total Split (s)	58.0	58.0	18.0	4.5
Total Split (%)	72.0%	72.0%	22.4%	6%
Yellow Time (s)	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.0	4.0	4.0	
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Max	Max	None	None
Act Effct Green (s)	69.1	69.1	8.1	
Actuated g/C Ratio	0.95	0.95	0.11	
v/c Ratio	0.35	0.48	0.07	
Control Delay	1.7	2.6	29.7	
Queue Delay	0.0	0.0	0.0	
Total Delay	1.7	2.6	29.7	
LOS	A	A	C	
Approach Delay	1.7	2.6	29.7	
Approach LOS	A	A	C	

Intersection Summary	
Cycle Length: 80.5	
Actuated Cycle Length: 72.5	
Natural Cycle: 65	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.48	
Intersection Signal Delay: 2.5	Intersection LOS: A
Intersection Capacity Utilization 49.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 7: Forbes Ave & Hamburg Hall



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	0	449	557	1	2	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.99	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	1.00		0.95	
Flt Protected		1.00	1.00		0.97	
Satd. Flow (prot)		1500	1443		1446	
Flt Permitted		1.00	1.00		0.97	
Satd. Flow (perm)		1500	1443		1446	
Peak-hour factor, PHF	0.97	0.89	0.84	0.25	0.25	0.25
Adj. Flow (vph)	0	504	663	4	8	4
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	504	667	0	12	0
Confl. Peds. (#/hr)	59			59	83	5
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	0%	5%	9%	0%	0%	0%
Turn Type						
Protected Phases		2	6		4	
Permitted Phases						
Actuated Green, G (s)		64.9	64.9		1.5	
Effective Green, g (s)		65.9	65.9		2.5	
Actuated g/C Ratio		0.86	0.86		0.03	
Clearance Time (s)		5.0	5.0		5.0	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		1294	1245		47	
v/s Ratio Prot		0.34	c0.46		c0.01	
v/s Ratio Perm						
v/c Ratio		0.39	0.54		0.26	
Uniform Delay, d1		1.1	1.3		36.0	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.9	1.7		2.9	
Delay (s)		2.0	3.0		38.9	
Level of Service		A	A		D	
Approach Delay (s)		2.0	3.0		38.9	
Approach LOS		A	A		D	

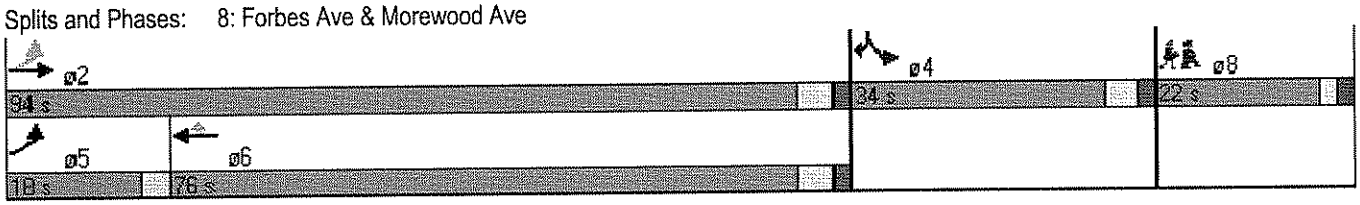
Intersection Summary			
HCM Average Control Delay	2.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	76.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	49.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø8
Lane Configurations							
Volume (vph)	177	230	637	146	249	219	
Turn Type	pm+pt			Perm		custom	
Protected Phases	5	2	6		4	4	8
Permitted Phases	2			6		4	
Detector Phase	5	2	6	6	4	4	
Switch Phase							
Minimum Initial (s)	1.0	6.0	6.0	6.0	6.0	6.0	4.0
Minimum Split (s)	5.0	20.0	20.0	20.0	16.0	16.0	20.0
Total Split (s)	18.0	94.0	76.0	76.0	34.0	34.0	22.0
Total Split (%)	12.0%	62.7%	50.7%	50.7%	22.7%	22.7%	15%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	2.0
All-Red Time (s)	0.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	1.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?	Yes		Yes	Yes			
Recall Mode	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	90.0	88.0	70.0	70.0	28.0	28.0	
Actuated g/C Ratio	0.60	0.59	0.47	0.47	0.19	0.19	
v/c Ratio	1.19	0.30	1.11	0.29	0.96	1.15	
Control Delay	155.3	16.6	105.0	26.4	104.6	158.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	155.3	16.6	105.0	26.4	104.6	158.9	
LOS	F	B	F	C	F	F	
Approach Delay		82.5	90.7		132.0		
Approach LOS		F	F		F		

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Pretimed	
Maximum v/c Ratio: 1.19	
Intersection Signal Delay: 99.9	Intersection LOS: F
Intersection Capacity Utilization 82.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 8: Forbes Ave & Morewood Ave



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	177	230	637	146	249	219
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.96	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1467	1500	1486	1256	1481	1251
Flt Permitted	0.08	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	124	1500	1486	1256	1481	1251
Peak-hour factor, PHF	0.75	0.88	0.83	0.86	0.94	0.81
Adj. Flow (vph)	236	261	767	170	265	270
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	236	261	767	170	265	270
Confl. Peds. (#/hr)	20			20	148	700
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	2%	5%	6%	2%	1%	7%
Turn Type	pm+pt			Perm		custom
Protected Phases	5	2	6		4	4
Permitted Phases	2			6		4
Actuated Green, G (s)	88.0	88.0	70.0	70.0	28.0	28.0
Effective Green, g (s)	87.0	88.0	70.0	70.0	28.0	28.0
Actuated g/C Ratio	0.58	0.59	0.47	0.47	0.19	0.19
Clearance Time (s)	3.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	197	880	693	586	276	234
v/s Ratio Prot	c0.11	0.17	0.52		0.18	c0.22
v/s Ratio Perm	c0.58			0.14		
v/c Ratio	1.20	0.30	1.11	0.29	0.96	1.15
Uniform Delay, d1	44.2	15.5	40.0	24.7	60.4	61.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	127.7	0.9	67.3	1.3	44.9	106.7
Delay (s)	171.9	16.4	107.3	25.9	105.3	167.7
Level of Service	F	B	F	C	F	F
Approach Delay (s)		90.2	92.5		136.8	
Approach LOS		F	F		F	

Intersection Summary			
HCM Average Control Delay	104.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	32.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NET	SWL	SWT	ø9
Lane Configurations								
Volume (vph)	53	301	62	567	1	74	29	
Turn Type	D.P+P		Perm			Perm		
Protected Phases	1	2 1		2	4		4	9
Permitted Phases	2		2			4		
Detector Phase	1	2 1	2	2	4	4	4	
Switch Phase								
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0	4.0	1.5
Minimum Split (s)	8.0		39.0	39.0	27.0	27.0	27.0	4.0
Total Split (s)	8.0	53.0	45.0	45.0	31.0	31.0	31.0	4.0
Total Split (%)	9.1%	60.2%	51.1%	51.1%	35.2%	35.2%	35.2%	5%
Yellow Time (s)	3.5		3.0	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)	0.5		2.0	2.0	1.0	1.0	1.0	0.5
Lost Time Adjust (s)	0.0	0.5	0.5	0.5	0.5	0.5	0.5	
Total Lost Time (s)	4.0	5.5	5.5	5.5	4.5	4.5	4.5	
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max		Max	Max	Max	Max	Max	Max
Act Effct Green (s)	45.0	47.5	39.5	39.5	26.5		26.5	
Actuated g/C Ratio	0.51	0.54	0.45	0.45	0.30		0.30	
v/c Ratio	0.34	0.42	0.23	0.98	0.01		0.85	
Control Delay	14.1	13.9	17.0	55.1	15.5		40.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	
Total Delay	14.1	13.9	17.0	55.1	15.5		40.2	
LOS	B	B	B	E	B		D	
Approach Delay		13.9		50.8	15.5		40.2	
Approach LOS		B		D	B		D	

Intersection Summary	
Cycle Length: 88	
Actuated Cycle Length: 88	
Offset: 79 (90%), Referenced to phase 2:EBWB and 6:, Start of Green	
Natural Cycle: 90	
Control Type: Pretimed	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 38.3	Intersection LOS: D
Intersection Capacity Utilization 81.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 9: Forbes Ave & Beeler St

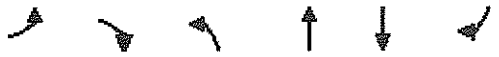
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	53	301	7	62	567	15	0	1	3	74	29	211
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	5.5		5.5	5.5			4.5			4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.87			1.00	
Flpb, ped/bikes	1.00	1.00		0.96	1.00			1.00			0.97	
Frt	1.00	1.00		1.00	1.00			0.89			0.91	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1436	1518		1422	1505			1216			1340	
Flt Permitted	0.18	1.00		0.56	1.00			1.00			0.92	
Satd. Flow (perm)	271	1518		831	1505			1216			1246	
Peak-hour factor, PHF	0.83	0.91	0.63	0.74	0.88	0.89	1.00	0.75	0.75	0.76	0.83	0.82
Adj. Flow (vph)	64	331	11	84	644	17	0	1	4	97	35	257
RTOR Reduction (vph)	0	2	0	0	1	0	0	3	0	0	80	0
Lane Group Flow (vph)	64	340	0	84	660	0	0	2	0	0	309	0
Confl. Peds. (#/hr)	42		34	34		42			83	83		
Confl. Bikes (#/hr)			4			8			2			
Heavy Vehicles (%)	4%	3%	1%	1%	4%	3%	1%	1%	1%	6%	0%	1%
Turn Type	D.P+P			Perm			Perm			Perm		
Protected Phases	1	2 1			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	44.0	48.0		40.0	40.0			27.0			27.0	
Effective Green, g (s)	44.0	43.0		39.5	39.5			26.5			26.5	
Actuated g/C Ratio	0.50	0.49		0.45	0.45			0.30			0.30	
Clearance Time (s)	4.0			5.0	5.0			4.0			4.0	
Lane Grp Cap (vph)	188	742		373	676			366			375	
v/s Ratio Prot	0.02	c0.22			c0.44			0.00				
v/s Ratio Perm	0.15			0.10							c0.25	
v/c Ratio	0.34	0.46		0.23	0.98			0.01			0.82	
Uniform Delay, d1	14.8	14.8		14.9	23.8			21.5			28.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	4.9	2.0		1.4	29.3			0.0			18.3	
Delay (s)	19.6	16.9		16.3	53.0			21.6			46.9	
Level of Service	B	B		B	D			C			D	
Approach Delay (s)		17.3			48.9			21.6			46.9	
Approach LOS		B			D			C			D	

Intersection Summary			
HCM Average Control Delay	40.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	88.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	NBL	NBT	SBT	SBR	ø9
Lane Configurations						
Volume (vph)	122	46	531	188	191	
Turn Type		Perm			Perm	
Protected Phases	4		2	2		9
Permitted Phases		2			2	
Detector Phase	4	2	2	2	2	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	1.5
Minimum Split (s)	23.0	58.0	58.0	58.0	58.0	4.0
Total Split (s)	23.0	58.0	58.0	58.0	58.0	4.0
Total Split (%)	27.1%	68.2%	68.2%	68.2%	68.2%	5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	0.5
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	19.0		54.0	54.0	53.0	
Actuated g/C Ratio	0.22		0.64	0.64	0.62	
v/c Ratio	0.56		0.71	0.21	0.31	
Control Delay	34.9		15.7	7.2	8.7	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	34.9		15.7	7.2	8.7	
LOS	C		B	A	A	
Approach Delay	34.9		15.7	8.0		
Approach LOS	C		B	A		

