

July 3, 2013

Gray Interchange

Feasibility Study



SUBMITTED TO
The Maine Turnpike Authority



SUBMITTED BY
Vanasse Hangen Brustlin, Inc.

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1

Introduction



1.1 Project Background

The Maine Turnpike Authority (MTA) has initiated the Gray Interchange Feasibility Study to improve transportation efficiency and reduce safety problems at the Exit 63 interchange in the Town of Gray, Maine. This study is a continuation of several transportation initiatives that have occurred over the course of many years. The study of this interchange and the local area to alleviate congestion in Gray Village and increase accessibility to the Exit 63 interchange began with the Gray/New Gloucester Access Study, completed in 1998. This study identified 27 alternatives for consideration and analysis while considering the 1991 Gray Comprehensive Plan. The study conclusions identified seven alternatives for future evaluation in the Gray Bypass Environmental Assessment (EA).

The Gray Bypass EA was completed in 2002 and identified the Westerly Bypass Only Alternative as the alternative to advance through design, permitting and construction. This alternative maintained the existing interchange layout and included the Gray Bypass on the west side of the Maine Turnpike beginning at the US Route 202 intersection and running northerly approximately 1.2 miles to the intersection with Route 26 north of Gray Village. The Gray Bypass was constructed in 2006 along with associated US Route 202 roadway and bridge widening improvements that constitute today's existing conditions. The Gray Bypass provided traffic relief through Gray Village and improved access to the Maine Turnpike through the use of Exit 63.

The Gray interchange provides access to and from local and regional destinations for commerce, tourism and the local communities. Diversions in traffic patterns associated with the construction of the Gray Bypass and additional development within the region, such as the Oxford Casino in 2012, have continued to influence demands on the transportation levels of service on the Gray interchange. In addition, MTA identified bridge deficiencies with the existing southbound ramps bridge over the Maine Turnpike and poor toll plaza operations. As a result, MTA had a limited traffic study completed in early 2012 to identify traffic issues and conceptual solutions. This study identified existing traffic operational concerns that suggested improvements are necessary in 2016 before operations degrade to very poor levels of service. The traffic study identified a few solutions for consideration that would improve traffic operations to acceptable levels. The results of the limited traffic study also suggested that a formal feasibility study be conducted that includes a more extensive traffic study, environmental assessment, alternatives development and construction costs to identify a preferred alternative. The solutions that were identified in the traffic study, which were studied for this report, do not preclude the Town of Gray from implementing the Phase III recommendations from the Gray Bypass EA.



The Gray Interchange Feasibility Study considers and compares, at the macro level, the transportation operations and efficiency, safety improvements, environmental impacts and construction costs for the alternatives that are evaluated at the Exit 63 interchange.

1.2 Study Area and Alternatives

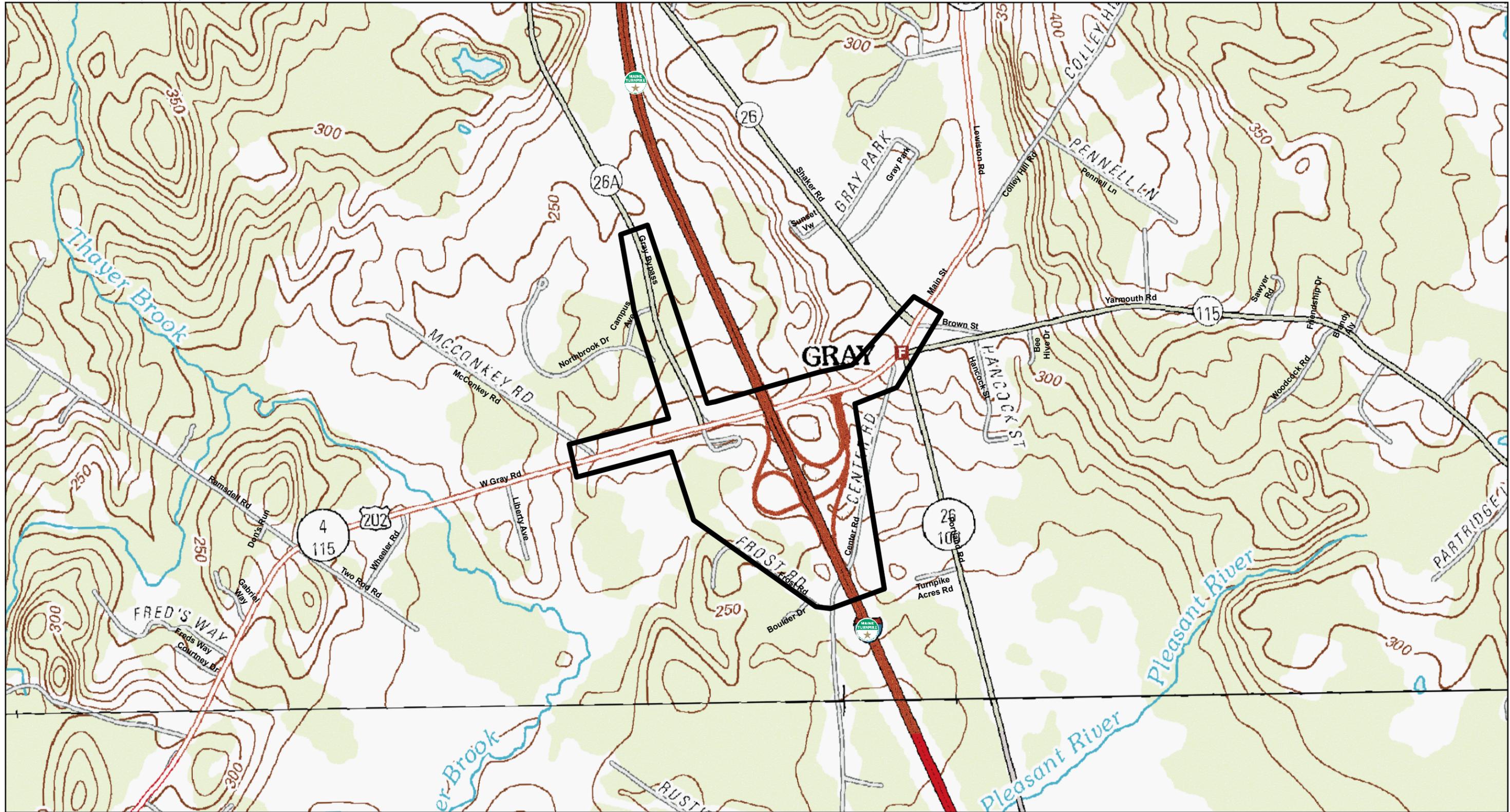
The Study Area is located in the immediate area of the Exit 63 interchange along the Maine Turnpike. The ramps for Exit 63 are included within the Study Area as is the park and ride facility on the west side of the interchange located off of US Route 202. The Center Road bridge overpass is the southerly study limit as the alternatives should not impact that bridge. The limits along US Route 202 are bounded on the east end by the intersection with Route 26, Route 100 and Brown Street and extend to a point approximately 700 feet west of the Gray Bypass intersection. The southerly portion of the Gray Bypass is included within the Study from the intersection with US Route 202 to approximately 800 feet north of the intersection. The base map is depicted in **Figure 1-1**.

The alternatives that will be studied have been identified through the coordination with MTA, the Town of Gray and the previous studies. The southbound ramps bridge has been identified as a study control, as it is believed to be in poor condition and requires rehabilitation as a minimum treatment. The alternatives to be studied are as follows:

No Build (Alternative 1) - The No Build alternative maintains the existing geometric configuration and lane use for future traffic forecasting with the existing southbound ramps bridge being rehabilitated.

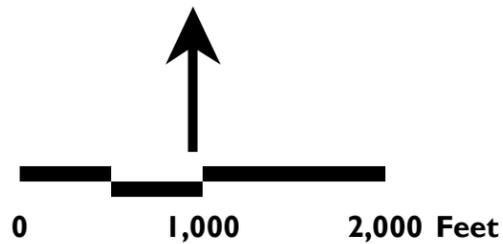
Alternative 2 - This alternative maintains the existing geometric configuration with localized improvements to the ramps, toll plaza, US Route 202 and the Gray Bypass to accommodate anticipated forecast year 2032 traffic demands and the southbound ramps bridge being rehabilitated.

Alternative 3 - This alternative relocates the southbound ramps and constructs a new toll plaza on the west side of the Maine Turnpike that is aligned with the Gray Bypass. Localized intersection improvements to the ramps, US Route 202 and the Gray Bypass are included within the alternative to accommodate anticipated forecast year 2032 traffic demands. The existing location of the Park and Ride across from the Gray Bypass may require relocation to the Gray Bypass should traffic analysis not support the coexistence of the park and ride and new southbound ramps. The existing southbound ramps bridge and associated ramp pavement will be removed with this alternative.



Legend

 Project Study Area



 **Vanasse Hangen Brustlin, Inc.**

Figure I-1
Study Area

Gray Interchange Feasibility Study
Maine Turnpike Authority

Gray, Maine



1.3 Purpose and Need

The intent of the purpose and need outlined in this section is to describe and support the Feasibility Study. The purpose and need for a study helps to establish a basis for the development of a range of reasonable alternatives and assist with the identification, analysis, and eventual selection of a preferred alternative. The Purpose and Need Statement is used for comparing the effectiveness and impacts of the various Study Alternatives to the No Action Alternative.

The Purpose and Need Statement is fundamental to the analysis of a Feasibility Study under the National Environmental Policy Act (NEPA), the Clean Water Act (Section 404), and other environmental regulations.

Purpose

The purpose for the Gray Interchange Feasibility Study is to cost effectively improve transportation efficiency and reduce safety problems within the Maine Turnpike Exit 63 interchange ramps and the Maine State highway system in the vicinity of the interchange in Gray, Maine.

Need

The MTA has identified transportation operational deficiencies at the toll plaza and bridge condition deficiencies for the southbound ramps bridge at the Exit 63 interchange in the Town of Gray, Maine. The existing interchange includes a ramp toll plaza for the collection of tolls for the southbound on ramp travelers. The toll plaza is located on the east side of the Maine Turnpike where all of the ramps intersect with US Route 202. The northbound on ramp travelers are not charged a toll but traverse beneath the toll plaza structure. The southbound ramps are aligned to provide access to and from the Turnpike via a bridge to the south of the interchange.

The interchange provides access to US Route 202, State Routes 4 and 115, the Gray Bypass, several local Gray roadways and Gray Village. In addition to providing local access, this interchange provides regional access to tourists for travel to the lakes and mountains in the region. Gray is centrally located between Portland and Lewiston and known as being the “Crossroads of Maine”. The Town of Gray is a community for current and future employees for industries involved in light manufacturing, distribution, retail and service.

The condition of the southbound ramps bridge has been identified as concerning and requires inspection and analysis of the existing condition to determine the feasibility for continued use through rehabilitation or the discontinuance of the bridge and the realignment of the southbound ramps to eliminate the bridge altogether.

The proximity of the toll plaza to the ramp intersection with US Route 202, State Routes 4 and 115 creates operational and safety concerns as it provides limited queuing length (300') for vehicles entering the on ramp systems. The E-ZPass operations and signage to access the northbound on ramp contribute to unintended directional travel onto the southbound on ramp.

1.4 Public Participation Process

A public participation process that engages all stakeholders is key to the development and refinement of smart transportation solutions. Good planning practice involves a mutual learning process among practitioners, elected officials, residents, business groups, citizen groups, and other affected parties. The thoughts, concerns, and ideas of the general public on study area transportation needs, problems, and solutions are critical to crafting and refining smart solutions that are practical, permissible, affordable, and context-sensitive in meeting the transportation needs.

Public informational meetings were held at two key points during the Feasibility Study so that the MTA and the Study Team could provide important information to the public and solicit their input. The topics and timing for the public informational meetings are listed in **Table 1.4-1**. All meetings were held at the Gray Town Hall with the meeting notes for Meetings 2 and 3 provided in Appendix F.