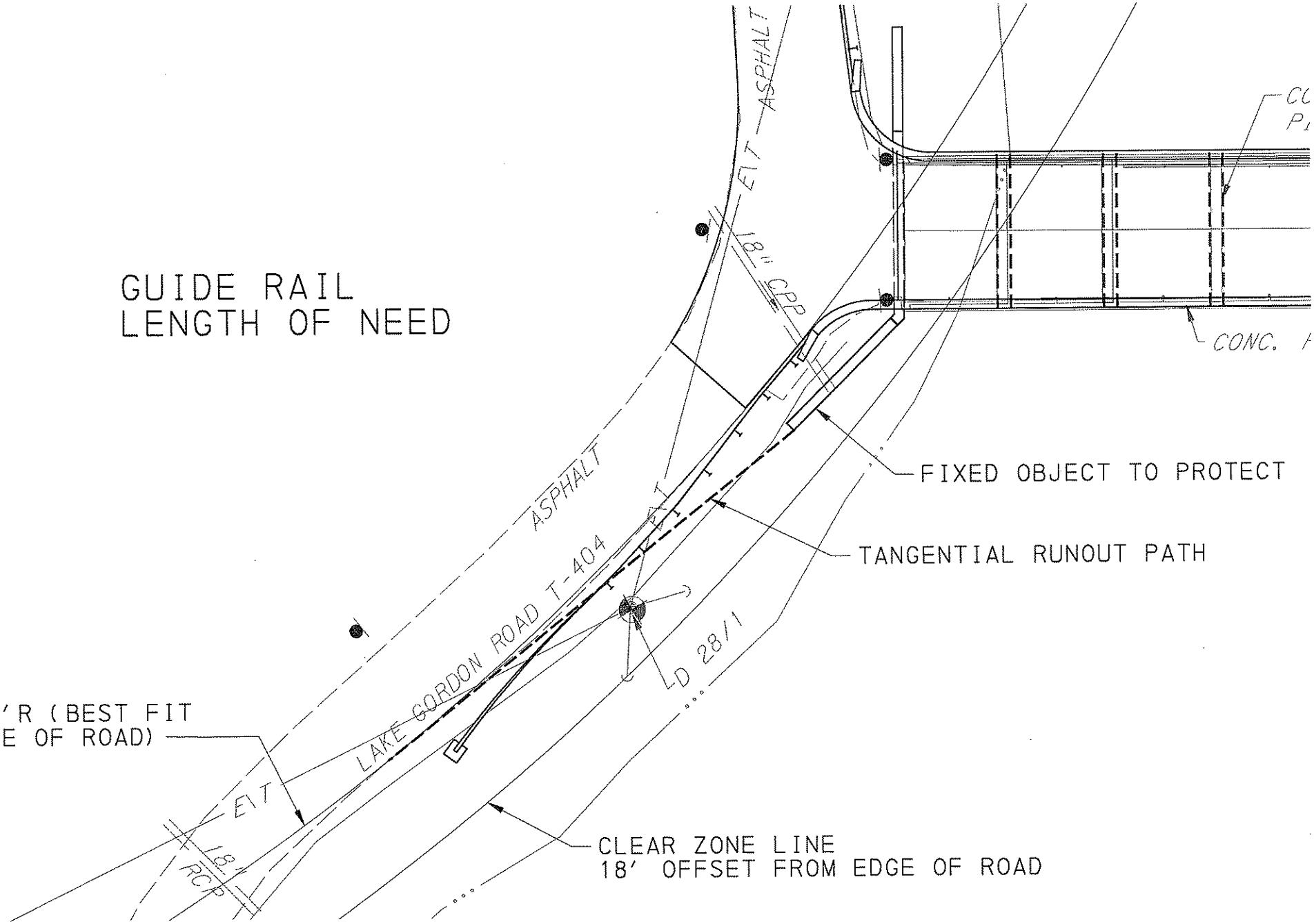
Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green	
Natural Cycle: 85	
Control Type: Pretimed	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 15.8	Intersection LOS: B
Intersection Capacity Utilization 95.9%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 10: Margaret Morrison St & Forbes Ave



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	122	22	46	531	188	191
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0			4.0	4.0	5.0
Lane Util. Factor	1.00			1.00	1.00	1.00
Frpb, ped/bikes	0.98			1.00	1.00	0.97
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	0.98			1.00	1.00	0.85
Flt Protected	0.96			0.99	1.00	1.00
Satd. Flow (prot)	1437			1497	1514	1288
Flt Permitted	0.96			0.95	1.00	1.00
Satd. Flow (perm)	1437			1430	1514	1288
Peak-hour factor, PHF	0.80	0.69	0.71	0.92	0.95	0.78
Adj. Flow (vph)	152	32	65	577	198	245
RTOR Reduction (vph)	9	0	0	0	0	0
Lane Group Flow (vph)	175	0	0	642	198	245
Confl. Peds. (#/hr)		34	8			8
Confl. Bikes (#/hr)		2				
Heavy Vehicles (%)	1%	1%	1%	5%	4%	1%
Turn Type			Perm			Perm
Protected Phases	4			2	2	
Permitted Phases			2			2
Actuated Green, G (s)	18.0			53.0	53.0	53.0
Effective Green, g (s)	19.0			54.0	54.0	53.0
Actuated g/C Ratio	0.22			0.64	0.64	0.62
Clearance Time (s)	5.0			5.0	5.0	5.0
Lane Grp Cap (vph)	321			908	962	803
v/s Ratio Prot	c0.12				0.13	
v/s Ratio Perm				c0.45		0.19
v/c Ratio	0.55			0.71	0.21	0.31
Uniform Delay, d1	29.2			10.3	6.5	7.4
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	6.5			4.6	0.5	1.0
Delay (s)	35.7			14.9	7.0	8.4
Level of Service	D			B	A	A
Approach Delay (s)	35.7			14.9	7.8	
Approach LOS	D			B	A	

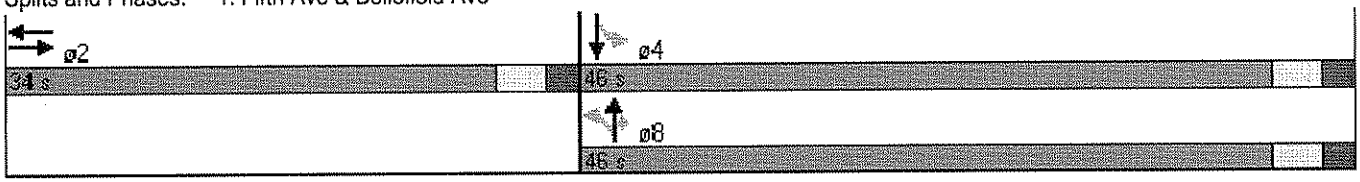
Intersection Summary			
HCM Average Control Delay	15.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			


GUIDE RAIL
LENGTH OF NEED
ASPHALT
EIT
18" CPP
CONC.
FIXED OBJECT TO PROTECT
TANGENTIAL RUNOUT PATH
ASPHALT
LAKE GORDON ROAD T-404
D 28/1
500' R (BEST FIT
EDGE OF ROAD)
EIT
18"
RCP
CLEAR ZONE LINE
18' OFFSET FROM EDGE OF ROAD

Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (vph)	36	897	262	185	397	175	0
Turn Type			Perm		Perm	Perm	
Protected Phases	2	2		8			4
Permitted Phases			8		8	4	
Detector Phase	2	2	8	8	8	4	4
Switch Phase							
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	34.0	34.0	46.0	46.0	46.0	46.0	46.0
Total Split (%)	42.5%	42.5%	57.5%	57.5%	57.5%	57.5%	57.5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
Total Lost Time (s)	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	C-Min	C-Min	Min	Min	Min	Min	Min
Act Effct Green (s)	34.7	34.7	38.5	38.5	38.5		38.5
Actuated g/C Ratio	0.43	0.43	0.48	0.48	0.48		0.48
v/c Ratio	0.12	0.75	0.87	0.44	0.46		0.81
Control Delay	17.0	33.8	41.6	14.9	15.5		33.5
Queue Delay	0.0	0.2	0.0	0.0	0.0		0.0
Total Delay	17.0	33.9	41.6	14.9	15.5		33.5
LOS	B	C	D	B	B		C
Approach Delay	17.0	33.9		24.7			33.5
Approach LOS	B	C		C			C

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 35 (44%), Referenced to phase 2:EBWB, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 29.7	Intersection LOS: C
Intersection Capacity Utilization 98.3%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 1: Fifth Ave & Bellefield Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	36	0	0	897	34	262	185	397	175	0	106
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.4			3.4		3.4	3.4	3.4		3.4	
Lane Util. Factor		1.00			0.95		1.00	0.95	0.95		1.00	
Frpb, ped/bikes		1.00			0.98		1.00	0.99	0.97		0.93	
Flpb, ped/bikes		1.00			1.00		0.91	1.00	1.00		0.99	
Frt		1.00			0.99		1.00	0.94	0.85		0.95	
Flt Protected		1.00			1.00		0.95	1.00	1.00		0.97	
Satd. Flow (prot)		921			3101		1367	1519	1329		1470	
Flt Permitted		1.00			1.00		0.57	1.00	1.00		0.56	
Satd. Flow (perm)		921			3101		825	1519	1329		841	
Peak-hour factor, PHF	0.94	0.75	0.25	0.25	0.93	0.73	0.76	0.95	0.95	0.89	0.25	0.80
Adj. Flow (vph)	0	48	0	0	965	47	345	195	418	197	0	132
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	48	0	0	1012	0	345	320	293	0	326	0
Confl. Peds. (#/hr)	240		280	280		240	245		31	31		245
Confl. Bikes (#/hr)			14			9						7
Heavy Vehicles (%)	0%	90%	0%	0%	5%	1%	11%	1%	3%	1%	0%	2%
Turn Type							Perm		Perm	Perm		
Protected Phases		2			2			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)		33.1			33.1		36.9	36.9	36.9		36.9	
Effective Green, g (s)		34.7			34.7		38.5	38.5	38.5		38.5	
Actuated g/C Ratio		0.43			0.43		0.48	0.48	0.48		0.48	
Clearance Time (s)		5.0			5.0		5.0	5.0	5.0		5.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)		399			1345		397	731	640		405	
v/s Ratio Prot		0.05			c0.33			0.21				
v/s Ratio Perm							c0.42		0.22		0.39	
v/c Ratio		0.12			0.75		0.87	0.44	0.46		0.81	
Uniform Delay, d1		13.5			19.0		18.5	13.6	13.8		17.6	
Progression Factor		1.00			1.46		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.6			3.3		17.9	0.4	0.5		11.1	
Delay (s)		14.1			31.1		36.4	14.1	14.3		28.7	
Level of Service		B			C		D	B	B		C	
Approach Delay (s)		14.1			31.1			22.2			28.7	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM Average Control Delay	26.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	6.8
Intersection Capacity Utilization	98.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT
Lane Configurations						
Volume (vph)	15	529	14	813	118	83
Turn Type	Perm		Perm		Perm	
Protected Phases		2		2		4
Permitted Phases	2		2		4	
Detector Phase	2	2	2	2	4	4
Switch Phase						
Minimum Initial (s)	34.0	34.0	34.0	34.0	15.0	15.0
Minimum Split (s)	40.0	40.0	40.0	40.0	30.0	30.0
Total Split (s)	50.0	50.0	50.0	50.0	30.0	30.0
Total Split (%)	62.5%	62.5%	62.5%	62.5%	37.5%	37.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.6	-1.6	-1.6	-1.6	-0.8	-0.8
Total Lost Time (s)	4.4	4.4	4.4	4.4	4.2	4.2
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max
Act Effct Green (s)		45.6		45.6	25.8	25.8
Actuated g/C Ratio		0.57		0.57	0.32	0.32
v/c Ratio		0.42		0.59	0.30	0.56
Control Delay		11.5		20.0	22.4	20.3
Queue Delay		0.0		0.0	0.0	0.0
Total Delay		11.5		20.0	22.4	20.3
LOS		B		C	C	C
Approach Delay		11.5		20.0		21.0
Approach LOS		B		C		C

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 46 (58%), Referenced to phase 2:EBWB, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 17.6	Intersection LOS: B
Intersection Capacity Utilization 61.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Fifth Ave & Dithridge St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰↑↑↱			↰↑↑↱		↰	↑↱				
Volume (vph)	15	529	24	14	813	24	118	83	154	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.4			4.4		4.2	4.2				
Lane Util. Factor		0.95			0.95		1.00	1.00				
Frpb, ped/bikes		0.99			1.00		1.00	0.97				
Flpb, ped/bikes		1.00			1.00		0.93	1.00				
Frt		0.99			0.99		1.00	0.91				
Flt Protected		1.00			1.00		0.95	1.00				
Satd. Flow (prot)		3008			3136		1512	1512				
Flt Permitted		0.91			0.94		0.95	1.00				
Satd. Flow (perm)		2736			2937		1512	1512				
Peak-hour factor, PHF	0.70	0.88	0.72	0.70	0.88	0.64	0.82	0.63	0.88	0.25	0.75	0.25
Adj. Flow (vph)	21	601	33	20	924	38	144	132	175	0	0	0
RTOR Reduction (vph)	0	5	0	0	3	0	0	60	0	0	0	0
Lane Group Flow (vph)	0	650	0	0	979	0	144	247	0	0	0	0
Confl. Peds. (#/hr)	173		166	166		173	78		49	49		78
Confl. Bikes (#/hr)			29			2						
Heavy Vehicles (%)	5%	9%	1%	2%	5%	1%	2%	3%	2%	0%	0%	0%
Turn Type	Perm			Perm			Perm					
Protected Phases		2			2			4				
Permitted Phases	2			2			4					
Actuated Green, G (s)		44.0			44.0		25.0	25.0				
Effective Green, g (s)		45.6			45.6		25.8	25.8				
Actuated g/C Ratio		0.57			0.57		0.32	0.32				
Clearance Time (s)		6.0			6.0		5.0	5.0				
Vehicle Extension (s)		3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)		1560			1674		488	488				
v/s Ratio Prot								c0.16				
v/s Ratio Perm		0.24			c0.33		0.10					
v/c Ratio		0.42			0.58		0.30	0.51				
Uniform Delay, d1		9.7			11.1		20.3	21.9				
Progression Factor		1.11			1.68		1.00	1.00				
Incremental Delay, d2		0.7			1.0		1.5	3.7				
Delay (s)		11.5			19.7		21.8	25.7				
Level of Service		B			B		C	C				
Approach Delay (s)		11.5			19.7			24.4			0.0	
Approach LOS		B			B			C			A	

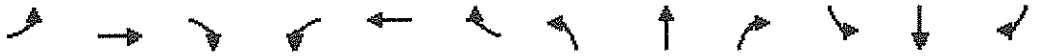
Intersection Summary				
HCM Average Control Delay	18.1	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.6	
Intersection Capacity Utilization	61.0%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	ø8
Lane Configurations									
Volume (vph)	18	647	27	682	59	145	107	121	
Turn Type	Perm		Perm		Perm		Perm		
Protected Phases		2		2		4		4	8
Permitted Phases	2		2		4		4		
Detector Phase	2	2	2	2	4	4	4	4	
Switch Phase									
Minimum Initial (s)	24.5	24.5	24.5	24.5	14.5	14.5	14.5	14.5	10.0
Minimum Split (s)	30.0	30.0	30.0	30.0	20.0	20.0	20.0	20.0	19.0
Total Split (s)	30.0	30.0	30.0	30.0	20.0	20.0	20.0	20.0	30.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	25.0%	25.0%	25.0%	25.0%	38%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Max	C-Max	C-Max	C-Max	Min	Min	Min	Min	Ped
Act Effct Green (s)		38.5		38.5	14.5	14.5	14.5	14.5	
Actuated g/C Ratio		0.48		0.48	0.18	0.18	0.18	0.18	
v/c Ratio		0.60		0.67	0.84	1.24	1.62	1.17	
Control Delay		15.9		15.7	75.9	157.5	360.9	146.6	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		15.9		15.7	75.9	157.5	360.9	146.6	
LOS		B		B	E	F	F	F	
Approach Delay		15.9		15.7		142.1		211.4	
Approach LOS		B		B		F		F	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 20 (25%), Referenced to phase 2:EBWB, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.62	
Intersection Signal Delay: 67.9	Intersection LOS: E
Intersection Capacity Utilization 90.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Fifth Ave & Craig St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	18	647	18	27	682	55	59	145	135	107	121	110
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			0.99		1.00	0.89		1.00	0.87	
Flpb, ped/bikes		1.00			1.00		0.85	1.00		0.88	1.00	
Frt		0.99			0.99		1.00	0.93		1.00	0.93	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		2987			3050		1378	1376		1409	1304	
Flt Permitted		0.88			0.90		0.33	1.00		0.28	1.00	
Satd. Flow (perm)		2641			2758		477	1376		409	1304	
Peak-hour factor, PHF	0.53	0.93	0.64	0.81	0.88	0.75	0.82	0.88	0.94	0.89	0.84	0.83
Adj. Flow (vph)	34	696	28	33	775	73	72	165	144	120	144	133
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	758	0	0	881	0	72	309	0	120	277	0
Confl. Peds. (#/hr)	137		59	59		137	159		138	138		159
Confl. Bikes (#/hr)						10			3			1
Heavy Vehicles (%)	33%	9%	5%	3%	6%	6%	3%	7%	3%	4%	5%	12%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		38.5			38.5		14.5	14.5		14.5	14.5	
Effective Green, g (s)		38.5			38.5		14.5	14.5		14.5	14.5	
Actuated g/C Ratio		0.48			0.48		0.18	0.18		0.18	0.18	
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		1271			1327		86	249		74	236	
v/s Ratio Prot								0.22			0.21	
v/s Ratio Perm		0.29			c0.32		0.15			c0.29		
v/c Ratio		0.60			0.66		0.84	1.24		1.62	1.17	
Uniform Delay, d1		15.1			15.8		31.6	32.8		32.8	32.8	
Progression Factor		0.90			0.85		1.11	1.08		1.00	1.00	
Incremental Delay, d2		1.9			1.9		27.8	124.3		333.0	113.6	
Delay (s)		15.5			15.3		62.7	159.6		365.8	146.4	
Level of Service		B			B		E	F		F	F	
Approach Delay (s)		15.5			15.3			141.3			212.7	
Approach LOS		B			B			F			F	

Intersection Summary			
HCM Average Control Delay	67.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	90.8%	ICU Level of Service	E
Analysis Period (min)	15		

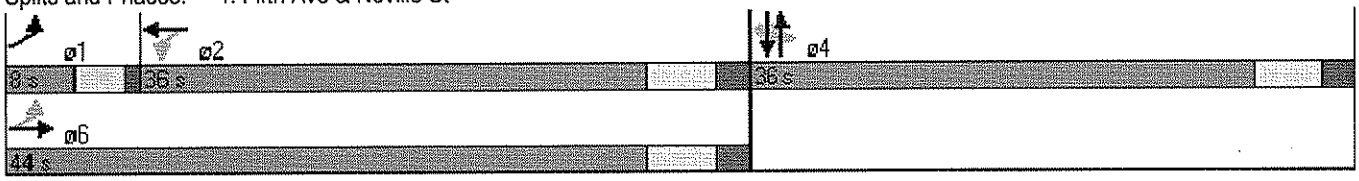
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	135	744	60	577	6	140	92	99	181
Turn Type	pm+pt		Perm		Perm		Perm		Perm
Protected Phases	1	6		2		4		4	
Permitted Phases	6		2		4		4		4
Detector Phase	1	6	2	2	4	4	4	4	4
Switch Phase									
Minimum Initial (s)	4.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	44.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0
Total Split (s)	8.0	44.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0
Total Split (%)	10.0%	55.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.8	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	0.8
Total Lost Time (s)	4.8	4.4	4.4	4.4	4.4	4.4	4.4	4.4	6.8
Lead/Lag	Lead		Lag	Lag					
Lead-Lag Optimize?	Yes		Yes	Yes					
Recall Mode	Min	C-Max	C-Max	C-Max	Ped	Ped	Ped	Ped	Ped
Act Effct Green (s)		45.2		36.2		26.0		26.0	23.6
Actuated g/C Ratio		0.56		0.45		0.32		0.32	0.30
v/c Ratio		0.94		0.75		0.69		0.81	0.63
Control Delay		30.6		31.0		30.5		44.7	31.6
Queue Delay		0.0		0.0		0.0		0.0	0.0
Total Delay		30.6		31.0		30.5		44.7	31.6
LOS		C		C		C		D	C
Approach Delay		30.6		31.0		30.5		38.3	
Approach LOS		C		C		C		D	

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 6 (8%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 32.1 Intersection LOS: C
Intersection Capacity Utilization 97.8% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 4: Fifth Ave & Neville St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	744	10	60	577	39	6	140	155	92	99	181
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.4			4.4			4.4			4.4	6.8
Lane Util. Factor		0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes		1.00			0.99			0.95			1.00	0.93
Flpb, ped/bikes		1.00			1.00			1.00			0.98	1.00
Frt		1.00			0.99			0.94			1.00	0.85
Flt Protected		0.99			0.99			1.00			0.98	1.00
Satd. Flow (prot)		3101			3156			1559			1618	1260
Flt Permitted		0.62			0.71			0.99			0.57	1.00
Satd. Flow (perm)		1935			2265			1540			936	1260
Peak-hour factor, PHF	0.82	0.81	0.88	0.71	0.91	0.75	0.50	0.81	0.97	0.79	0.77	0.77
Adj. Flow (vph)	165	919	11	85	634	52	12	173	160	116	129	235
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1095	0	0	771	0	0	345	0	0	245	235
Confl. Peds. (#/hr)	103		60	60		103	38		64	64		38
Confl. Bikes (#/hr)						8			1			5
Heavy Vehicles (%)	17%	4%	0%	0%	3%	2%	0%	0%	0%	8%	0%	10%
Turn Type	pm+pt			Perm			Perm			Perm		Perm
Protected Phases	1	6			2			4			4	
Permitted Phases	6			2			4			4		4
Actuated Green, G (s)		43.6			34.5			24.4			24.4	24.4
Effective Green, g (s)		45.2			36.1			26.0			26.0	23.6
Actuated g/C Ratio		0.57			0.45			0.32			0.32	0.30
Clearance Time (s)		6.0			6.0			6.0			6.0	6.0
Vehicle Extension (s)		3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)		1191			1022			501			304	372
v/s Ratio Prot		c0.08										
v/s Ratio Perm		0.44			c0.34			0.22			c0.26	0.19
v/c Ratio		0.92			0.75			0.69			0.81	0.63
Uniform Delay, d1		15.8			18.3			23.5			24.7	24.4
Progression Factor		0.97			1.42			1.00			1.00	1.00
Incremental Delay, d2		8.2			2.5			3.9			14.4	3.5
Delay (s)		23.4			28.3			27.4			39.1	27.9
Level of Service		C			C			C			D	C
Approach Delay (s)		23.4			28.3			27.4			33.6	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	27.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	97.8%	ICU Level of Service	F
Analysis Period (min)	15		

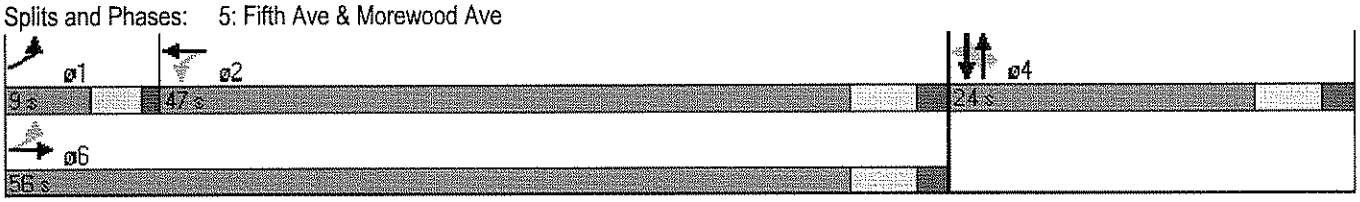
c Critical Lane Group

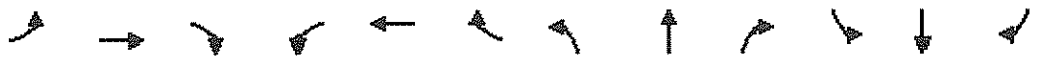
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Volume (vph)	23	933	79	723	37	248	289	77	257
Turn Type	pm+pt		Perm		Perm		Perm	Perm	
Protected Phases	1	6		2		4			4
Permitted Phases	6		2		4		4	4	
Detector Phase	1	6	2	2	4	4	4	4	4
Switch Phase									
Minimum Initial (s)	5.0	15.0	15.0	15.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	9.0	35.0	35.0	35.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	9.0	56.0	47.0	47.0	24.0	24.0	24.0	24.0	24.0
Total Split (%)	11.3%	70.0%	58.8%	58.8%	30.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.6	-1.6	0.0	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
Total Lost Time (s)	2.4	4.4	6.0	4.4	4.4	4.4	4.4	4.4	4.4
Lead/Lag	Lead		Lag	Lag					
Lead-Lag Optimize?	Yes		Yes	Yes					
Recall Mode	Min	C-Max	C-Max	C-Max	Ped	Ped	Ped	Ped	Ped
Act Effct Green (s)		51.6		42.6		19.6	19.6	19.6	19.6
Actuated g/C Ratio		0.64		0.53		0.24	0.24	0.24	0.24
v/c Ratio		0.66		0.85		1.33	0.83	0.92	0.79
Control Delay		14.0		24.6		199.1	39.7	106.1	43.3
Queue Delay		0.0		0.0		0.0	0.0	0.0	0.0
Total Delay		14.0		24.6		199.1	39.7	106.1	43.3
LOS		B		C		F	D	F	D
Approach Delay		14.0		24.6		125.0			57.0
Approach LOS		B		C		F			E