Table 1.4-1. Public Informational Meetings

Meeting	Date	Topics
1	November 15, 2012	Review meeting with the Town Manager and staff regarding the Study and the upcoming Public Informational Meeting.
2	November 27, 2012	Public Informational Meeting to review the Meeting Purpose, History of the Area, Purpose and Need Statement, Feasibility Study Elements and the Schedule followed by questions and answers.
3	May 7, 2013	Town Council Meeting to provide an overview of the Traffic Analysis, Alternatives Development, Environmental Assessment, Construction Costs, Conclusions and Next Steps followed by questions and answers.

2

Existing Conditions

2.1 Introduction

This chapter provides a description of the existing or baseline conditions within the Study Area. Current transportation infrastructure, traffic operating conditions, and environmental resources are described. Information on the natural and cultural resources were obtained from file reviews, agency consultations, GIS database retrieval, and a windshield level field reconnaissance effort. It is this affected environment that the impacts of the various Feasibility Study alternatives will be evaluated against (see Chapter 5).

2.2 Transportation

This section summarizes the existing transportation infrastructure and traffic operating conditions within the Study Area, as described in Section 1.2 - Study Area and Alternatives. Section 2.2.1 describes the existing transportation facilities including roadways and bridges. The Traffic Operations, Section 2.2.2, summarizes existing 2012 traffic volumes, the development of appropriate existing design hour volumes, and the results of the existing traffic operations evaluation. Section 2.2.3 summarizes the existing roadway and intersection deficiencies identified through crash research and crash analysis, physical inventories of the geometric conditions, and the operational and capacity analyses.

2.2.1 Existing Roadways and Bridges

Roadways

The Maine Turnpike is a median divided high volume, high speed, limited access transportation facility that serves as the major transportation corridor from 2.2 miles north of the New Hampshire state line to the capitol City of Augusta, Maine. The Maine Turnpike is part of the I-95 corridor that runs from northern Maine to Florida. The Maine Turnpike in the Exit 63 interchange area consists of two lanes in each direction with single lane on and off ramps to access US Route 202.

The southbound on and off ramps traverse over the Maine Turnpike via a bridge to the south of US Route 202 where the off ramp joins with the northbound off ramp lane before approaching the US Route 202 signalized intersection east of the Maine Turnpike. The southbound and northbound on ramps enter from the same signalized intersection of US Route 202 where the southbound on ramp traffic is tolled and the northbound on ramp traffic is not tolled before they enter their respective ramps.



US Route 202 is the crossing route at the Exit 63 interchange in the Town of Gray, Maine. Classified as a principal arterial that carries the National Highway System designation, it serves as a major transportation link to the Town of Gray, Maine and serves as a connection to the regional lakes and mountains. The roadway within the Study Area is also identified as State Routes 4 and 115. The segment of US Route 202 within the Study Area begins west of the Gray Bypass as a two lane roadway before it widens approaching the signalized Gray Bypass intersection to provide additional turn lanes and through lanes to manage traffic. The roadway width and number of through and turn lanes varies from the Gray Bypass intersection through the signalized interchange ramps intersection and into Gray Village. US Route 202 has a posted speed limit of 30 miles per hour (MPH) through the Exit 63 interchange area.

The Gray Bypass is a minor arterial roadway that provides a traffic relief opportunity to travelers heading north and south to avoid potential traffic congestion on Route 26 through Gray Village. The Gray Bypass is a limited access two lane roadway with additional turn lanes at several intersections.

Bridges

There are two existing bridges located within the Study Area. The northern bridge carries US Route 202 over the Maine Turnpike. The southern bridge carries the southbound ramps over the Maine Turnpike mainline and southbound on ramp acceleration lane.

The US Route 202 bridge is a 4 span steel girder bridge constructed in 1956. The bridge is 239' long between abutment bearing centerlines. The span lengths vary from 42' at the west end span to 80' over the Maine Turnpike southbound lanes. The bridge was 31' wide out-to-out when it was constructed in 1956. The bridge was widened 17' to the south in 2006. The superstructure consists of seven rolled steel girders with plate covers supporting an 8" thick reinforced concrete deck. The original five steel girders with plate covers are 36" deep and the two additional girders constructed in 2006 are 30" deep. The underside of the existing concrete deck is generally in good condition with no staining or spalled concrete. The existing compression seal joints are in good to fair condition with no notable leaks. The existing structural steel is in good condition. The five girders constructed in 1956 have localized paint failure and associated minor corrosion. The two girders constructed in 2006 have no noted paint failure or corrosion. The existing concrete parapets, aluminum railings and concrete end posts are generally in good to fair condition with some localized minor plow damage. The original portions of the existing abutments are generally in fair condition with minor spalls and delaminated concrete on the face of the bridge seats and backwalls. The widened portions of the existing abutments are in good condition with minor hair line cracking. The original portions of the three piers are also generally in fair condition with spalled and delaminated concrete on the faces and sides of the pier walls and caps. The 2006 widened sections of the existing piers are generally in good condition with minor hairline cracking. The Load and Resistance Factor Rating (LRFR) inventory and

operating rating factors (RF) are 0.68 and 0.88 respectively for the HL-93 live load. The controlling rating factors for all of the Maine legal load configurations are greater than 1.0 so no posting is recommended.

The southbound ramps bridge is a five span steel girder bridge constructed in 1956 and has a minimum vertical clearance of 14'-2" which doesn't meet the desired minimum vertical clearance of 15'-6". The bridge is 223' long between abutment bearing centerlines. The span lengths vary from 43' in the end spans to 53' over the Maine Turnpike southbound traffic. The superstructure consists of five 30" deep rolled steel girders supporting a 6½" thick reinforced concrete deck. The bridge is 33' wide out-to-out. The underside of the existing concrete deck is in poor condition with several spalls with reinforcing steel exposed. The underside of the concrete deck also has staining from moisture penetration and rust stains in some areas indicating corrosion of the reinforcing steel in the deck. 100% of both deck overhang undersides are delaminated and spalled with reinforcing steel exposed. The existing structural steel is in fair to good condition with localized paint failure and minor corrosion. The deterioration is present in all spans, but is worse over the Maine Turnpike traffic lanes. The steel rocker-type bearings at Abutment 1 are in poor condition with paint failure and moderate to severe corrosion. The existing 3-bar aluminum bridge railing does not meet current crash standards. The existing abutments are generally in fair condition. Both abutments have some extensive cracking and areas of spalled and delaminated concrete on the face of the bridge seat. The four piers are also generally in fair condition with spalled and delaminated concrete on the faces and sides of the pier walls. The pier caps are generally in good condition with some map cracking. The HL-93 Inventory and Operating Level Rating Factors for the existing steel beams are greater than 1.0 so rating for the Maine legal load configurations is not required and no posting is recommended.

2.2.2 Traffic Operations

Existing Traffic Volumes

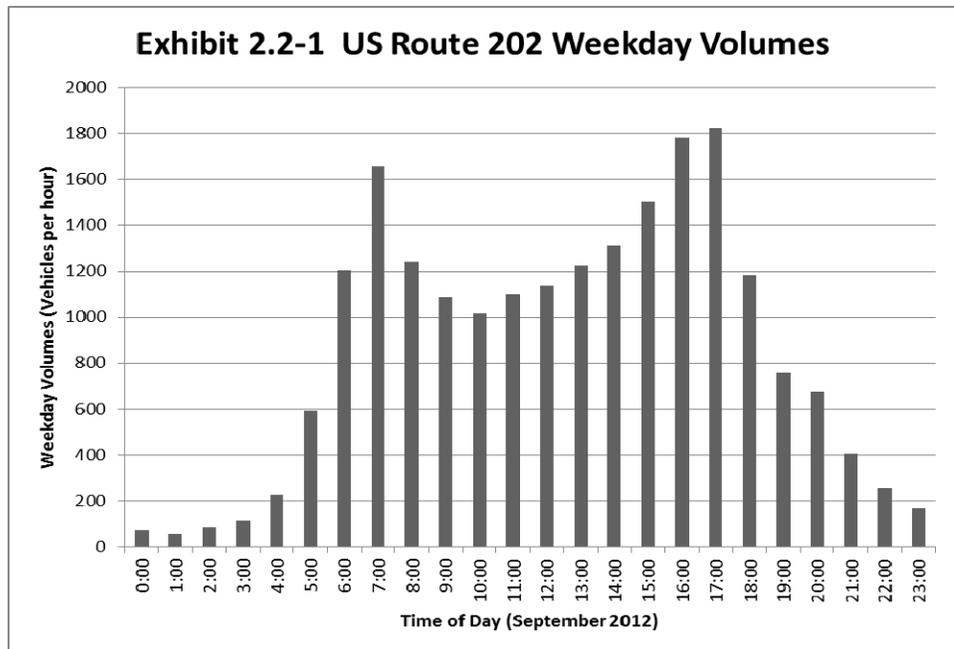
To determine the existing traffic volume demands and flow patterns within the Study Area, a traffic volume count program was conducted in September of 2012. The count program was used to update data previously collected in November 2011 as part of the conceptual study at the intersections of US Route 202 with the Gray Bypass and the Exit 63 ramps to:

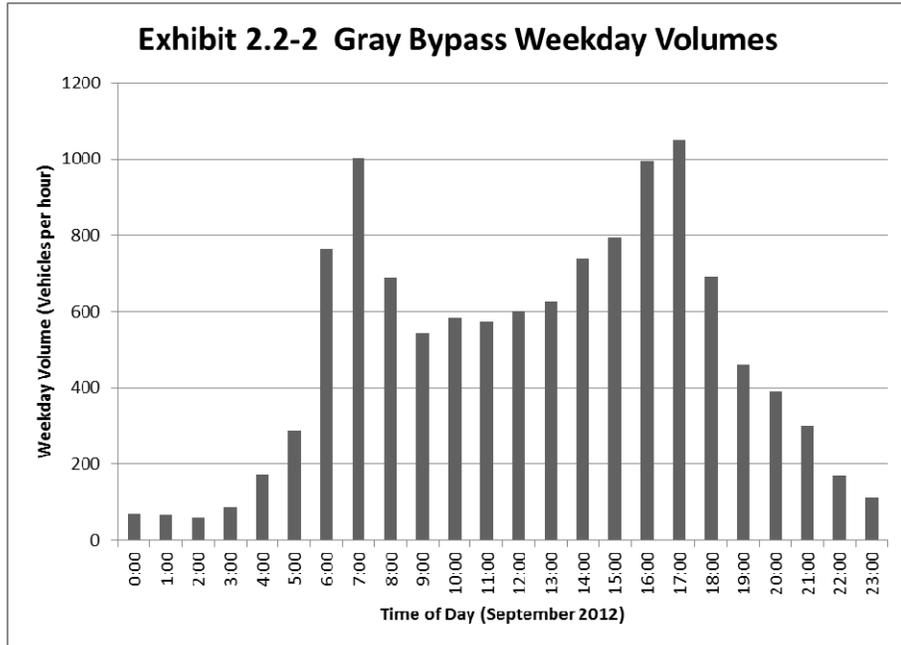
- Include traffic being generated by the Oxford Casino (which was not open in November 2011),
- Collect Saturday midday peak hour traffic volumes in addition to the weekday morning and evening peak hour conditions typically considered in a feasibility study, and

- Expand the Study Area to include the intersections of US Route 202 with Center Road; Routes 100/26 and Route 115; and Route 100, Route 26 and Brown Street.

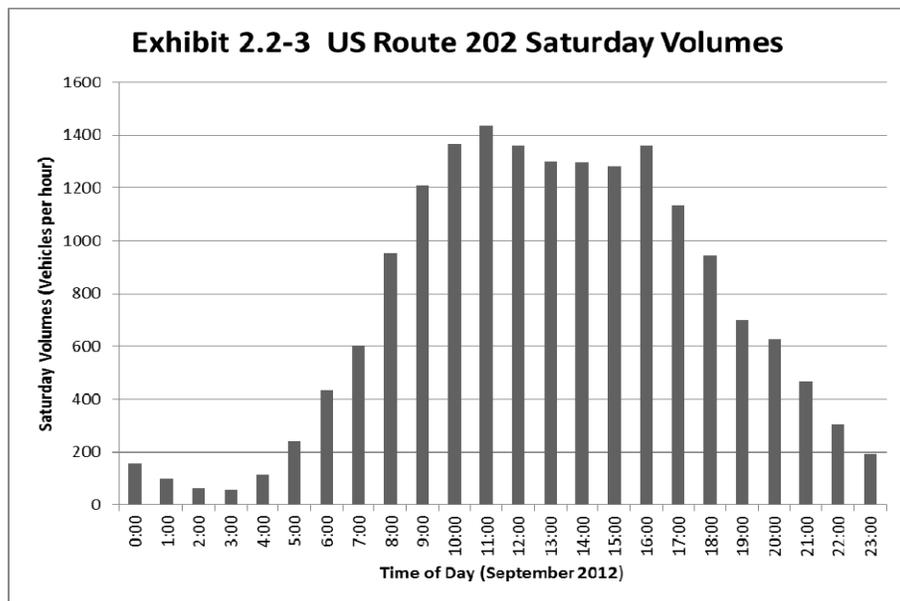
Weekday morning (6:30 to 8:30 AM), weekday evening (4:00 to 6:00 PM), and Saturday midday (11:00 AM to 2:00 PM) peak period manual turning movement counts were conducted at the Study Area intersections. Turning movement counts include passenger vehicles, medium and heavy trucks, pedestrians, and bicyclists. In addition, multi-day automatic traffic recorder counts were conducted along US Route 202, west of the Exit 63 ramps intersection, and on the Gray Bypass, north of US Route 202. Copies of the traffic volume data are provided in Appendix A.

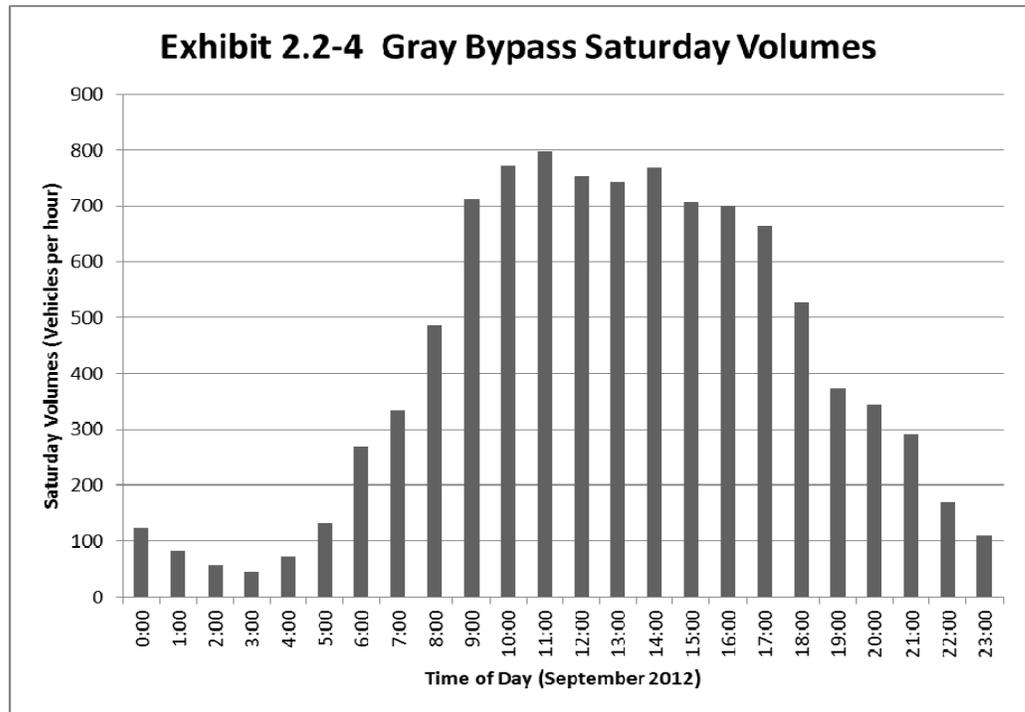
The September 2012 raw data shows that US Route 202 carries approximately 20,650 vehicles on an average weekday while the Gray Bypass carries approximately 11,850 vehicles. Summaries of the 24-hour traffic volume variations for a typical weekday along US Route 202 and the Gray Bypass, as depicted in **Exhibits 2.2-1 and 2.2-2**, indicate typical commuter route characteristics. The graphs show distinct weekday morning and evening peak commuter hour activity, noting that the highest recorded traffic volumes occur during the evening peak period.





Weekend volumes are lower than the weekday condition with a Saturday volume of 17,700 vehicles per day on US Route 202 and 10,050 vehicles per day on the Gray Bypass. Summaries of the 24-hour traffic volume variations for a typical Saturday along US Route 202 and the Gray Bypass, as depicted in Exhibits 2.2-3 and 2.2-4, indicate typical weekend roadway characteristics. Traffic volumes on a typical Saturday begin to build mid to late morning and hold fairly steady throughout the course of the afternoon, tapering off late afternoon.





2012 Design Hour Volume (DHV)

The unit of measure used to evaluate and design roadway facilities is an hourly traffic volume measured in vehicles per hour (vph). However, because hourly traffic volumes can vary over the course of the day and throughout the year, it is necessary to select an appropriate design hourly volume condition. The hourly traffic volume used for the purpose of design should not be exceeded very often or by very much. On the other hand, it should not be so high that the volume of traffic would rarely be high enough to make full use of the facility. It would be wasteful to design a facility based on the maximum peak hour traffic of the design year, yet the use of the average hourly traffic could result in an inadequate design. Therefore, the procedure typically used to evaluate traffic volume demands on a roadway system, as described in *A Policy on Geometric Design of Highways and Streets*,¹ is to establish a 30th highest hour volume or DHV as the future design condition. Given the economic considerations involved in the planning and design of roadway facilities, this DHV design criteria is selected since the 30th highest hourly volume generally reflects a “point of diminishing return” in that a substantial increase in capacity would accommodate only very few periods of higher traffic volumes.

The Maine Department of Transportation (MaineDOT) generally applies seasonal adjustment factors to the raw traffic data to establish the DHV utilizing highway classifications of I, II, or III for state and local roadways. Group I roadways are defined as urban roadways that experience little seasonal variation throughout the



¹ American Association of State Highway and Transportation Officials, *A Policy on Geometric Design of Highways and Streets*, Washington, D.C., 2001.



year as they primarily serve commuter traffic. Group II roadways are defined as arterial roadways that experience moderate seasonal variation as they serve a combination of commuter and recreational traffic. Group III roadways are defined as recreational roadways and experience significant seasonal variation. All of the Study Area roadways are considered to be Group I or Group II roadways. In general, Center Road and the Study Area roadways to the east of the Center Road intersection with US Route 202 are considered to be Group I roadways. The remaining Study Area roadways west of Center Road are considered to be Group II roadways.

Weekday evening peak hour traffic volumes collected for this Study were adjusted to reflect the DHV (30th highest hour volume) using “Weekly Group Mean Factors” provided by the MaineDOT. The 30th highest hour approximates the 6th highest week identified in MaineDOT’s “Weekly Group Mean Factors”, which generally corresponds to a summer condition. Using these available sources, an adjustment factor of 1.02 was calculated for Group I roadways and an adjustment factor of 1.05 was calculated for the Group II roadways. Since the intersection counts for the Study Area were collected on the same day and show good correlation and balancing where appropriate, it was determined that a single adjustment factor would be appropriate for the Study. Therefore, the September weekday morning, weekday evening and Saturday midday peak hour data were adjusted by a factor of 1.05 to represent a DHV condition. **Figures 2-2.1, 2-2.2, and 2-2.3** show the 2012 weekday AM, weekday PM, and Saturday midday peak hour intersection traffic volumes for the Study Area intersections with the DHV adjustment of 1.05 applied. A copy of the DHV adjustment factor calculation is provided in Appendix B.

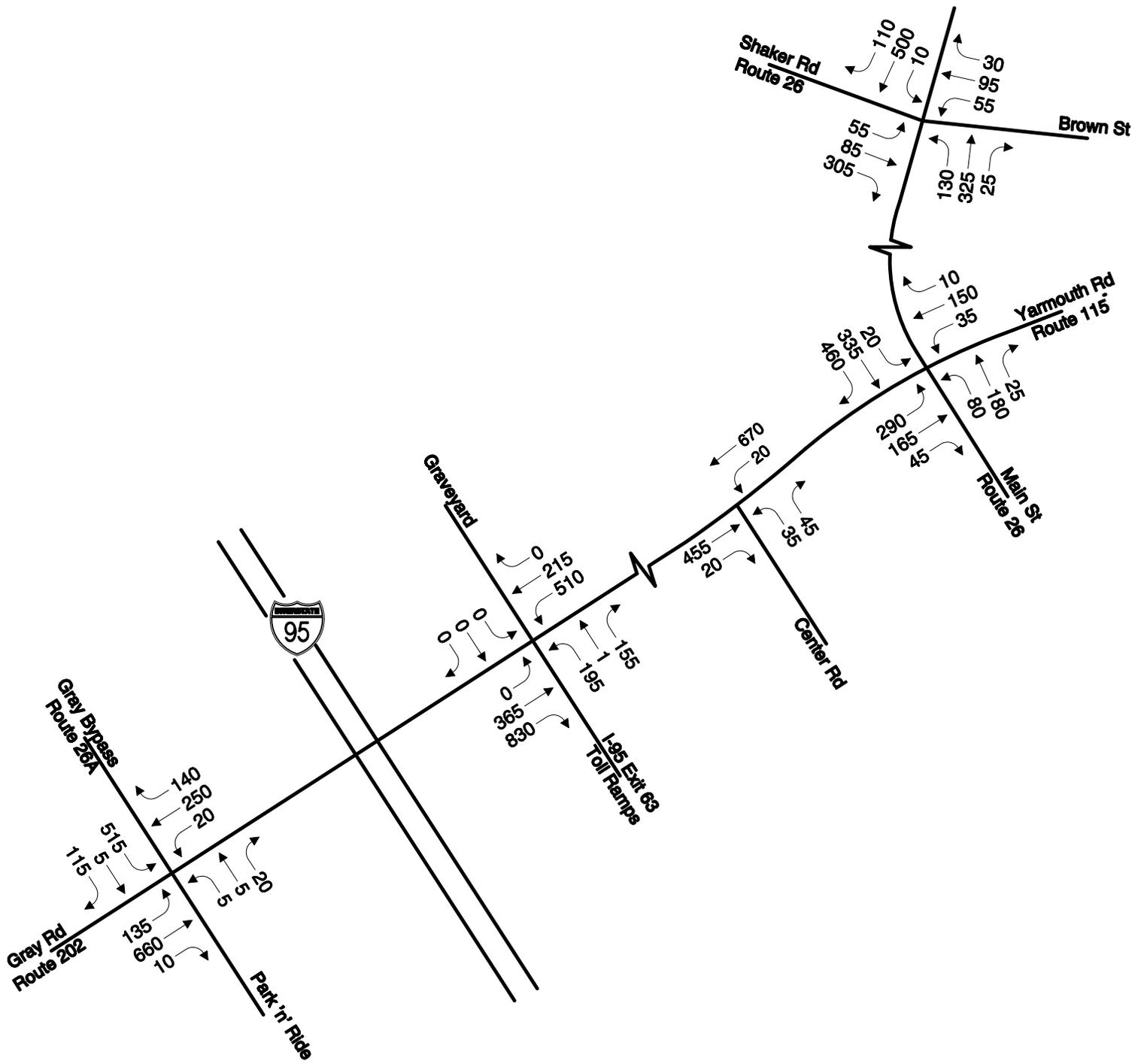
Existing Traffic Operations

Measuring the volume of traffic within the Study Area indicates the importance of these roadways and intersections to the regional transportation system, but does not necessarily give an indication of the quality of traffic flow. To assess the quality of traffic flow in the vicinity of Exit 63, capacity analyses were conducted to determine how well the roadway facilities serve the traffic demands placed upon them. The traffic performance measures and the evaluation criteria used in the operational analyses are based on the methodology presented in the 2000 Highway Capacity Manual.²

A primary result of capacity analysis is the assignment of level of service, which is a qualitative measure describing operational conditions. Level of service generally describes these conditions in terms of such factors as speed and travel time, density or freedom to maneuver, traffic interruptions, comfort, and convenience and, in so doing, provides an index to quality of traffic flow. Six levels of service (LOS) are defined ranging in letter designation from LOS A to LOS F, with LOS A representing the best operating condition and LOS F representing the worst. LOS C describes a



² 2000 Highway Capacity Manual, Special Report 209, Transportation Research Board, Washington, D.C.