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 71 (89%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.33
Intersection Signal Delay: 45.7 Intersection LOS: D
Intersection Capacity Utilization 109.2% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 5: Fifth Ave & Morewood Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	933	78	79	723	111	37	248	289	77	257	40
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.4			4.4			4.4	4.4	4.4	4.4	
Lane Util. Factor		0.95			0.95			1.00	1.00	1.00	1.00	
Frpb, ped/bikes		0.98			0.99			1.00	0.83	1.00	0.99	
Flpb, ped/bikes		1.00			1.00			1.00	1.00	0.94	1.00	
Frt		0.98			0.98			1.00	0.85	1.00	0.98	
Flt Protected		1.00			0.99			0.99	1.00	0.95	1.00	
Satd. Flow (prot)		3095			3125			1698	1228	1541	1670	
Flt Permitted		0.88			0.67			0.64	1.00	0.25	1.00	
Satd. Flow (perm)		2727			2114			1100	1228	408	1670	
Peak-hour factor, PHF	0.48	0.92	0.65	0.71	0.98	0.93	0.84	0.79	0.93	0.84	0.92	0.77
Adj. Flow (vph)	48	1014	120	111	738	119	44	314	311	92	279	52
RTOR Reduction (vph)	0	11	0	0	14	0	0	0	76	0	8	0
Lane Group Flow (vph)	0	1171	0	0	954	0	0	358	236	92	323	0
Confl. Peds. (#/hr)	34		72	72		34	59		115	115		59
Confl. Bikes (#/hr)						6			17			10
Heavy Vehicles (%)	3%	2%	13%	2%	2%	1%	2%	2%	1%	1%	1%	0%
Turn Type	pm+pt			Perm			Perm		Perm	Perm		
Protected Phases	1	6			2			4			4	
Permitted Phases	6			2			4		4	4		
Actuated Green, G (s)		50.0			41.0			18.0	18.0	18.0	18.0	
Effective Green, g (s)		51.6			42.6			19.6	19.6	19.6	19.6	
Actuated g/C Ratio		0.65			0.53			0.25	0.25	0.25	0.25	
Clearance Time (s)		6.0			6.0			6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0			3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1789			1126			270	301	100	409	
v/s Ratio Prot		c0.05									0.19	
v/s Ratio Perm		0.37			c0.45			c0.33	0.19	0.23		
v/c Ratio		0.65			0.85			1.33	0.78	0.92	0.79	
Uniform Delay, d1		8.7			15.9			30.2	28.2	29.4	28.3	
Progression Factor		1.53			1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.4			8.0			170.1	12.4	64.6	9.7	
Delay (s)		13.7			23.9			200.3	40.6	94.0	38.0	
Level of Service		B			C			F	D	F	D	
Approach Delay (s)		13.7			23.9			126.1			50.2	
Approach LOS		B			C			F			D	

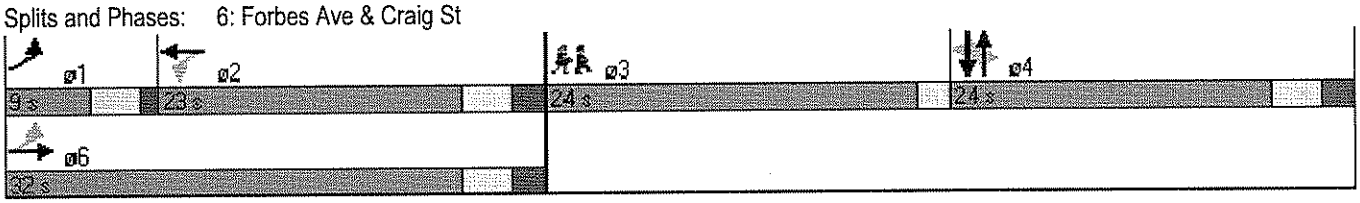
Intersection Summary			
HCM Average Control Delay	44.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	109.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	ø3
Lane Configurations									
Volume (vph)	165	685	4	179	34	70	164	10	
Turn Type	pm+pt		Perm		Perm		Perm		
Protected Phases	1	6		2		4		4	3
Permitted Phases	6		2		4		4		
Detector Phase	1	6	2	2	4	4	4	4	
Switch Phase									
Minimum Initial (s)	5.0	18.0	14.0	14.0	7.0	7.0	7.0	7.0	4.0
Minimum Split (s)	9.0	28.0	19.0	19.0	20.0	20.0	20.0	20.0	24.0
Total Split (s)	9.0	32.0	23.0	23.0	24.0	24.0	24.0	24.0	24.0
Total Split (%)	11.3%	40.0%	28.8%	28.8%	30.0%	30.0%	30.0%	30.0%	30%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
Lost Time Adjust (s)	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	C-Min	C-Min	C-Min	Min	Min	Min	Min	None
Act Effct Green (s)		28.0		19.0	29.6	29.6		29.6	
Actuated g/C Ratio		0.35		0.24	0.37	0.37		0.37	
v/c Ratio		1.22		0.60	0.14	0.39		0.89	
Control Delay		137.7		32.7	24.0	18.2		57.8	
Queue Delay		0.0		0.0	0.0	0.0		0.0	
Total Delay		137.7		32.7	24.0	18.2		57.8	
LOS		F		C	C	B		E	
Approach Delay		137.7		32.7		19.3		57.8	
Approach LOS		F		C		B		E	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 75 (94%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.22	
Intersection Signal Delay: 90.9	Intersection LOS: F
Intersection Capacity Utilization 81.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Forbes Ave & Craig St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	165	685	13	4	179	84	34	70	81	164	10	41
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		0.95			0.95		1.00	1.00			1.00	
Frpb, ped/bikes		1.00			0.83		1.00	0.89			0.97	
Flpb, ped/bikes		0.97			1.00		0.92	1.00			0.90	
Frt		1.00			0.95		1.00	0.92			0.97	
Flt Protected		0.99			1.00		0.95	1.00			0.97	
Satd. Flow (prot)		3033			2399		1514	1419			1387	
Flt Permitted		0.71			0.92		0.62	1.00			0.60	
Satd. Flow (perm)		2162			2214		994	1419			869	
Peak-hour factor, PHF	0.86	0.88	0.65	0.50	0.86	0.84	0.65	0.73	0.72	0.82	0.50	0.68
Adj. Flow (vph)	192	778	20	8	208	100	52	96	112	200	20	60
RTOR Reduction (vph)	0	0	0	0	0	0	0	44	0	0	10	0
Lane Group Flow (vph)	0	990	0	0	316	0	52	164	0	0	270	0
Confl. Peds. (#/hr)	260		144	144		260	170		235	235		170
Confl. Bikes (#/hr)						8			10			1
Heavy Vehicles (%)	3%	5%	1%	1%	14%	1%	1%	1%	1%	1%	1%	12%
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	1	6			2			4			4	
Permitted Phases	6			2			4			4		
Actuated Green, G (s)		26.2			17.2		28.6	28.6			28.6	
Effective Green, g (s)		27.2			18.2		29.6	29.6			29.6	
Actuated g/C Ratio		0.34			0.23		0.37	0.37			0.37	
Clearance Time (s)		5.0			5.0		5.0	5.0			5.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		800			504		368	525			322	
v/s Ratio Prot		c0.09						0.12				
v/s Ratio Perm		c0.33			0.14		0.05				c0.31	
v/c Ratio		1.24			0.63		0.14	0.31			0.84	
Uniform Delay, d1		26.4			27.8		16.8	17.9			23.0	
Progression Factor		1.00			1.00		1.00	1.00			1.26	
Incremental Delay, d2		117.5			5.8		0.2	0.3			11.8	
Delay (s)		143.9			33.6		16.9	18.3			40.9	
Level of Service		F			C		B	B			D	
Approach Delay (s)		143.9			33.6			18.0			40.9	
Approach LOS		F			C			B			D	

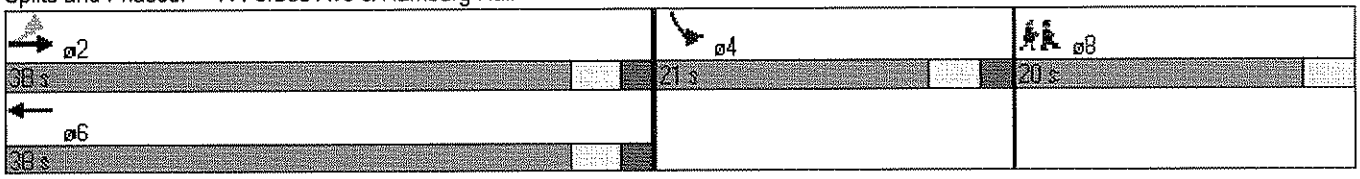
Intersection Summary			
HCM Average Control Delay	91.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	23.2
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	SBL	ø8
Lane Configurations					
Volume (vph)	1	943	252	64	
Turn Type	Perm				
Protected Phases		2	6	4	8
Permitted Phases	2				
Detector Phase	2	2	6	4	
Switch Phase					
Minimum Initial (s)	30.0	30.0	30.0	7.0	9.0
Minimum Split (s)	38.0	38.0	38.0	21.0	20.0
Total Split (s)	38.0	38.0	38.0	21.0	20.0
Total Split (%)	48.1%	48.1%	48.1%	26.6%	25%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	Max	Max	None	None	None
Act Effct Green (s)		39.8	39.8	12.0	
Actuated g/C Ratio		0.56	0.56	0.17	
v/c Ratio		0.62	0.17	0.46	
Control Delay		17.9	12.2	33.5	
Queue Delay		0.0	0.0	0.0	
Total Delay		17.9	12.2	33.5	
LOS		B	B	C	
Approach Delay		17.9	12.2	33.5	
Approach LOS		B	B	C	

Intersection Summary	
Cycle Length: 79	
Actuated Cycle Length: 70.8	
Natural Cycle: 80	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 18.1	Intersection LOS: B
Intersection Capacity Utilization 44.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 7: Forbes Ave & Hamburg Hall



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	1	943	252	0	64	36
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		0.95	0.95		1.00	
Frpb, ped/bikes		1.00	1.00		0.99	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	1.00		0.95	
Flt Protected		1.00	1.00		0.97	
Satd. Flow (prot)		3166	3050		1590	
Flt Permitted		0.95	1.00		0.97	
Satd. Flow (perm)		3021	3050		1590	
Peak-hour factor, PHF	0.25	0.90	0.89	0.25	0.80	0.82
Adj. Flow (vph)	4	1048	283	0	80	44
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1052	283	0	124	0
Confl. Peds. (#/hr)	139			139	156	14
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	0%	5%	9%	0%	0%	0%
Turn Type	Perm					
Protected Phases		2	6		4	
Permitted Phases	2					
Actuated Green, G (s)		37.7	37.7		9.1	
Effective Green, g (s)		38.7	38.7		10.1	
Actuated g/C Ratio		0.53	0.53		0.14	
Clearance Time (s)		5.0	5.0		5.0	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		1610	1626		221	
v/s Ratio Prot			0.09		c0.08	
v/s Ratio Perm		c0.35				
v/c Ratio		0.65	0.17		0.56	
Uniform Delay, d1		12.1	8.7		29.2	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		2.1	0.1		3.2	
Delay (s)		14.2	8.8		32.4	
Level of Service		B	A		C	
Approach Delay (s)		14.2	8.8		32.4	
Approach LOS		B	A		C	

Intersection Summary			
HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	72.6	Sum of lost time (s)	23.8
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		

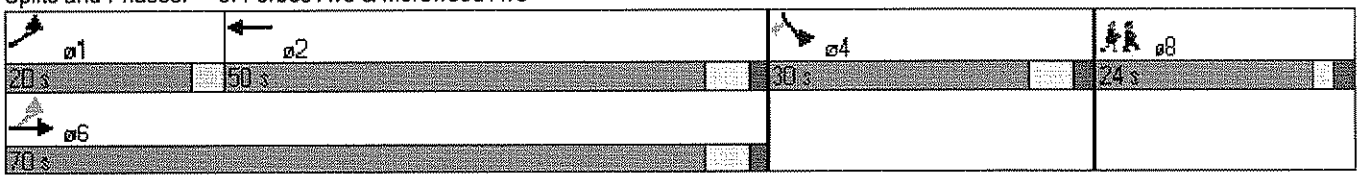
c Critical Lane Group

Lane Group	EBL	EBT	WBT	SBL	SBR	ø8
Lane Configurations						
Volume (vph)	292	630	265	419	79	
Turn Type	pm+pt				Perm	
Protected Phases	1	6	2	4		8
Permitted Phases	6				4	
Detector Phase	1	6	2	4	4	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	4.0
Minimum Split (s)	20.0	70.0	50.0	30.0	30.0	8.0
Total Split (s)	20.0	70.0	50.0	30.0	30.0	24.0
Total Split (%)	16.1%	56.5%	40.3%	24.2%	24.2%	19%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	2.0
All-Red Time (s)	0.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	1.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Min	Min	None	None	None
Act Effct Green (s)	39.1	37.1	19.0	24.1	24.1	
Actuated g/C Ratio	0.53	0.51	0.26	0.33	0.33	
v/c Ratio	0.69	0.43	0.68	0.85	0.42	
Control Delay	17.8	12.2	29.8	41.6	27.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	17.8	12.2	29.8	41.6	27.9	
LOS	B	B	C	D	C	
Approach Delay		14.0	29.8	39.2		
Approach LOS		B	C	D		

Intersection Summary

Cycle Length: 124
Actuated Cycle Length: 73.3
Natural Cycle: 110
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 24.5 — Intersection LOS: C
Intersection Capacity Utilization 71.5% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 8: Forbes Ave & Morewood Ave