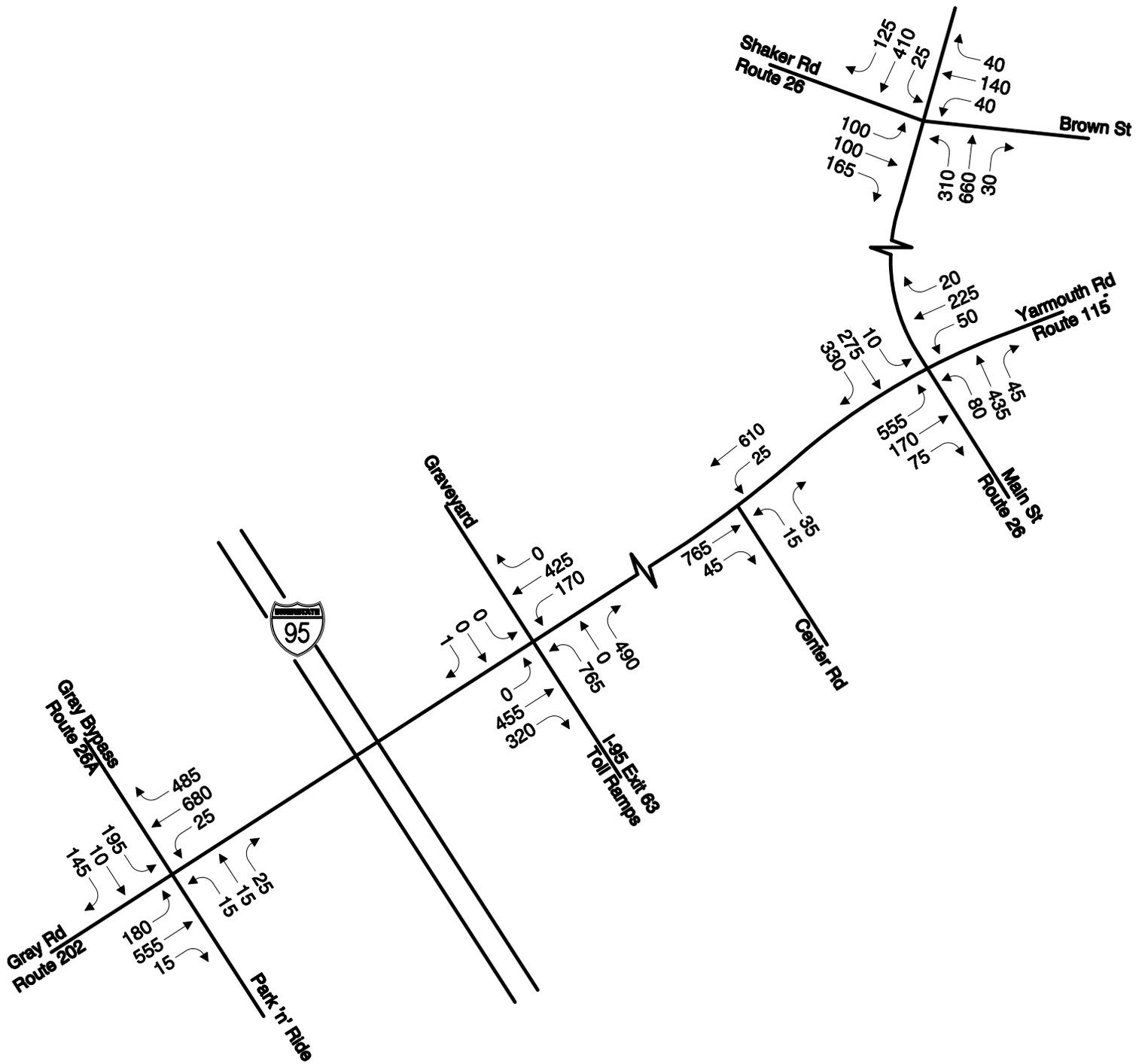


Not to Scale

Vanasse Hangen Brustlin, Inc.

2012 Weekday AM
Peak Hour Intersection Traffic Volumes

Figure 2-2.1

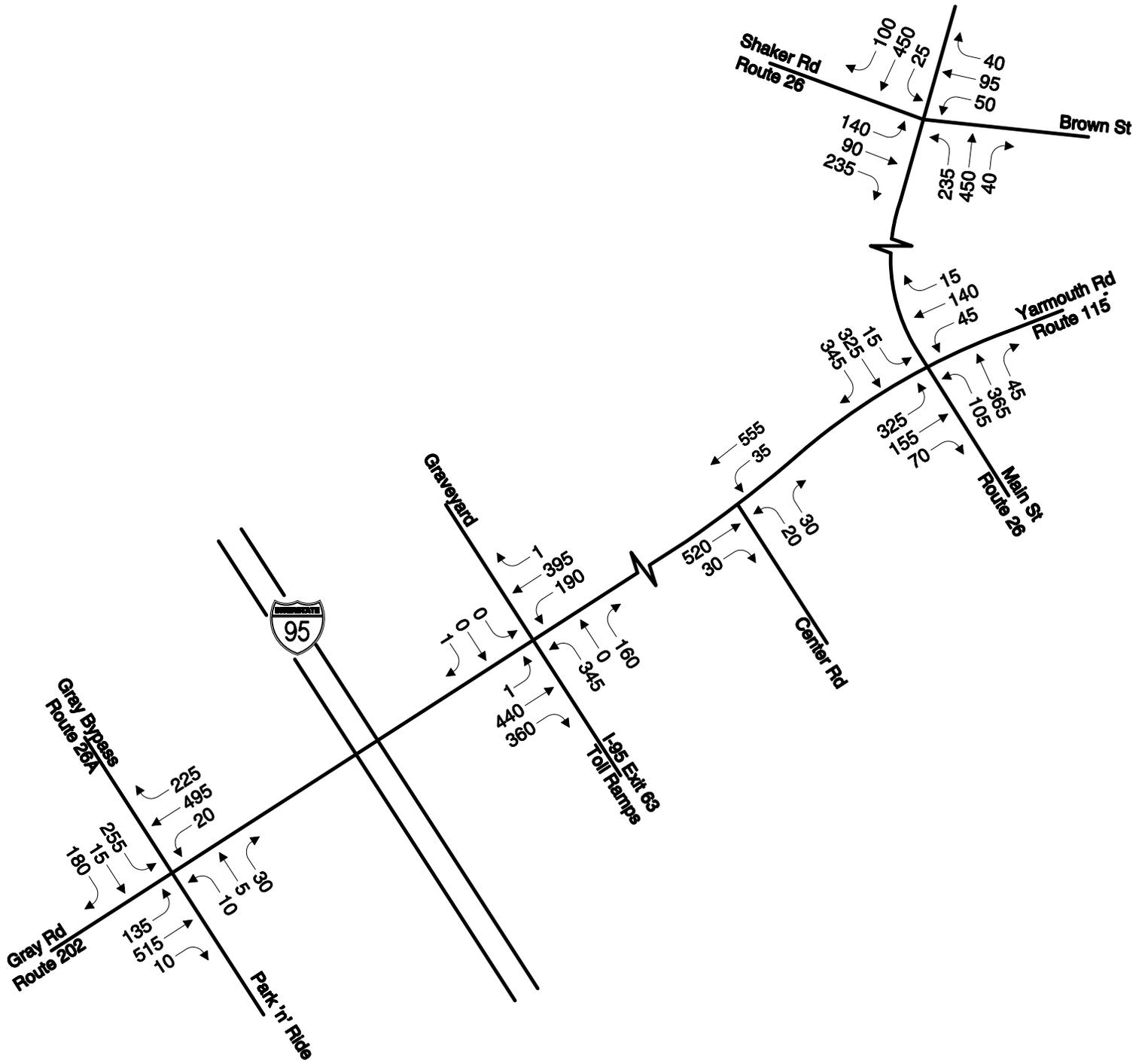


Not to Scale

Vanasse Hangen Brustlin, Inc.

2012 Weekday PM
Peak Hour Intersection Traffic Volumes

Figure 2-2.2



Not to Scale

Vanasse Hangen Brustlin, Inc.

2012 Saturday Midday
Peak Hour Intersections Traffic Volumes

Figure 2-2.3

stable flow condition and is considered desirable for design hour traffic flow. LOS D is generally considered acceptable where the cost and impacts of making improvements to provide LOS C are deemed unjustifiable. Level of Service E reflects a near or at capacity condition.

The results of the 2012 existing conditions operational analyses, which were conducted for the key signalized and unsignalized intersections that control traffic operations within the Study Area, are summarized in Tables 2.2-1 and 2.2-2.

Table 2.2-1 Signalized Intersection Capacity Analysis Summary

Location		2012 Existing Peak Hour Condition		
		v/c*	Delay+	LOS [^]
US Route 202 at Gray Bypass	AM	0.95	62	E
	PM	0.66	30	C
	Sat	0.61	27	C
US Route 202 at Exit 63 Ramps/Gray Cemetery	AM	0.95	48	D
	PM	0.70	26	C
	Sat	0.49	16	B
US Route 202 at Routes 100/26 and Route 115	AM	0.60	32	C
	PM	0.73	32	C
	Sat	0.63	24	C
US Route 202 at Route 26 and Brown Street	AM	0.47	22	C
	PM	0.76	26	C
	Sat	0.63	20	C

*Volume to capacity ratio.

+Delay expressed in seconds per vehicle.

[^]Level of service.

The results of the 2012 existing conditions operational analyses indicate that the signalized intersections of US Route 202 with the Gray Bypass and the Exit 63 ramps experience their worst levels of service during the weekday morning peak hour. The signalized intersection of US Route 202 and the Gray Bypass currently operates at LOS E with a volume to capacity ratio of 0.95 during the weekday morning peak hour. The signalized intersection of US Route 202 and the Exit 63 ramps also experiences a volume to capacity ratio of 0.95 during the weekday morning peak hour but operates at LOS D. During the weekday evening and Saturday midday peak hours, both of these intersections operate at LOS C or better. Likewise, the signalized Study Area intersections located east of the Exit 63 ramps operate at LOS C for all three peak hour conditions. However, it is noted that the two signalized intersections east of the ramps (Route 100/26 at Route 115 and Route 26 at Brown Street) experience busiest operations during the weekday evening peak hour with

average volume to capacity ratios of approximately 0.75. Copies of the operational analysis results are provided in Appendix C.

Table 2.2-2 Unsignalized Intersection Capacity Analysis Summary

Location	2012 Existing Peak Hour Condition		
	Demand*	Delay+	LOS [^]
US Route 202 at Center Road			
Westbound Left/Through	AM 690	1	A
Northbound Left/Right	AM 80	21	C
Westbound Left/Through	PM 635	1	A
Northbound Left/Right	PM 50	18	C
Westbound Left/Through	Sat 590	1	A
Northbound Left/Right	Sat 50	17	C

*Demand expressed in vehicles per hour.

+Delay expressed in seconds per vehicle.

[^]Level of service.

As shown in Table 2.2-2, the turning movements at unsignalized intersection of US Route 202 and Center Road currently operate at LOS C or better during the weekday morning, weekday evening and Saturday midday peak hour conditions. These good operating conditions are primarily due to the fairly low turning volumes experienced at this intersection which are shown in Figures 2.2-1 through 2.2-3.

2.2.3 Turnpike Operations

The Toll Plaza area is where all four of the Exit 63 ramps converge at the intersection with US Route 202 on the east side of the Maine Turnpike. The toll plaza is located approximately 300 feet south of the signalized intersection with US Route 202. The southbound on ramp vehicles are the only vehicles that pay a toll to enter the Maine Turnpike. The layout of the ramp lanes at the toll plaza area is the northbound and southbound off ramps are on the east side, the southbound on ramp is in the middle and the northbound on ramp is on the west side.

The toll plaza layout for the southbound on ramp consists of a single E-ZPass lane and a single shared cash/E-ZPass lane. The current traffic volume that utilizes the exclusive southbound on ramp E-ZPass lane occasionally approaches capacity during the peak commuter periods contributing to the congestion in the toll plaza entrance area. The previously completed Traffic Study for Exit 63 and the 2012 Safety and Capacity Study for MTA identified capacity constraints with the existing interchange configurations. The northbound on ramp, although not tolled, is located adjacent to the southbound on ramp and travels beneath the toll plaza structure

leading to driver confusion on whether they are being tolled or not. This toll lane arrangement, the existing signage, the short distance from the intersection to the toll plaza and the presence of large trucks all contribute to driver confusion before they enter into a lane at the toll plaza. This results in drivers that are unfamiliar with this toll plaza to go through the toll plaza assuming they will be able to select either the southbound or northbound ramp after they travel beneath the toll structure, when in fact they are only permitted to travel in the southbound or northbound on ramps as established by the toll plaza.

An additional complication at the toll plaza area is the issuance of overlimit vehicle permits. These permits are issued at the toll booth though the use of the shared cash/E-ZPass lane. The processing of the permit takes a few minutes and creates additional delays for travelers and sometimes results in drivers making poor decisions to enter an incorrect lane.

2.2.4 Crash Evaluation

A review of the high crash locations along US Route 202 within the Study Area was completed for the most recent three-year period of crash data available (2009 – 2011). To evaluate whether a location is problematic, MTA and MaineDOT utilizes two criteria to define what is called a High Crash Location (HCL). Both of the following criteria must be met in order to be classified as an HCL:

- A critical rate factor of 1.00 or more for a three-year period. A Critical Rate Factor (CRF) compares the actual crash rate at a specific location to the rate for similar intersections in the State. A CRF less than 1.00 indicates a below average crash rate.
- A minimum of eight crashes over the latest three-year period.

Based on a review of the 2009 - 2011 crash records, there were no intersections or links that met both of the above criteria. **Table 2.2-3** summarizes the crash evaluation for the Study Area intersections using the State’s criteria.

Table 2.2-3 2009-2011 HCL Evaluation Summary

Node	Intersection	Number of Collisions	Crash Rate	Critical Rate Factor	High Crash Location
61549	US Route 202 at Gray Bypass	15	0.69	0.65	No
19302	US Route 202 at Exit 63 Ramps/Gray Cemetery	8	0.32	0.31	No
17095	US Route 202 at Routes 100/26 and Route 115	24	0.94	0.92	No
17112	US Route 202 at Route 26 and Brown Street	12	0.54	0.51	No



A detailed summary of the crash characteristics for each Study Area intersection is provided in Appendix D. It was noted that the majority (approximately 70%) of the crashes occurred during daylight hours and on a dry pavement surface with clear weather. Most crashes (59%) were rear end or sideswipe type crashes. With regard to crash severity, the majority of the crashes involved property damage only (78%) while the remaining crashes (22%) involved personal injury. No crashes involved pedestrians or bicyclists.

2.3 Environmental and Cultural Resources

Section 2.3 describes the environmental resources within the Study Area. The existing conditions inventory was compiled using various sources as noted below. Environment resources inventoried include: wetlands; surface waters; groundwater resources; floodplains; farmland; rare, threatened, and endangered species; wildlife habitat; and hazardous materials.

2.3.1 Wetlands

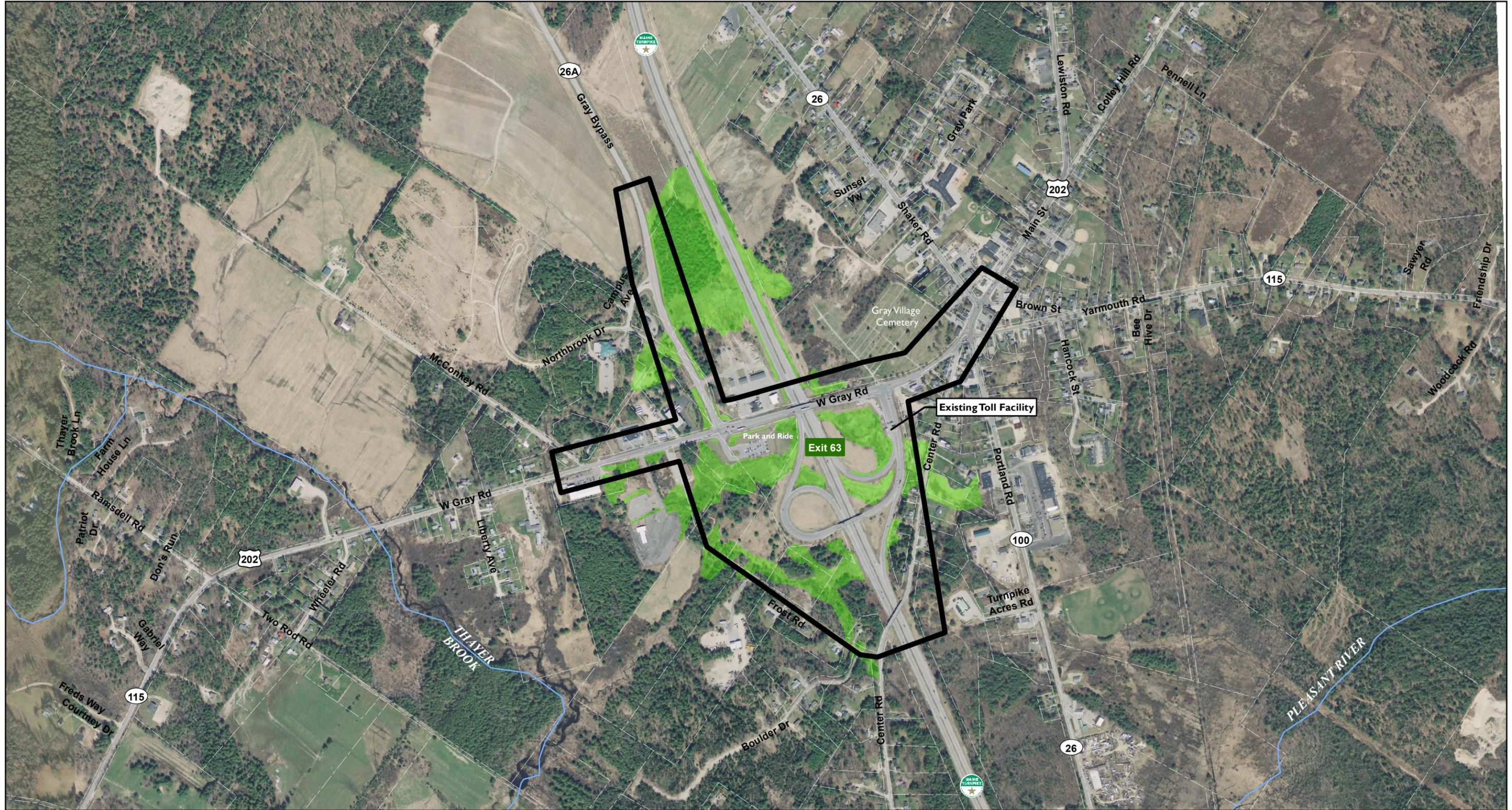
The National Wetlands Inventory (NWI) mapping, hydric soils mapping from the National Resources Conservation Service (NRCS), as well as aerial interpreted wetlands by VHB scientists were reviewed to determine the potential location of wetlands within the Study Area. Potential wetlands were verified by VHB Environmental Scientists by completing a windshield level field reconnaissance effort in late October, 2012.

A Trimble ProXT GPS unit with an accuracy of sub-meter or better was used to verify/update existing wetlands mappings, and to collect previously unidentified wetland boundaries. GPS points were collected at the corners of wetlands to map the general extent of wetlands within the Study Area. No jurisdictional delineations were performed. **Figure 2-3.1** shows the extent of wetlands within the Study Area.

The field reconnaissance and aerial interpretation combined with the NWI mapping indicates that there are nineteen (19) wetland areas (or portions of larger wetlands) located within the Study Area.

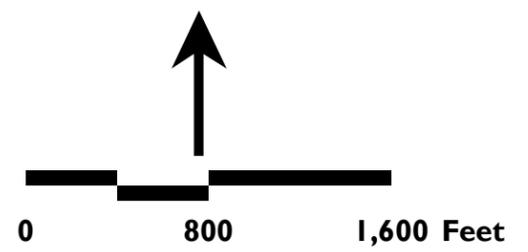
Four (4) of these wetland areas are located within the existing approximate ROW of the Maine Turnpike and thus have been previously disturbed. These four (4) wetland areas are generally isolated fragments of wetlands with emergent vegetation (Palustrine, emergent - PEM). The dominant species in these wetlands are cattails and phragmites.

Four (4) other wetland areas were identified along the Gray Bypass within the Study Area. The largest and most ecologically intact of these four (4) wetland areas is located at the northern limits of the Study Area along the east side of the Gray



- Legend**
-  Project Study Area
 -  Streams (USGS)
 -  Assessor's Tax Parcels

 Wetland Resources within Project Study Area



VHB Vanasse Hangen Brustlin, Inc.

Figure 2-3.1
Wetland Resources

Gray Interchange Feasibility Study
Maine Turnpike Authority

Gray, Maine





Bypass. This wetland includes both forested (PFO) and emergent (PEM) wetland vegetation types. The other three (3) wetland areas along the Gray Bypass are small fragments of wetlands that have been previously disturbed and are primarily dominated by emergent vegetation.

There are four (4) other wetland areas associated with the existing park and ride along the south side of US Route 202. Three (3) of these wetland areas are small and previously disturbed by the construction of the park and ride. The dominant vegetation class is emergent (PEM) and the dominant species is cattails. The fourth wetland area associated with the park and ride has been partially disturbed previously and in these disturbed areas it is dominated by emergent vegetation. The more ecologically intact portions of this relatively large wetland are forested (PFO).