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	292	630	265	161	419	79
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.95		1.00	0.62
Flpb, ped/bikes	0.99	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1616	3167	2845		1646	856
Flt Permitted	0.31	1.00	1.00		0.95	1.00
Satd. Flow (perm)	520	3167	2845		1646	856
Peak-hour factor, PHF	0.87	0.91	0.81	0.88	0.91	0.79
Adj. Flow (vph)	336	692	327	183	460	100
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	336	692	510	0	460	100
Confl. Peds. (#/hr)	69			69	174	763
Confl. Bikes (#/hr)				1		3
Heavy Vehicles (%)	2%	5%	6%	2%	1%	7%
Turn Type	pm+pt					Perm
Protected Phases	1	6	2		4	
Permitted Phases	6					4
Actuated Green, G (s)	37.1	37.1	19.0		24.1	24.1
Effective Green, g (s)	36.1	37.1	19.0		24.1	24.1
Actuated g/C Ratio	0.49	0.51	0.26		0.33	0.33
Clearance Time (s)	3.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0		3.0	3.0
Lane Grp Cap (vph)	468	1605	738		542	282
v/s Ratio Prot	c0.14	0.22	0.18		c0.28	
v/s Ratio Perm	c0.22					0.12
v/c Ratio	0.72	0.43	0.69		0.85	0.35
Uniform Delay, d1	12.5	11.4	24.5		22.9	18.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.6	0.3	3.0		11.8	0.8
Delay (s)	18.1	11.6	27.5		34.7	19.4
Level of Service	B	B	C		C	B
Approach Delay (s)		13.8	27.5		31.9	
Approach LOS		B	C		C	

Intersection Summary			
HCM Average Control Delay	21.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	73.2	Sum of lost time (s)	10.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

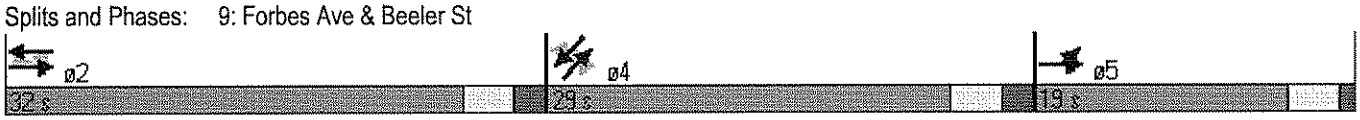
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NEL	NET	SWL	SWT
Lane Configurations								
Volume (vph)	185	829	1	340	16	33	38	0
Turn Type	D.P+P		Perm		Perm		Perm	
Protected Phases	5	2 5		2		4		4
Permitted Phases	2		2		4		4	
Detector Phase	5	2 5	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	15.0		10.0	10.0	9.0	9.0	9.0	9.0
Minimum Split (s)	19.0		32.0	32.0	14.0	14.0	14.0	14.0
Total Split (s)	19.0	51.0	32.0	32.0	29.0	29.0	29.0	29.0
Total Split (%)	23.8%	63.8%	40.0%	40.0%	36.3%	36.3%	36.3%	36.3%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total Lost Time (s)	4.0	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max		C-Max	C-Max	None	None	None	None
Act Effct Green (s)	55.9	58.4		26.5		10.6		10.6
Actuated g/C Ratio	0.70	0.73		0.33		0.13		0.13
v/c Ratio	0.30	0.38		0.48		0.55		0.63
Control Delay	4.6	4.9		15.7		24.8		26.3
Queue Delay	0.0	0.0		0.0		0.0		0.0
Total Delay	4.6	4.9		15.7		24.8		26.3
LOS	A	A		B		C		C
Approach Delay		4.9		15.7		24.8		26.3
Approach LOS		A		B		C		C

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 78 (98%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 10.7 Intersection LOS: B
Intersection Capacity Utilization 80.5% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 9: Forbes Ave & Beeler St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	185	829	0	1	340	54	16	33	59	38	0	66
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	5.5			5.5			5.5			5.5	
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			0.98			0.87			0.99	
Flpb, ped/bikes	0.98	1.00			1.00			1.00			0.94	
Frt	1.00	1.00			0.98			0.93			0.92	
Flt Protected	0.95	1.00			1.00			0.99			0.98	
Satd. Flow (prot)	1574	3228			3074			1386			1425	
Flt Permitted	0.42	1.00			0.95			0.93			0.78	
Satd. Flow (perm)	703	3228			2915			1294			1132	
Peak-hour factor, PHF	0.78	0.92	0.25	0.25	0.86	0.71	0.80	0.75	0.82	0.68	0.25	0.72
Adj. Flow (vph)	237	901	0	4	395	76	20	44	72	56	0	92
RTOR Reduction (vph)	0	0	0	0	19	0	0	62	0	0	80	0
Lane Group Flow (vph)	237	901	0	0	456	0	0	74	0	0	68	0
Confl. Peds. (#/hr)	63		63	63		63	1		106	106		1
Confl. Bikes (#/hr)			1			3			2			
Heavy Vehicles (%)	4%	3%	1%	1%	4%	3%	1%	1%	1%	6%	0%	1%
Turn Type	D.P+P			Perm			Perm			Perm		
Protected Phases	5	2 5			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	54.9	58.9			27.0			11.1			11.1	
Effective Green, g (s)	54.9	53.9			26.5			10.6			10.6	
Actuated g/C Ratio	0.69	0.67			0.33			0.13			0.13	
Clearance Time (s)	4.0				5.0			5.0			5.0	
Vehicle Extension (s)	3.0				3.0			3.0			3.0	
Lane Grp Cap (vph)	786	2175			966			171			150	
v/s Ratio Prot	0.11	c0.28										
v/s Ratio Perm	0.10				c0.16			0.06			c0.06	
v/c Ratio	0.30	0.41			0.47			0.43			0.45	
Uniform Delay, d1	4.7	5.9			21.2			31.9			32.0	
Progression Factor	1.00	1.00			0.70			1.00			1.00	
Incremental Delay, d2	1.0	0.6			1.6			1.7			2.2	
Delay (s)	5.7	6.5			16.4			33.7			34.2	
Level of Service	A	A			B			C			C	
Approach Delay (s)		6.3			16.4			33.7			34.2	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM Average Control Delay	13.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Configurations					
Volume (vph)	127	17	280	715	219
Turn Type		Perm			Perm
Protected Phases	4		2	2	
Permitted Phases		2			2
Detector Phase	4	2	2	2	2
Switch Phase					
Minimum Initial (s)	20.0	50.0	50.0	50.0	50.0
Minimum Split (s)	25.0	55.0	55.0	55.0	55.0
Total Split (s)	25.0	55.0	55.0	55.0	55.0
Total Split (%)	31.3%	68.8%	68.8%	68.8%	68.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	5.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	21.0		51.0	51.0	50.0
Actuated g/C Ratio	0.26		0.64	0.64	0.62
v/c Ratio	0.51		0.19	0.72	0.31
Control Delay	27.6		6.3	16.7	8.5
Queue Delay	0.0		0.0	0.7	0.0
Total Delay	27.6		6.3	17.4	8.5
LOS	C		A	B	A
Approach Delay	27.6		6.3	15.2	
Approach LOS	C		A	B	

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 79 (99%), Referenced to phase 2:NBSB, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 15.0 Intersection LOS: B
Intersection Capacity Utilization 90.8% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 10: Margaret Morrison St & Forbes Ave

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	127	26	17	280	715	219
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0			4.0	4.0	5.0
Lane Util. Factor	1.00			0.95	1.00	1.00
Frpb, ped/bikes	0.99			1.00	1.00	0.90
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	0.97			1.00	1.00	0.85
Flt Protected	0.96			1.00	1.00	1.00
Satd. Flow (prot)	1591			3164	1683	1319
Flt Permitted	0.96			0.89	1.00	1.00
Satd. Flow (perm)	1591			2831	1683	1319
Peak-hour factor, PHF	0.77	0.46	0.71	0.86	0.93	0.87
Adj. Flow (vph)	165	57	24	326	769	252
RTOR Reduction (vph)	15	0	0	0	0	0
Lane Group Flow (vph)	207	0	0	350	769	252
Confl. Peds. (#/hr)	36	13	34			34
Confl. Bikes (#/hr)						2
Heavy Vehicles (%)	1%	1%	1%	5%	4%	1%
Turn Type			Perm			Perm
Protected Phases	4			2	2	
Permitted Phases			2			2
Actuated Green, G (s)	20.0			50.0	50.0	50.0
Effective Green, g (s)	21.0			51.0	51.0	50.0
Actuated g/C Ratio	0.26			0.64	0.64	0.62
Clearance Time (s)	5.0			5.0	5.0	5.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	418			1805	1073	824
v/s Ratio Prot	c0.13				c0.46	
v/s Ratio Perm				0.12		0.19
v/c Ratio	0.49			0.19	0.72	0.31
Uniform Delay, d1	25.0			6.0	9.7	7.0
Progression Factor	1.00			1.00	1.23	1.05
Incremental Delay, d2	0.9			0.2	3.9	0.9
Delay (s)	25.9			6.2	15.8	8.2
Level of Service	C			A	B	A
Approach Delay (s)	25.9			6.2	13.9	
Approach LOS	C			A	B	

Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.8%	ICU Level of Service	E
Analysis Period (min)	15		

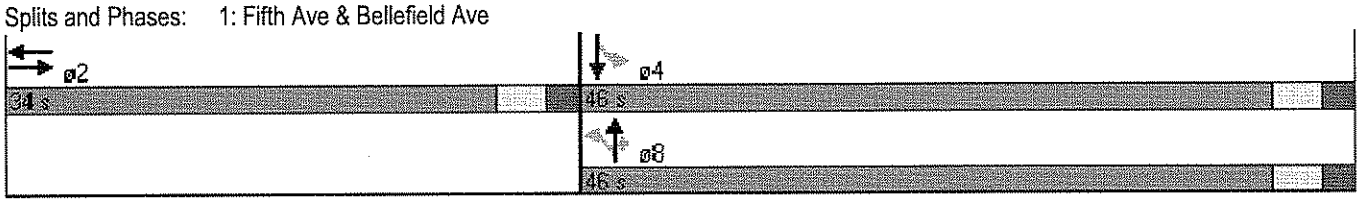
c Critical Lane Group

Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (vph)	26	1152	370	210	184	61	0
Turn Type			Perm		Perm	Perm	
Protected Phases	2	2		8			4
Permitted Phases			8		8	4	
Detector Phase	2	2	8	8	8	4	4
Switch Phase							
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	34.0	34.0	46.0	46.0	46.0	46.0	46.0
Total Split (%)	42.5%	42.5%	57.5%	57.5%	57.5%	57.5%	57.5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
Total Lost Time (s)	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	C-Min	C-Min	Min	Min	Min	Min	Min
Act Effct Green (s)	32.3	32.3	40.9	40.9	40.9		40.9
Actuated g/C Ratio	0.40	0.40	0.51	0.51	0.51		0.51
v/c Ratio	0.10	1.03	0.94	0.32	0.29		0.46
Control Delay	16.9	48.8	50.9	12.2	12.0		14.7
Queue Delay	0.0	2.5	0.0	0.0	0.0		0.0
Total Delay	16.9	51.3	50.9	12.2	12.0		14.7
LOS	B	D	D	B	B		B
Approach Delay	16.9	51.3		30.5			14.7
Approach LOS	B	D		C			B

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 51 (64%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 39.2 Intersection LOS: D
Intersection Capacity Utilization 102.2% ICU Level of Service G
Analysis Period (min) 15

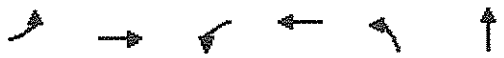
Splits and Phases: 1: Fifth Ave & Bellefield Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	26	0	0	1152	21	370	210	184	61	0	201
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.4			3.4		3.4	3.4	3.4		3.4	
Lane Util. Factor		1.00			0.95		1.00	0.95	0.95		1.00	
Frpb, ped/bikes		1.00			0.99		1.00	1.00	0.98		0.97	
Flpb, ped/bikes		1.00			1.00		0.98	1.00	1.00		1.00	
Frt		1.00			1.00		1.00	0.99	0.85		0.90	
Flt Protected		1.00			1.00		0.95	1.00	1.00		0.99	
Satd. Flow (prot)		921			3136		1468	1619	1340		1479	
Flt Permitted		1.00			1.00		0.55	1.00	1.00		0.85	
Satd. Flow (perm)		921			3136		856	1619	1340		1269	
Peak-hour factor, PHF	0.25	0.72	0.25	0.25	0.91	0.58	0.90	0.88	0.84	0.73	0.25	0.93
Adj. Flow (vph)	0	36	0	0	1266	36	411	239	219	84	0	216
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	36	0	0	1302	0	411	261	197	0	299	0
Confl. Peds. (#/hr)	160		91	91		160	52		19	19		52
Confl. Bikes (#/hr)			9			10						2
Heavy Vehicles (%)	0%	90%	0%	0%	5%	1%	11%	1%	3%	1%	0%	2%
Turn Type							Perm		Perm	Perm		
Protected Phases		2			2			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)		30.7			30.7		39.3	39.3	39.3		39.3	
Effective Green, g (s)		32.3			32.3		40.9	40.9	40.9		40.9	
Actuated g/C Ratio		0.40			0.40		0.51	0.51	0.51		0.51	
Clearance Time (s)		5.0			5.0		5.0	5.0	5.0		5.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)		372			1266		438	828	685		649	
v/s Ratio Prot		0.04			c0.42			0.16				
v/s Ratio Perm							c0.48		0.15		0.24	
v/c Ratio		0.10			1.03		0.94	0.32	0.29		0.46	
Uniform Delay, d1		14.8			23.9		18.4	11.4	11.2		12.5	
Progression Factor		1.00			0.67		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.5			29.2		27.8	0.2	0.2		0.5	
Delay (s)		15.3			45.2		46.1	11.6	11.4		13.0	
Level of Service		B			D		D	B	B		B	
Approach Delay (s)		15.3			45.2			27.9			13.0	
Approach LOS		B			D			C			B	