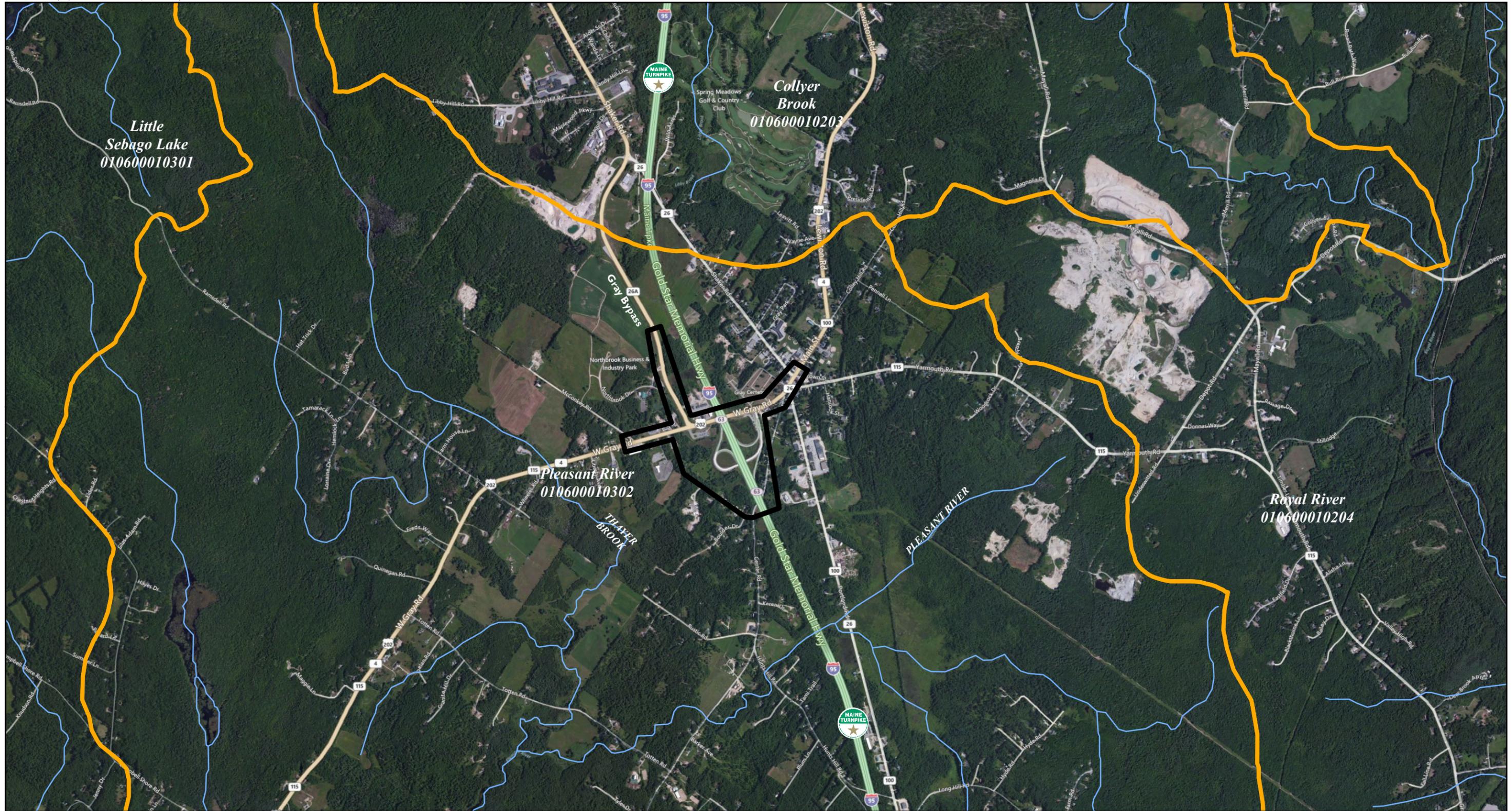
There are three (3) other wetland areas within the ROW of US Route 202 within the Study Area. Two of these wetland areas are located at the western limits of the Study Area and were likely once part of the same wetland before an access driveway separated them. These two (2) wetland areas are dominated by mixed woody vegetation (PFO). The third wetland area along US Route 202 is located just to the east of the Maine Turnpike on the north side of US Route 202. This wetland area has been previously disturbed by the construction of both US Route 202 and the Maine Turnpike. The vegetation is dominated by both emergent (PEM) and scrub-shrub (PSS) vegetation. Phragmites is dominant within the PEM areas of this wetland.

Two (2) other wetland areas are located to the east of the Maine Turnpike between the northbound off ramp and Center Road. Portions of both of these wetland areas have been disturbed by the construction of the Maine Turnpike. Vegetation within these two wetlands is mixed forested (PFO) and emergent (PEM). There is a hydrological connection of the wetland to the north with a wetland on the east side of Center Road that has also been disturbed by residential development.

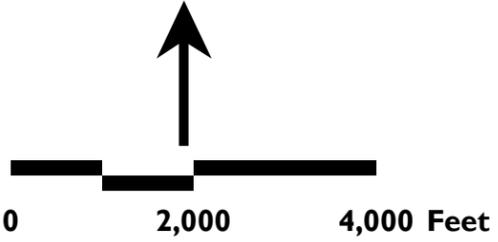
The final two (2) wetland areas that were identified by field reconnaissance and aerial interpretation are located in the southwest quadrant of the Study Area. One of these wetland areas is a very small wetland fragment that was previously connected to the larger of the two wetland areas. This small wetland area is primarily open water (POW) with scrub-shrub vegetation at the edges. The larger wetland area is one of the most ecologically intact wetlands within the Study Area. It is mostly forested (PFO) with some emergent vegetation (PEM) where it runs adjacent to and has likely been previously disturbed by the construction of the southbound lane of the Maine Turnpike.

2.3.2 Surface Waters

As indicated in **Figure 2-3.2**, the Study Area is located within the Pleasant River HUC12 Watershed (010600010302).



- Legend**
-  Project Study Area
 -  Streams (USGS)
 -  HUC12 Watershed



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Figure 2-3.2
Surface Waters

Gray Interchange Feasibility Study
Maine Turnpike Authority

Gray, Maine



There are no lakes, ponds, rivers or named streams within the Study Area. Runoff from the Study Area drains to Pleasant River to the south of the Study Area and to Thayer Brook to the west of the Study Area.

Existing impervious surfaces within the Study Area are primarily associated with state highways, the Maine Turnpike and commercial development located along the transportation infrastructure. There are approximately 7.0 acres of impervious surfaces currently within the Study Area.

Gray is not currently classified by the US Environmental Protection Agency as an MS4 community.

2.3.3 Groundwater Resources

Information on groundwater resources in the form of substantial aquifers mapped by the Maine Department of Conservation (MEDOC), Maine Geological Survey (MGS) were retrieved from the MEGIS database. Substantial aquifers are defined as bodies of coarse grained glacial material with the potential to yield 10 or more gallons-per-minute (gpm) to a properly constructed well. This analysis indicates that a small area at the eastern limits of the Study Area is underlain by an aquifer that has been mapped as yielding 10-50 gallons/minute (see **Figure 2-3.3**).

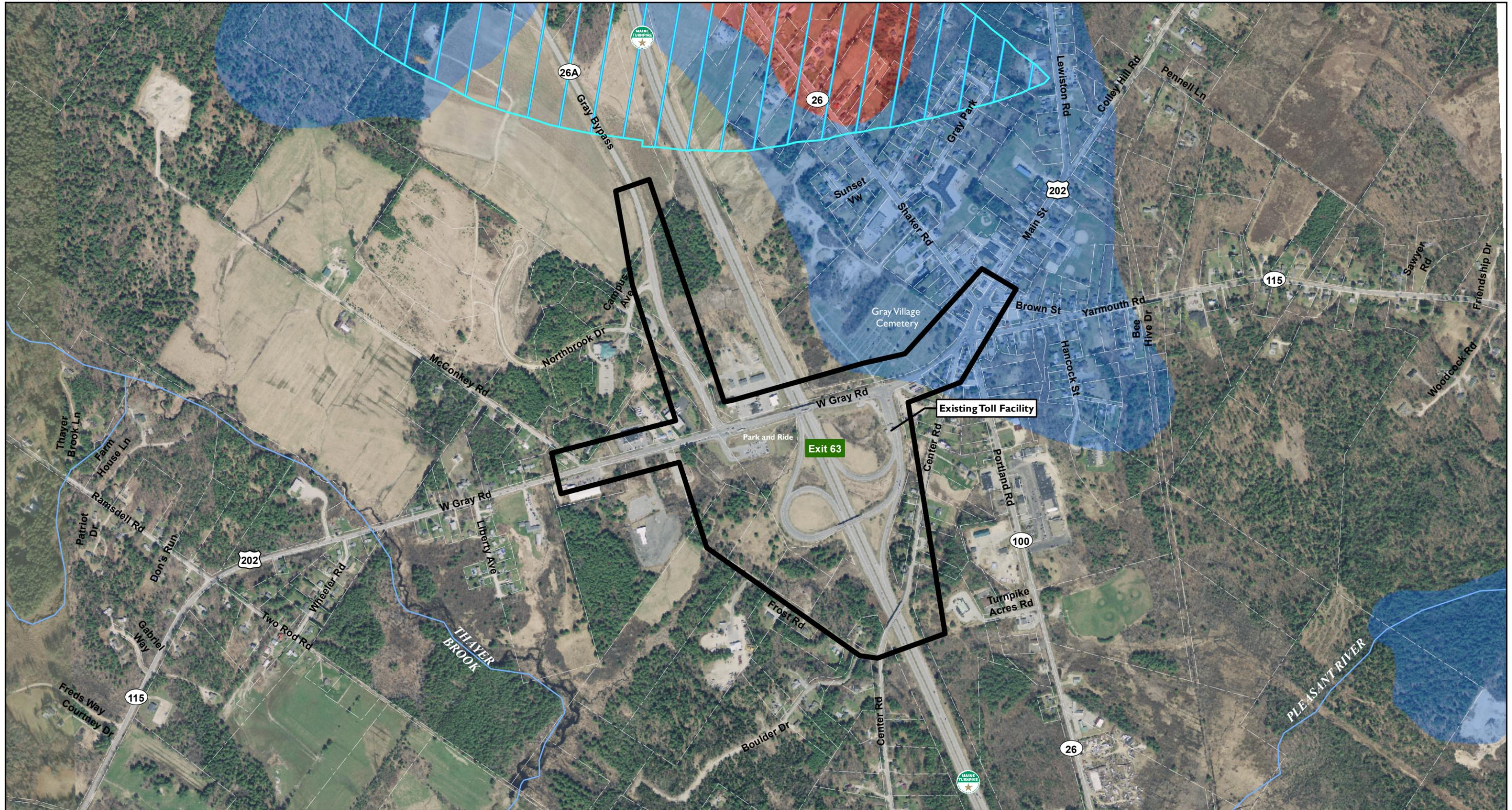
GIS data from the Maine Department of Human Services (MEDHS), Drinking Water Program (MEDWP) was reviewed to determine if the Study Area is within a designated Well Head Protection Area or Source Water Protection Area, or if there are any mapped public or private wells in the vicinity. The review as depicted on **Figure 2-3.3** indicates that a Source Water Protection Area is located just to the north and east of the Study Area. A portion of the Gray Village Aquifer Protection District is located within the Study Area, the limits of which (within the Study Area) are coincidental with the limits of the mapped aquifer in **Figure 2-3.3**.

2.3.4 Floodplains

There are no surface water resources within the Study Area, and accordingly there are no floodplains within the Study Area.

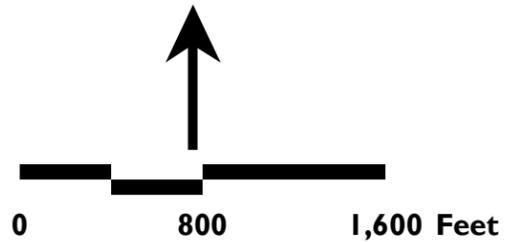
2.3.5 Farmland

Information on Important Farmland Soils as defined by the Farmland Protection Policy Act (FFPA) was retrieved from the NRCS Soil Data Mart for Cumberland County. The Soil Data Mart contains current digital mapping and soil unit attribute information on Prime Farmland and Statewide Important Farmland soils for Gray. In addition to the data provided by NRCS, aerial photography was used to determine the presence or absence of active farmlands within the Study Area. Farmlands are shown on **Figure 2-3.5**.