Intersection Summary			
HCM Average Control Delay	34.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	6.8
Intersection Capacity Utilization	102.2%	ICU Level of Service	G
Analysis Period (min)	15		

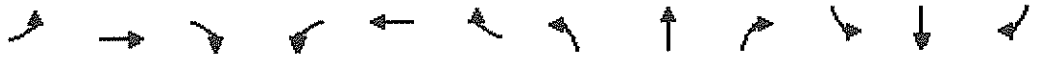
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT
Lane Configurations						
Volume (vph)	13	231	18	1124	49	98
Turn Type	Perm		Perm		Perm	
Protected Phases		2		2		4
Permitted Phases	2		2		4	
Detector Phase	2	2	2	2	4	4
Switch Phase						
Minimum Initial (s)	34.0	34.0	34.0	34.0	15.0	15.0
Minimum Split (s)	40.0	40.0	40.0	40.0	30.0	30.0
Total Split (s)	50.0	50.0	50.0	50.0	30.0	30.0
Total Split (%)	62.5%	62.5%	62.5%	62.5%	37.5%	37.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.6	-1.6	-1.6	-1.6	-0.8	-0.8
Total Lost Time (s)	4.4	4.4	4.4	4.4	5.2	5.2
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max	Max	Max	Max	Max	Max
Act Effct Green (s)		45.6		45.6	24.8	24.8
Actuated g/C Ratio		0.57		0.57	0.31	0.31
v/c Ratio		0.22		0.73	0.13	0.33
Control Delay		21.2		24.8	20.9	18.4
Queue Delay		0.0		3.2	0.0	0.0
Total Delay		21.2		28.0	20.9	18.4
LOS		C		C	C	B
Approach Delay		21.2		28.0		19.1
Approach LOS		C		C		B

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 48 (60%), Referenced to phase 2:EBWB, Start of Green	
Natural Cycle: 70	
Control Type: Pretimed	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 25.6	Intersection LOS: C
Intersection Capacity Utilization 69.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Fifth Ave & Dithridge St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	231	27	18	1124	28	49	98	51	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.4			4.4		5.2	5.2				
Lane Util. Factor		0.95			0.95		1.00	1.00				
Frpb, ped/bikes		0.98			1.00		1.00	0.98				
Flpb, ped/bikes		1.00			1.00		0.95	1.00				
Frt		0.98			1.00		1.00	0.94				
Flt Protected		1.00			1.00		0.95	1.00				
Satd. Flow (prot)		2953			3151		1557	1573				
Flt Permitted		0.86			0.95		0.95	1.00				
Satd. Flow (perm)		2559			2987		1557	1573				
Peak-hour factor, PHF	0.70	0.88	0.68	0.96	0.94	0.98	0.77	0.91	0.80	0.25	0.25	0.25
Adj. Flow (vph)	19	262	40	19	1196	29	64	108	64	0	0	0
RTOR Reduction (vph)	0	14	0	0	2	0	0	27	0	0	0	0
Lane Group Flow (vph)	0	307	0	0	1242	0	64	145	0	0	0	0
Confl. Peds. (#/hr)	10		61	61		10	30		34	34		30
Confl. Bikes (#/hr)			11			2						2
Heavy Vehicles (%)	5%	9%	1%	2%	5%	1%	2%	3%	2%	0%	0%	0%
Turn Type	Perm			Perm			Perm					
Protected Phases		2			2			4				
Permitted Phases	2			2			4					
Actuated Green, G (s)		44.0			44.0		24.0	24.0				
Effective Green, g (s)		45.6			45.6		24.8	24.8				
Actuated g/C Ratio		0.57			0.57		0.31	0.31				
Clearance Time (s)		6.0			6.0		6.0	6.0				
Lane Grp Cap (vph)		1459			1703		483	488				
v/s Ratio Prot								c0.09				
v/s Ratio Perm		0.12			c0.42		0.04					
v/c Ratio		0.21			0.73		0.13	0.30				
Uniform Delay, d1		8.4			12.7		19.9	21.0				
Progression Factor		2.72			1.88		1.00	1.00				
Incremental Delay, d2		0.3			0.3		0.6	1.6				
Delay (s)		23.2			24.1		20.4	22.5				
Level of Service		C			C		C	C				
Approach Delay (s)		23.2			24.1			22.0			0.0	
Approach LOS		C			C			C			A	

Intersection Summary			
HCM Average Control Delay	23.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	ø8
Lane Configurations									
Volume (vph)	16	249	14	972	37	138	51	135	
Turn Type	Perm		Perm		Perm		Perm		
Protected Phases		2		2		4		4	8
Permitted Phases	2		2		4		4		
Detector Phase	2	2	2	2	4	4	4	4	
Switch Phase									
Minimum Initial (s)	24.5	24.5	24.5	24.5	14.5	14.5	14.5	14.5	4.0
Minimum Split (s)	30.0	30.0	30.0	30.0	20.0	20.0	20.0	20.0	30.0
Total Split (s)	30.0	30.0	30.0	30.0	20.0	20.0	20.0	20.0	30.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	25.0%	25.0%	25.0%	25.0%	38%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Ped
Act Effct Green (s)		26.5		26.5	14.5	14.5	14.5	14.5	
Actuated g/C Ratio		0.33		0.33	0.18	0.18	0.18	0.18	
v/c Ratio		0.46		1.12	0.52	0.92	0.67	1.32	
Control Delay		29.8		89.7	50.9	68.1	62.6	201.5	
Queue Delay		0.0		0.0	11.0	0.0	0.0	198.6	
Total Delay		29.8		89.7	61.8	68.1	62.6	400.2	
LOS		C		F	E	E	E	F	
Approach Delay		29.8		89.7		67.2		338.2	
Approach LOS		C		F		E		F	

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 13 (16%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.32
Intersection Signal Delay: 124.4 Intersection LOS: F
Intersection Capacity Utilization 87.7% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 3: Fifth Ave & Craig St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	249	17	14	972	22	37	138	76	51	135	151
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.99			1.00		1.00	0.94		1.00	0.90	
Flpb, ped/bikes		1.00			1.00		0.90	1.00		0.89	1.00	
Frt		0.99			1.00		1.00	0.95		1.00	0.92	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		2927			3105		1459	1483		1419	1335	
Flt Permitted		0.70			0.95		0.28	1.00		0.40	1.00	
Satd. Flow (perm)		2058			2944		424	1483		594	1335	
Peak-hour factor, PHF	0.61	0.96	0.68	0.88	0.93	0.69	0.93	0.86	0.86	0.71	0.89	0.90
Adj. Flow (vph)	26	259	25	16	1045	32	40	160	88	72	152	168
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	310	0	0	1093	0	40	248	0	72	320	0
Confl. Peds. (#/hr)	82		54	54		82	110		88	88		110
Confl. Bikes (#/hr)			1			17			1			
Heavy Vehicles (%)	33%	9%	5%	3%	6%	6%	3%	7%	3%	4%	5%	12%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		26.5			26.5		14.5	14.5		14.5	14.5	
Effective Green, g (s)		26.5			26.5		14.5	14.5		14.5	14.5	
Actuated g/C Ratio		0.33			0.33		0.18	0.18		0.18	0.18	
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		682			975		77	269		108	242	
v/s Ratio Prot								0.17			c0.24	
v/s Ratio Perm		0.15			c0.37		0.09			0.12		
v/c Ratio		0.45			1.12		0.52	0.92		0.67	1.32	
Uniform Delay, d1		21.1			26.8		29.6	32.2		30.5	32.8	
Progression Factor		1.28			0.95		0.93	0.97		1.00	1.00	
Incremental Delay, d2		2.1			63.0		19.4	33.7		28.1	170.9	
Delay (s)		29.2			88.4		46.9	64.9		58.6	203.7	
Level of Service		C			F		D	E		E	F	
Approach Delay (s)		29.2			88.4			62.4			177.0	
Approach LOS		C			F			E			F	

Intersection Summary			
HCM Average Control Delay	92.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	39.0
Intersection Capacity Utilization	87.7%	ICU Level of Service	E
Analysis Period (min)	15		

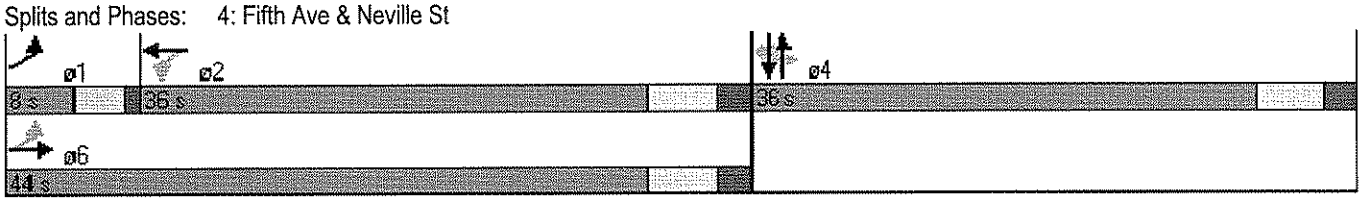
c Critical Lane Group

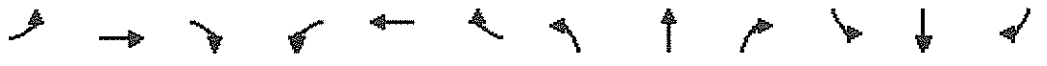
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	40	327	66	613	8	87	60	196	387
Turn Type	pm+pt		Perm		Perm		Perm		Perm
Protected Phases	1	6		2		4		4	
Permitted Phases	6		2		4		4		4
Detector Phase	1	6	2	2	4	4	4	4	4
Switch Phase									
Minimum Initial (s)	4.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0
Total Split (s)	8.0	44.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0
Total Split (%)	10.0%	55.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.8	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	0.8
Total Lost Time (s)	4.8	4.4	4.4	4.4	4.4	4.4	4.4	4.4	6.8
Lead/Lag	Lead		Lag	Lag					
Lead-Lag Optimize?	Yes		Yes	Yes					
Recall Mode	Min	C-Max	C-Max	C-Max	Ped	Ped	Ped	Ped	Ped
Act Effct Green (s)		39.6		31.6		31.6		31.6	29.2
Actuated g/C Ratio		0.50		0.40		0.40		0.40	0.36
v/c Ratio		0.37		0.73		0.39		0.60	0.92
Control Delay		11.6		30.1		19.8		24.4	52.2
Queue Delay		0.0		0.0		0.0		0.0	0.0
Total Delay		11.6		30.1		19.8		24.4	52.2
LOS		B		C		B		C	D
Approach Delay		11.6		30.1		19.8		40.1	
Approach LOS		B		C		B		D	

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 5 (6%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 28.9 Intersection LOS: C
Intersection Capacity Utilization 104.9% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 4: Fifth Ave & Neville St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↱
Volume (vph)	40	327	9	66	613	18	8	87	48	60	196	387
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.4			4.4			4.4			4.4	6.8
Lane Util. Factor		0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes		0.99			0.99			0.98			1.00	0.98
Flpb, ped/bikes		1.00			0.99			1.00			0.99	1.00
Frt		1.00			1.00			0.95			1.00	0.85
Flt Protected		0.99			1.00			1.00			0.99	1.00
Satd. Flow (prot)		3079			3162			1619			1683	1324
Flt Permitted		0.75			0.86			0.95			0.86	1.00
Satd. Flow (perm)		2324			2736			1540			1465	1324
Peak-hour factor, PHF	0.66	0.91	0.67	0.92	0.89	0.75	0.33	0.73	0.50	0.66	0.77	0.87
Adj. Flow (vph)	61	359	13	72	689	24	24	119	96	91	255	445
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	433	0	0	785	0	0	239	0	0	346	445
Confl. Peds. (#/hr)	92		73	73		92	16		51	51		16
Heavy Vehicles (%)	17%	4%	0%	0%	3%	2%	0%	0%	0%	8%	0%	10%
Turn Type	pm+pt			Perm			Perm			Perm		Perm
Protected Phases	1	6			2			4			4	
Permitted Phases	6			2			4			4		4
Actuated Green, G (s)		38.0			30.0			30.0			30.0	30.0
Effective Green, g (s)		39.6			31.6			31.6			31.6	29.2
Actuated g/C Ratio		0.50			0.40			0.40			0.40	0.36
Clearance Time (s)		6.0			6.0			6.0			6.0	6.0
Vehicle Extension (s)		3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)		1203			1081			608			579	483
v/s Ratio Prot		c0.03										
v/s Ratio Perm		0.15			c0.29			0.16			0.24	c0.34
v/c Ratio		0.36			0.73			0.39			0.60	0.92
Uniform Delay, d1		12.4			20.5			17.3			19.2	24.3
Progression Factor		0.89			1.32			1.00			1.00	1.00
Incremental Delay, d2		0.2			2.2			0.4			1.7	23.0
Delay (s)		11.2			29.4			17.8			20.8	47.4
Level of Service		B			C			B			C	D
Approach Delay (s)		11.2			29.4			17.8			35.7	
Approach LOS		B			C			B			D	

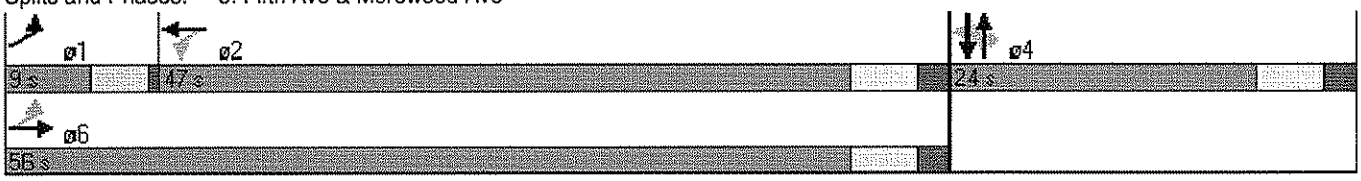
Intersection Summary			
HCM Average Control Delay	26.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	104.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Volume (vph)	15	327	158	645	17	192	126	60	238
Turn Type	pm+pt		Perm		Perm		Perm	Perm	
Protected Phases	1	6		2		4			4
Permitted Phases	6		2		4		4	4	
Detector Phase	1	6	2	2	4	4	4	4	4
Switch Phase									
Minimum Initial (s)	4.0	15.0	15.0	15.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	9.0	45.0	41.0	41.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	9.0	56.0	47.0	47.0	24.0	24.0	24.0	24.0	24.0
Total Split (%)	11.3%	70.0%	58.8%	58.8%	30.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.6	-1.6	0.0	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
Total Lost Time (s)	2.4	4.4	6.0	4.4	4.4	4.4	4.4	4.4	4.4
Lead/Lag	Lead		Lag	Lag					
Lead-Lag Optimize?	Yes		Yes	Yes					
Recall Mode	Min	Max	C-Max	C-Max	Ped	Ped	Ped	Ped	Ped
Act Effct Green (s)		51.6		42.6		19.6	19.6	19.6	19.6
Actuated g/C Ratio		0.64		0.53		0.24	0.24	0.24	0.24
v/c Ratio		0.29		0.87		0.82	0.37	0.42	0.74
Control Delay		7.8		25.5		50.1	7.7	35.7	39.8
Queue Delay		0.0		0.0		0.0	0.0	0.0	0.0
Total Delay		7.8		25.5		50.1	7.7	35.7	39.8
LOS		A		C		D	A	D	D
Approach Delay		7.8		25.5		35.1			39.1
Approach LOS		A		C		D			D

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 68 (85%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 25.4 Intersection LOS: C
Intersection Capacity Utilization 92.8% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 5: Fifth Ave & Morewood Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	327	45	158	645	150	17	192	126	60	238	29
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.4			4.4			4.4	4.4	4.4	4.4	
Lane Util. Factor		0.95			0.95			1.00	1.00	1.00	1.00	
Frpb, ped/bikes		0.99			0.97			1.00	0.79	1.00	0.98	
Flpb, ped/bikes		1.00			0.99			0.99	1.00	0.88	1.00	
Frt		0.98			0.98			1.00	0.85	1.00	0.98	
Flt Protected		1.00			0.99			0.99	1.00	0.95	1.00	
Satd. Flow (prot)		3097			3047			1697	1158	1454	1676	
Flt Permitted		0.90			0.73			0.79	1.00	0.40	1.00	
Satd. Flow (perm)		2781			2259			1355	1158	615	1676	
Peak-hour factor, PHF	0.63	0.76	0.63	0.79	0.93	0.89	0.61	0.79	0.85	0.94	0.88	0.73
Adj. Flow (vph)	24	430	71	200	694	169	28	243	148	64	270	40
RTOR Reduction (vph)	0	16	0	0	20	0	0	0	112	0	7	0
Lane Group Flow (vph)	0	509	0	0	1043	0	0	271	36	64	303	0
Confl. Peds. (#/hr)	75		35	35		75	83		161	161		83
Confl. Bikes (#/hr)			1			7			4			3
Heavy Vehicles (%)	3%	2%	13%	2%	2%	1%	2%	2%	1%	1%	1%	0%
Turn Type	pm+pt			Perm			Perm		Perm	Perm		
Protected Phases	1	6			2			4			4	
Permitted Phases	6			2			4		4	4		
Actuated Green, G (s)		50.0			41.0			18.0	18.0	18.0	18.0	
Effective Green, g (s)		51.6			42.6			19.6	19.6	19.6	19.6	
Actuated g/C Ratio		0.65			0.53			0.25	0.25	0.25	0.25	
Clearance Time (s)		6.0			6.0			6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0			3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1820			1203			332	284	151	411	
v/s Ratio Prot		c0.02									0.18	
v/s Ratio Perm		0.16			c0.46			c0.20	0.03	0.10		
v/c Ratio		0.28			0.87			0.82	0.13	0.42	0.74	
Uniform Delay, d1		6.2			16.2			28.5	23.5	25.4	27.8	
Progression Factor		1.33			1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1			8.6			14.3	0.2	1.9	6.8	
Delay (s)		8.3			24.8			42.8	23.7	27.4	34.6	
Level of Service		A			C			D	C	C	C	
Approach Delay (s)		8.3			24.8			36.1			33.4	
Approach LOS		A			C			D			C	

Intersection Summary			
HCM Average Control Delay	24.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

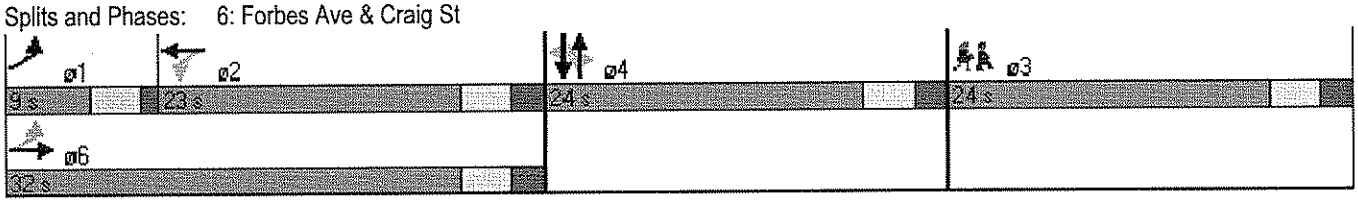
c Critical Lane Group

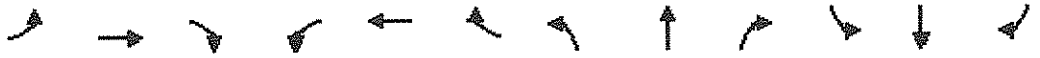
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	ø3
Lane Configurations									
Volume (vph)	148	372	45	337	2	5	81	60	
Turn Type	pm+pt		Perm		Perm		Perm		
Protected Phases	1	6		2		4		4	3
Permitted Phases	6		2		4		4		
Detector Phase	1	6	2	2	4	4	4	4	
Switch Phase									
Minimum Initial (s)	5.0	18.0	9.0	9.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	9.0	28.0	19.0	19.0	22.0	22.0	22.0	22.0	21.0
Total Split (s)	9.0	32.0	23.0	23.0	24.0	24.0	24.0	24.0	24.0
Total Split (%)	11.3%	40.0%	28.8%	28.8%	30.0%	30.0%	30.0%	30.0%	30%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead		Lag	Lag					
Lead-Lag Optimize?									
Recall Mode	Min	C-Min	C-Min	C-Min	Min	Min	Min	Min	None
Act Effct Green (s)		54.1		44.6	17.9	17.9		17.9	
Actuated g/C Ratio		0.68		0.56	0.22	0.22		0.22	
v/c Ratio		0.52		0.60	0.02	0.03		0.78	
Control Delay		7.6		14.9	23.0	19.6		39.4	
Queue Delay		0.0		0.0	0.0	0.0		0.0	
Total Delay		7.6		14.9	23.0	19.6		39.4	
LOS		A		B	C	B		D	
Approach Delay		7.6		14.9		20.4		39.4	
Approach LOS		A		B		C		D	

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 3 (4%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 15.4 Intersection LOS: B
Intersection Capacity Utilization 65.1% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 6: Forbes Ave & Craig St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	148	372	87	45	337	160	2	5	2	81	60	24
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		0.95			0.95		1.00	1.00			1.00	
Frpb, ped/bikes		0.99			0.97		1.00	0.95			0.99	
Flpb, ped/bikes		1.00			1.00		0.95	1.00			0.94	
Frt		0.98			0.95		1.00	0.95			0.98	
Flt Protected		0.99			1.00		0.95	1.00			0.98	
Satd. Flow (prot)		3061			2807		1566	1569			1525	
Flt Permitted		0.61			0.84		0.55	1.00			0.84	
Satd. Flow (perm)		1877			2368		914	1569			1315	
Peak-hour factor, PHF	0.86	0.89	0.84	0.70	0.79	0.57	0.50	0.63	0.50	0.72	0.63	0.86
Adj. Flow (vph)	172	418	104	64	427	281	4	8	4	112	95	28
RTOR Reduction (vph)	0	0	0	0	0	0	0	3	0	0	6	0
Lane Group Flow (vph)	0	694	0	0	772	0	4	9	0	0	229	0
Confl. Peds. (#/hr)	68		36	36		68	68		97	97		68
Confl. Bikes (#/hr)			2						1			2
Heavy Vehicles (%)	3%	5%	1%	1%	14%	1%	1%	1%	1%	1%	1%	12%
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	1	6			2			4			4	
Permitted Phases	6			2			4			4		
Actuated Green, G (s)		53.1			43.6		16.9	16.9			16.9	
Effective Green, g (s)		54.1			44.6		17.9	17.9			17.9	
Actuated g/C Ratio		0.68			0.56		0.22	0.22			0.22	
Clearance Time (s)		5.0			5.0		5.0	5.0			5.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		1366			1320		205	351			294	
v/s Ratio Prot		c0.04						0.01				
v/s Ratio Perm		0.30			c0.33		0.00				c0.17	
v/c Ratio		0.51			0.58		0.02	0.03			0.78	
Uniform Delay, d1		6.4			11.6		24.2	24.2			29.2	
Progression Factor		1.00			1.00		1.00	1.00			1.21	
Incremental Delay, d2		0.3			1.9		0.0	0.0			3.5	
Delay (s)		6.7			13.5		24.2	24.3			38.7	
Level of Service		A			B		C	C			D	
Approach Delay (s)		6.7			13.5			24.3			38.7	
Approach LOS		A			B			C			D	

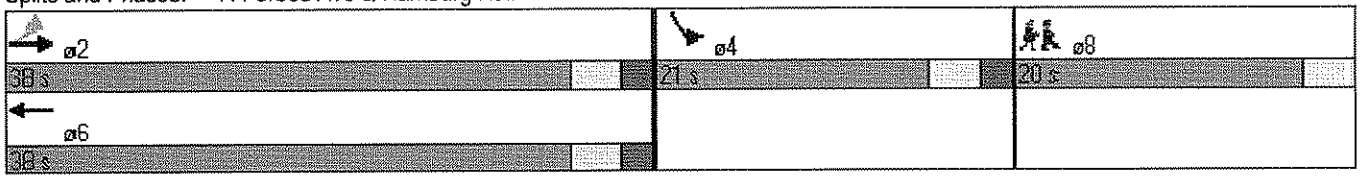
Intersection Summary			
HCM Average Control Delay	14.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	SBL	ø8
Lane Configurations				
Volume (vph)	449	557	2	
Turn Type				
Protected Phases	2	6	4	8
Permitted Phases				
Detector Phase	2	6	4	
Switch Phase				
Minimum Initial (s)	30.0	30.0	7.0	9.0
Minimum Split (s)	38.0	38.0	21.0	20.0
Total Split (s)	38.0	38.0	21.0	20.0
Total Split (%)	48.1%	48.1%	26.6%	25%
Yellow Time (s)	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.0	4.0	4.0	
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Max	None	None	None
Act Effct Green (s)	50.2	50.2	8.2	
Actuated g/C Ratio	0.83	0.83	0.14	
v/c Ratio	0.19	0.27	0.05	
Control Delay	4.8	5.2	27.7	
Queue Delay	0.0	0.0	0.0	
Total Delay	4.8	5.2	27.7	
LOS	A	A	C	
Approach Delay	4.8	5.2	27.7	
Approach LOS	A	A	C	

Intersection Summary	
Cycle Length: 79	
Actuated Cycle Length: 60.4	
Natural Cycle: 80	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.27	
Intersection Signal Delay: 5.2	Intersection LOS: A
Intersection Capacity Utilization 38.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 7: Forbes Ave & Hamburg Hall



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	0	449	557	1	2	1
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		0.95	0.95		1.00	
Frpb, ped/bikes		1.00	1.00		0.98	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	1.00		0.95	
Flt Protected		1.00	1.00		0.97	
Satd. Flow (prot)		3167	3048		1587	
Flt Permitted		1.00	1.00		0.97	
Satd. Flow (perm)		3167	3048		1587	
Peak-hour factor, PHF	0.25	0.89	0.82	0.25	0.25	0.25
Adj. Flow (vph)	0	504	679	4	8	4
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	504	683	0	12	0
Confl. Peds. (#/hr)	59			59	83	5
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	0%	5%	9%	0%	0%	0%
Turn Type	Perm					
Protected Phases		2	6		4	
Permitted Phases	2					
Actuated Green, G (s)		46.5	46.5		1.2	
Effective Green, g (s)		47.5	47.5		2.2	
Actuated g/C Ratio		0.72	0.72		0.03	
Clearance Time (s)		5.0	5.0		5.0	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		2266	2180		53	
v/s Ratio Prot		0.16	c0.22		c0.01	
v/s Ratio Perm						
v/c Ratio		0.22	0.31		0.23	
Uniform Delay, d1		3.2	3.5		31.3	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.2	0.1		2.2	
Delay (s)		3.4	3.5		33.4	
Level of Service		A	A		C	
Approach Delay (s)		3.4	3.5		33.4	
Approach LOS		A	A		C	

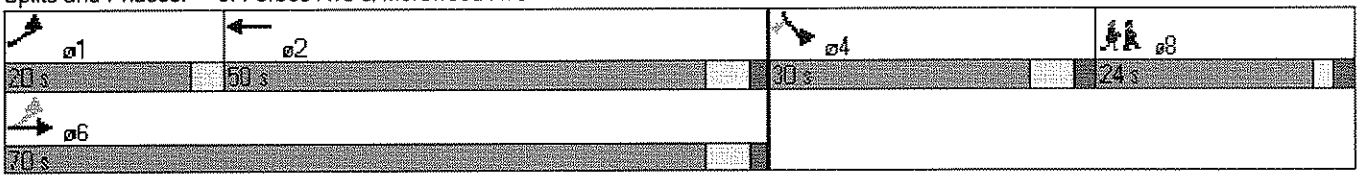
Intersection Summary			
HCM Average Control Delay	3.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	66.4	Sum of lost time (s)	16.7
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	SBL	SBR	ø8
Lane Configurations						
Volume (vph)	177	230	637	249	219	
Turn Type	pm+pt				Perm	
Protected Phases	1	6	2	4		8
Permitted Phases	6				4	
Detector Phase	1	6	2	4	4	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	20.0	70.0	50.0	30.0	30.0	24.0
Total Split (s)	20.0	70.0	50.0	30.0	30.0	24.0
Total Split (%)	16.1%	56.5%	40.3%	24.2%	24.2%	19%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	2.0
All-Red Time (s)	0.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	1.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Min	Min	None	None	None
Act Effct Green (s)	62.1	60.1	41.8	24.0	24.0	
Actuated g/C Ratio	0.51	0.49	0.34	0.20	0.20	
v/c Ratio	0.83	0.17	0.93	0.82	2.03	
Control Delay	52.3	17.3	55.1	68.6	513.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	52.3	17.3	55.1	68.6	513.1	
LOS	D	B	E	E	F	
Approach Delay		33.0	55.1	304.6		
Approach LOS		C	E	F		

Intersection Summary	
Cycle Length: 124	
Actuated Cycle Length: 122.2	
Natural Cycle: 145	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 2.03	
Intersection Signal Delay: 120.1	Intersection LOS: F
Intersection Capacity Utilization 63.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Forbes Ave & Morewood Ave



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	177	230	637	146	249	219
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	0.54
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1630	3167	3035		1646	756
Flt Permitted	0.10	1.00	1.00		0.95	1.00
Satd. Flow (perm)	171	3167	3035		1646	756
Peak-hour factor, PHF	0.83	0.88	0.82	0.76	0.94	0.73
Adj. Flow (vph)	213	261	777	192	265	300
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	213	261	969	0	265	300
Confl. Peds. (#/hr)	20			20	148	700
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	2%	5%	6%	2%	1%	7%
Turn Type	pm+pt					Perm
Protected Phases	1	6	2		4	
Permitted Phases	6					4
Actuated Green, G (s)	60.1	60.1	41.9		24.1	24.1
Effective Green, g (s)	59.1	60.1	41.9		24.1	24.1
Actuated g/C Ratio	0.48	0.49	0.34		0.20	0.20
Clearance Time (s)	3.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0		4.0	4.0
Lane Grp Cap (vph)	252	1558	1041		325	149
v/s Ratio Prot	c0.10	0.08	c0.32		0.16	
v/s Ratio Perm	0.31					c0.40
v/c Ratio	0.85	0.17	0.93		0.82	2.01
Uniform Delay, d1	30.0	17.2	38.8		46.9	49.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	22.8	0.1	14.4		15.2	478.9
Delay (s)	52.9	17.3	53.1		62.1	527.9
Level of Service	D	B	D		E	F
Approach Delay (s)		33.3	53.1		309.5	
Approach LOS		C	D		F	

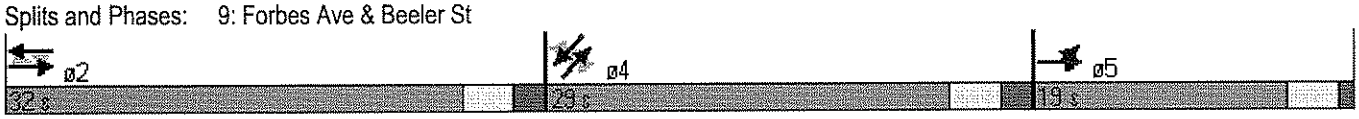
Intersection Summary			
HCM Average Control Delay	120.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	122.2	Sum of lost time (s)	42.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NET	SWL	SWT
Lane Configurations							
Volume (vph)	53	301	62	567	1	74	29
Turn Type	D.P+P		Perm			Perm	
Protected Phases	5	2 5		2	4		4
Permitted Phases	2		2			4	
Detector Phase	5	2 5	2	2	4	4	4
Switch Phase							
Minimum Initial (s)	15.0		10.0	10.0	9.0	9.0	9.0
Minimum Split (s)	19.0		32.0	32.0	14.0	14.0	14.0
Total Split (s)	19.0	51.0	32.0	32.0	29.0	29.0	29.0
Total Split (%)	23.8%	63.8%	40.0%	40.0%	36.3%	36.3%	36.3%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0		2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.5	0.5	0.5	0.5	0.5	0.5
Total Lost Time (s)	4.0	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None		C-Max	C-Max	None	None	None
Act Effct Green (s)	45.6	48.1		29.1	20.9		20.9
Actuated g/C Ratio	0.57	0.60		0.36	0.26		0.26
v/c Ratio	0.16	0.19		0.76	0.03		0.91
Control Delay	8.0	7.8		23.9	14.2		45.9
Queue Delay	0.0	0.0		0.0	0.0		0.0
Total Delay	8.0	7.8		23.9	14.2		45.9
LOS	A	A		C	B		D
Approach Delay		7.8		23.9	14.3		45.9
Approach LOS		A		C	B		D

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 79 (99%), Referenced to phase 2:EBWB, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 25.1	Intersection LOS: C
Intersection Capacity Utilization 93.9%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 9: Forbes Ave & Beeler St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	53	301	7	62	567	15	0	1	3	74	29	211
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	5.5			5.5			5.5			5.5	
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00			0.93			1.00	
Flpb, ped/bikes	1.00	1.00			1.00			1.00			0.98	
Frt	1.00	0.99			1.00			0.91			0.91	
Flt Protected	0.95	1.00			0.99			1.00			0.99	
Satd. Flow (prot)	1593	3200			3158			1464			1507	
Flt Permitted	0.26	1.00			0.85			1.00			0.91	
Satd. Flow (perm)	431	3200			2702			1464			1387	
Peak-hour factor, PHF	0.74	0.88	0.44	0.74	0.88	0.63	0.25	0.25	0.38	0.71	0.73	0.80
Adj. Flow (vph)	72	342	16	84	644	24	0	4	8	104	40	264
RTOR Reduction (vph)	0	5	0	0	3	0	0	6	0	0	86	0
Lane Group Flow (vph)	72	353	0	0	749	0	0	6	0	0	322	0
Confl. Peds. (#/hr)	42		34	34		42			83	83		
Confl. Bikes (#/hr)			4			8			2			
Heavy Vehicles (%)	4%	3%	1%	1%	4%	3%	1%	1%	1%	6%	0%	1%
Turn Type	D.P+P			Perm			Perm			Perm		
Protected Phases	5	2 5			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	44.6	48.6			29.6			21.4			21.4	
Effective Green, g (s)	44.6	43.6			29.1			20.9			20.9	
Actuated g/C Ratio	0.56	0.55			0.36			0.26			0.26	
Clearance Time (s)	4.0				5.0			5.0			5.0	
Vehicle Extension (s)	3.0				3.0			3.0			3.0	
Lane Grp Cap (vph)	458	1744			983			382			362	
v/s Ratio Prot	0.03	c0.11						0.00				
v/s Ratio Perm	0.06				c0.28						c0.23	
v/c Ratio	0.16	0.20			0.76			0.02			0.89	
Uniform Delay, d1	8.8	9.3			22.4			21.9			28.4	
Progression Factor	1.00	1.00			0.76			1.00			1.00	
Incremental Delay, d2	0.2	0.1			5.2			0.0			22.2	
Delay (s)	8.9	9.4			22.2			21.9			50.6	
Level of Service	A	A			C			C			D	
Approach Delay (s)		9.3			22.2			21.9			50.6	
Approach LOS		A			C			C			D	

Intersection Summary			
HCM Average Control Delay	26.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	93.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Configurations					
Volume (vph)	122	46	531	188	191
Turn Type		Perm			Perm
Protected Phases	4		2	2	
Permitted Phases		2			2
Detector Phase	4	2	2	2	2
Switch Phase					
Minimum Initial (s)	20.0	50.0	50.0	50.0	50.0
Minimum Split (s)	25.0	55.0	55.0	55.0	55.0
Total Split (s)	25.0	55.0	55.0	55.0	55.0
Total Split (%)	31.3%	68.8%	68.8%	68.8%	68.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	5.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	21.0		51.0	51.0	50.0
Actuated g/C Ratio	0.26		0.64	0.64	0.62
v/c Ratio	0.54		0.36	0.19	0.28
Control Delay	29.1		7.5	3.7	4.8
Queue Delay	0.0		0.0	0.0	0.0
Total Delay	29.1		7.5	3.7	4.8
LOS	C		A	A	A
Approach Delay	29.1		7.5	4.3	
Approach LOS	C		A	A	

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 70 (88%), Referenced to phase 2:NBSB, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 10.2 Intersection LOS: B
Intersection Capacity Utilization 90.8% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 10: Margaret Morrison St & Forbes Ave

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	122	22	46	531	188	191
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0			4.0	4.0	5.0
Lane Util. Factor	1.00			0.95	1.00	1.00
Frpb, ped/bikes	0.98			1.00	1.00	0.97
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	0.97			1.00	1.00	0.85
Flt Protected	0.96			0.99	1.00	1.00
Satd. Flow (prot)	1590			3161	1683	1434
Flt Permitted	0.96			0.90	1.00	1.00
Satd. Flow (perm)	1590			2850	1683	1434
Peak-hour factor, PHF	0.66	0.46	0.67	0.92	0.92	0.75
Adj. Flow (vph)	185	48	69	577	204	255
RTOR Reduction (vph)	12	0	0	0	0	0
Lane Group Flow (vph)	221	0	0	646	204	255
Confl. Peds. (#/hr)		34	8			8
Confl. Bikes (#/hr)		2				
Heavy Vehicles (%)	1%	1%	1%	5%	4%	1%
Turn Type			Perm			Perm
Protected Phases	4			2	2	
Permitted Phases			2			2
Actuated Green, G (s)	20.0			50.0	50.0	50.0
Effective Green, g (s)	21.0			51.0	51.0	50.0
Actuated g/C Ratio	0.26			0.64	0.64	0.62
Clearance Time (s)	5.0			5.0	5.0	5.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	417			1817	1073	896
v/s Ratio Prot	c0.14				0.12	
v/s Ratio Perm				c0.23		0.18
v/c Ratio	0.53			0.36	0.19	0.28
Uniform Delay, d1	25.3			6.8	6.0	6.8
Progression Factor	1.00			1.00	0.54	0.57
Incremental Delay, d2	4.8			0.5	0.4	0.8
Delay (s)	30.0			7.3	3.6	4.7
Level of Service	C			A	A	A
Approach Delay (s)	30.0			7.3	4.2	
Approach LOS	C			A	A	

Intersection Summary			
HCM Average Control Delay	10.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group