- Legend**
- Project Study Area
 - Streams (USGS)
 - Assessor's Tax Parcels

- Significant Aquifer Resources**
- Aquifer expected to yield 10-50 gallons-per-minute to a properly constructed well.
 - Aquifer expected to yield greater than 50 gallons-per-minute to a properly constructed well
- Modeled Source Water Protection Area**
- Sand and gravel aquifer area with 2500 day travel time to selected community public water supply well



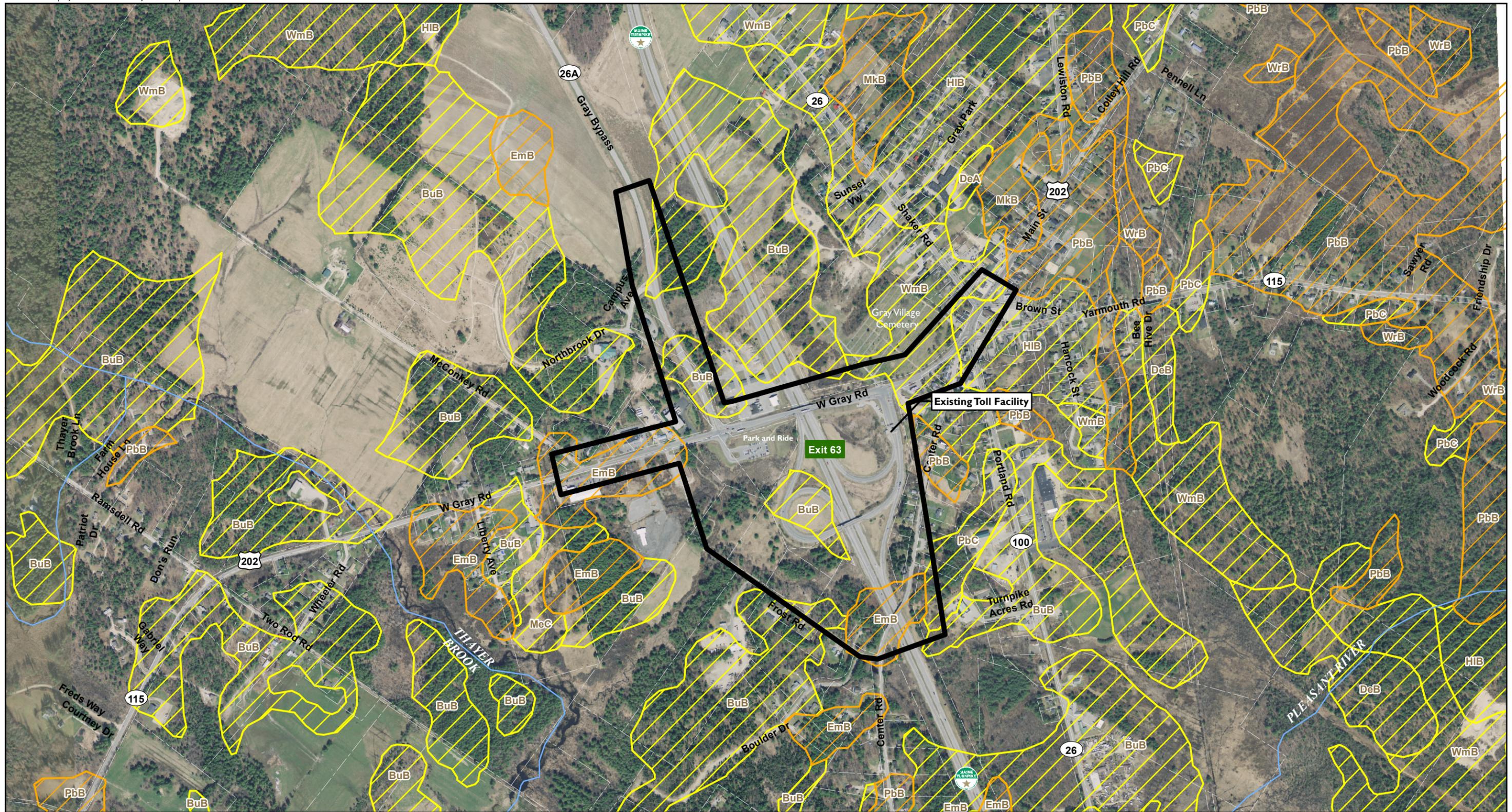
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Figure 2-3.3
Groundwater Resources

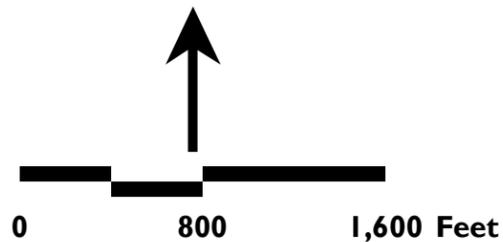
Gray Interchange Feasibility Study
Maine Turnpike Authority

Gray, Maine





- Legend**
- Project Study Area
 - Streams (USGS)
 - Assessor's Tax Parcels
 - NRCS Farmland Soils: All areas are prime farmland
 - NRCS Farmland Soils: Farmland of statewide importance



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Figure 2-3.5
NRCS Farmland Soils

Gray Interchange Feasibility Study
Maine Turnpike Authority

Gray, Maine





Prime Farmlands

The NRCS database identifies two areas of prime farmland soils mapped within the Study Area. Both of these areas are currently impacted by the existing US Route 202 and the Maine Turnpike. There are no active farms nor is there potential for the development of future active farms within these Prime Farmland map units.

Farmlands of Statewide Importance

There are six (6) areas within the Study Area where the NRCS data shows map units that are classified as Farmlands of Statewide Importance. Four of these areas are currently disturbed and/or segmented by the existing transportation infrastructure, including the Gray Bypass, US Route 202 and the Maine Turnpike interchange. Two of the NRCS map units classified as Farmlands of Statewide Importance are currently in woodland.

Some of the map units designated by NRCS as important farmland may include areas that are no longer conducive to agricultural production.

2.3.6 Rare, Threatened, and Endangered Species

A request was sent to the Maine Natural Areas Program (MNAP) to document whether there are any records of rare species, plants and/or rare or exemplary natural communities or ecosystems in the Study Area. A response from MNAP was received on October 26, 2012. MNAP concluded that there are no known rare botanical features documented within the Study Area. Additionally, the landscape context of this project indicates a low probability that rare or significant botanical features occur within the Study Area.

A request was sent to the Maine Department of Inland Fisheries & Wildlife (MDIF&W) to document whether there are any records of rare animal species within the Study Area. A response from MDIF&W was received on October 25, 2012 and indicated that there are no documented occurrences of Rare, Threatened or Endangered animal species within the Study Area.

In accordance with the US Fish & Wildlife Service (USFWS) section 7(c) of the Endangered Species Act of 1973, as amended (16 USC 1531 et seq.), the USFWS was also contacted to determine whether or not there were federally listed threatened or endangered species and/or their critical habitats within the Study Area. A response from the USFWS was received on November 5, 2012 identifying one animal species and one plant species that may occur within the limits of the Study Area.

The New England Cottontail rabbit (*Sylvilagus transitionalis*) and the Small Whorled pogonia (*Isotria medeoloides*) were identified by the USFWS as having the potential to

occur and/or for their critical habitat to occur within the Study Area. The USFWS recommends that a Biological Assessment or biological evaluation be completed as part of the continued study to determine whether the Study Area contains these resources. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

2.3.7 Inland Fisheries & Wildlife Habitat

Requests were made to the Maine Department of Inland Fisheries and Wildlife (MDIF&W) to document areas of significant habitat within the Study Area. A response was received on October 25, 2012. The MDIF&W has not mapped any Essential or Significant Wildlife Habitats or Fisheries Habitats within the Study Area.

Data from the Maine GIS and maps from the MDIF&W and the USFWS were used to create **Figure 2-3.7** that shows the known and documented locations of important fisheries and wildlife habitat relative to the Study Area.

2.3.8 Hazardous Materials

Available databases of known environmental hazard sites supplied by the Maine DEP were reviewed. This review identified several known locations of Remediation Sites, Hazardous Oil Spill Sites, Registered Petroleum Tanks, Threats to Groundwater, Environmental Monitoring and Waste Water outfalls within the Study Area.

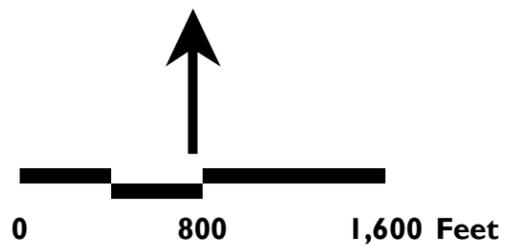
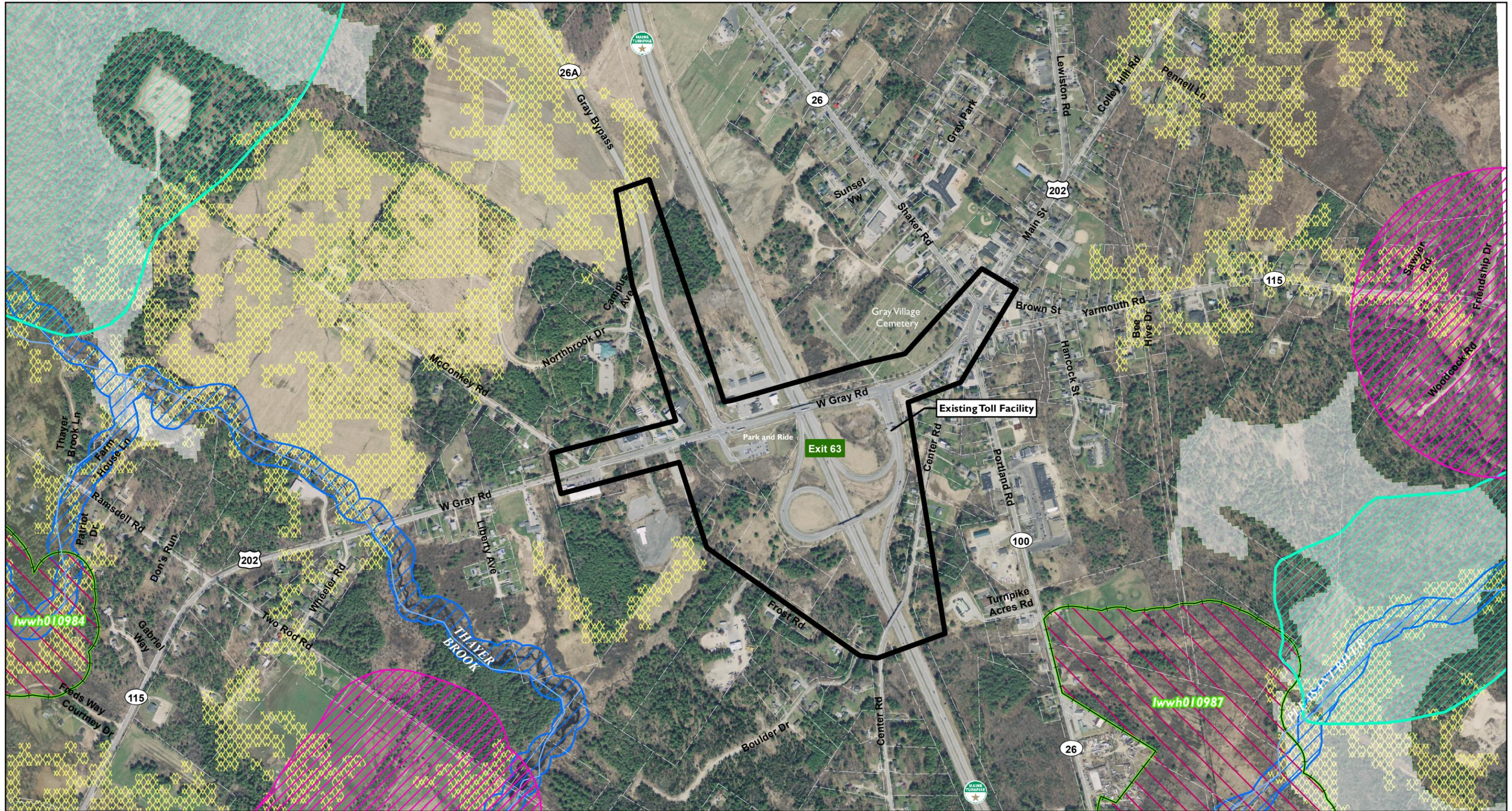
Threats to Groundwater and Environmental monitoring locations include:

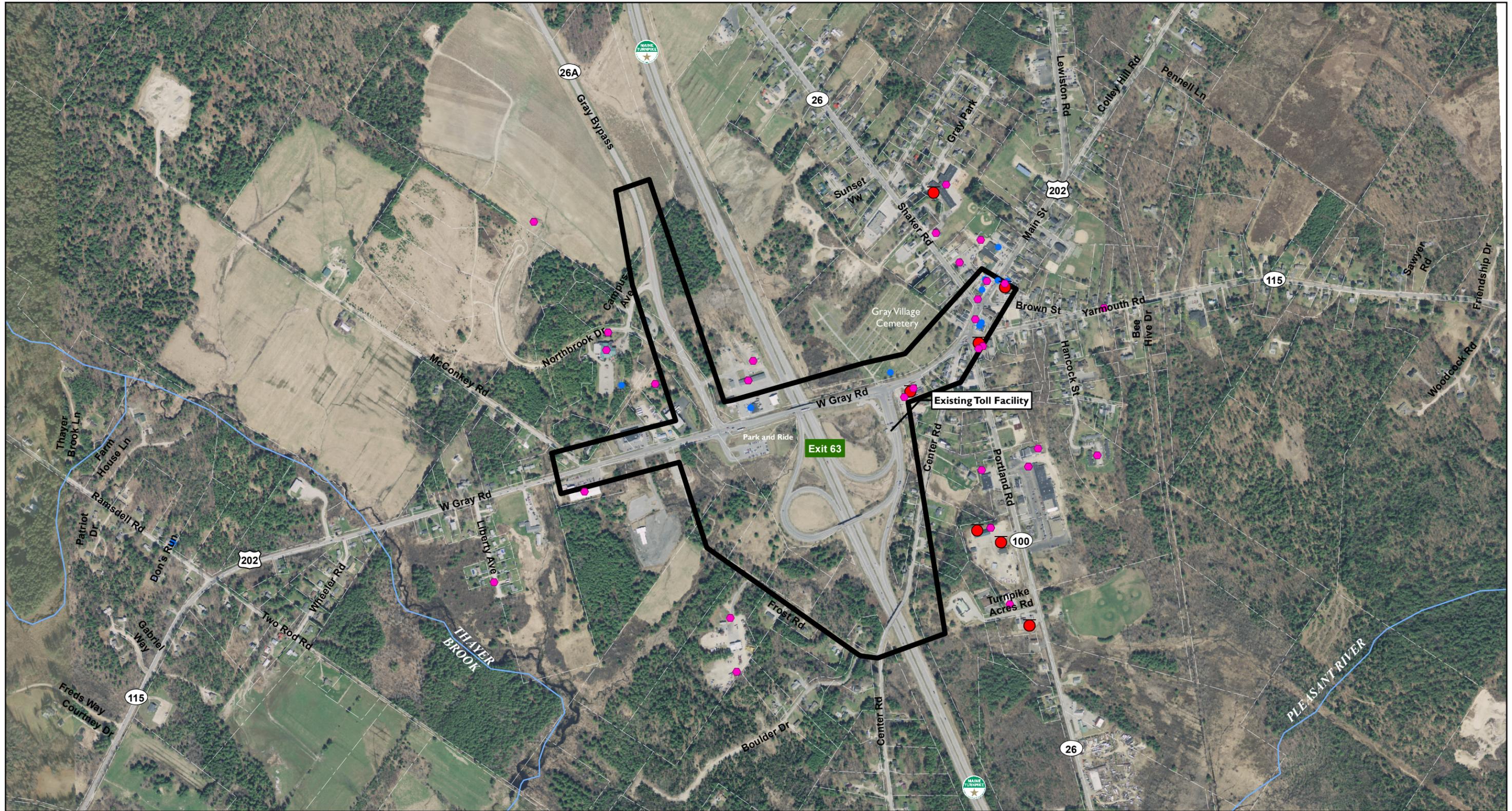
- Industrial complexes
- RCRA small and medium quantity generators
- Underground injection sites
- Registered petroleum tanks including underground storage tanks for #2 fuel oil, gasoline and diesel
- Hazardous oil spill sites including gasoline, waste oil, motor oil and diesel

This review revealed a number of potential hazardous material sites within the Study Area, most of which are close to the Gray Village Center. In total, the Study Area was found to contain (See **Figure 2-3.8**):

- Three (3) active underground storage tanks
- Eight (8) hazardous oil spill sites
- Nine (9) threats to groundwater and environmental monitoring

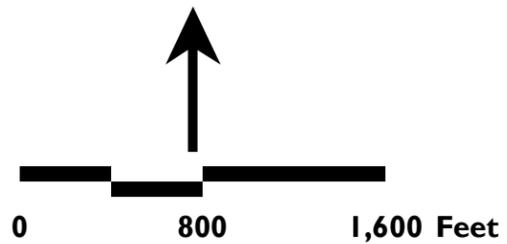
Most of these sites are likely contained or were previously-remediated and would pose no threat to the project. However, it is expected that issues related to hazardous





Legend

-  Project Study Area
-  Streams (USGS)
-  Assessor's Tax Parcels
-  Maine Environmental & Geographic Analysis Database (EGAD)
-  Active
-  Hazardous and Oil Spill Sites



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Figure 2-3.8
Hazardous Materials

Gray Interchange Feasibility Study
Maine Turnpike Authority

Gray, Maine



sites will be considered in more detail when acquiring Right-of-Way (ROW) for any option advanced to the design and construction phase.

2.3.9 Cultural Resources

Cultural resources include both archaeological resources and historic above-ground (standing structures) resources. Information on both types of resources is presented in this section.

Historic properties and archaeological resources that are listed in or are eligible for listing in the National Register of Historic Places (NRHP), are afforded protection by Section 106 of the National Historic Preservation Act (NHPA) and Section 4(f) of the Department of Transportation Act of 1966.

2.3.9.1 Historic Structures

The Maine Historic Preservation Commission (MHPC) was contacted to determine if there are National Register listed properties and/or known eligible architectural resources within the Study Area. A response from the MHPC was received on November 16, 2012. Based on this response letter (contained in Appendix E), there are both National Register listed and National Register eligible properties either within and/or in close proximity to the Study Area.

Per the response from the MHPC, there is one National Register listed property in the Study Area and a second located in close proximity to the Study Area:

- Stimson Memorial Hall, listed 10/02/1992 - Gray Village
- Pennell Institute, listed 7/12/1982 - Lewiston Road (outside of Study Area)

The MHPC also provided documentation of two known National Register Eligible properties within the Study Area:

- Mayall Snow House, Main Street, MHPC #177-0019, Eligible 2002
- Morrill House, Route 26, MHPC #177-0020, Eligible, 2002

An architectural survey is necessary to determine potentially eligible properties within the Study Area.

2.3.9.2 Archeological Resources

No data was received from the MHPC regarding archeological resources within the Study Area. An archeological survey will be necessary for future development of the preferred alternative.

2.3.10 Parklands and Recreation

Parklands and recreational areas are protected by various federal statutes which might apply to the Study.

2.3.10.1 Conservation Land

Based on a review the most recent MEGIS Maine Conservation database, published by the Bureau of Parks and Land there are no conservation lands within the Study Area.

2.3.10.2 Section 6(f) LWCF

Properties that have been acquired or improved with funds from the Land and Water Conservation Fund would be protected under Section 6(f) of the Land and Water Conservation Fund Act.

Based on communication with the Maine Department of Agriculture, Conservation & Forestry, there are no Section 6(f) properties within the Study Area.

2.3.10.3 Section 4(f) Recreational Resources

Based on a preliminary field review, there are no Section 4(f) recreation resources within the Study Area.

3

Future Conditions

3.1 Introduction

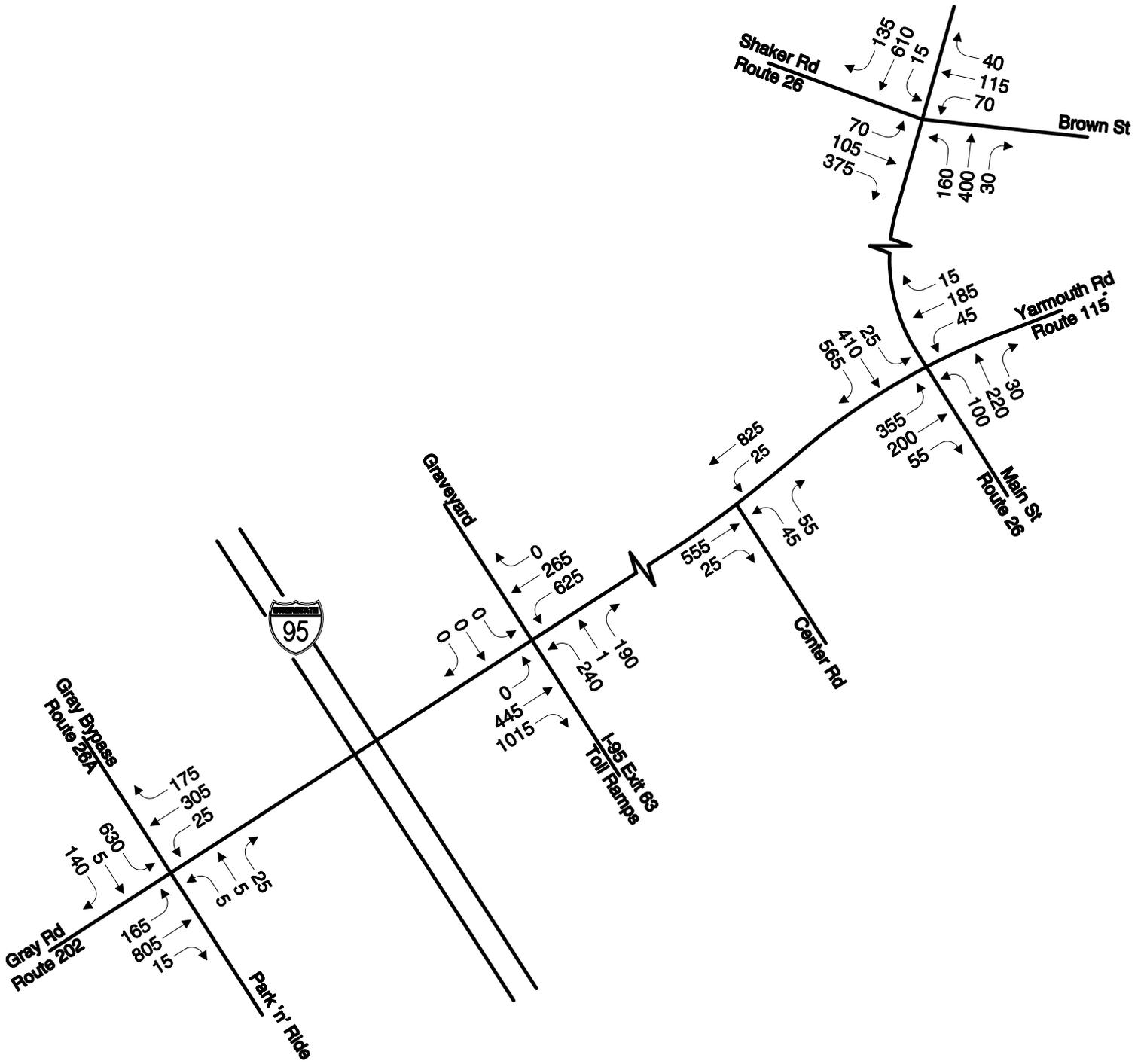
This chapter describes the methodology used to extend the forecast of the existing 2012 base year condition to the Feasibility Study future year 2032. The forecasting for this Study is based on historical trends observed on local area roadways. The following sections describe the traffic volume forecasting sources used to develop the 2032 traffic volume networks. **Figures 3-1.1, 3-1.2, and 3-1.3** depict the projected 2032 weekday morning, weekday evening, and Saturday midday peak hour traffic volume networks for the Study Area intersections under the No Build Alternative.

3.2 2032 Traffic Forecasting

Traffic growth is a function of the expected land development in the region. To predict a rate at which traffic can be expected to grow by 2032, the historical traffic-growth trends, planned area developments, and future changes to transportation system infrastructure were examined.

Historical traffic-count data published by MTA and MaineDOT suggest that little to no growth has occurred throughout the Study Area in the past 10 to 15 years. A review of 9 nearby traffic volume count stations indicates that traffic volumes have reduced on local area roadways. This reduction is in part associated with the completion of the Gray Bypass, which diverts through traffic on US Route 202 away from the Study Area. However, to account for growth throughout the region that could influence the amount of pass-through traffic on Study Area roadways, this Feasibility Study assumes a 1.0 percent annual background growth rate from 2012 to 2032. This annual growth rate represents as overall background growth rate of 22 percent for the 20-year forecast period.

In addition to the background growth, research revealed that there were no nearby site specific development projects or roadway infrastructure improvements planned that would substantially influence traffic growth or trends within the Study Area. Town of Gray officials are considering potential land use regulations changes that could allow for alternative development projects to occur within the community; however, to date this planning is in the very preliminary stages and no formal studies were available for review. It is noted that the 22% increase in the substantial existing traffic volumes to account for background growth would accommodate some level of development potential within the community.

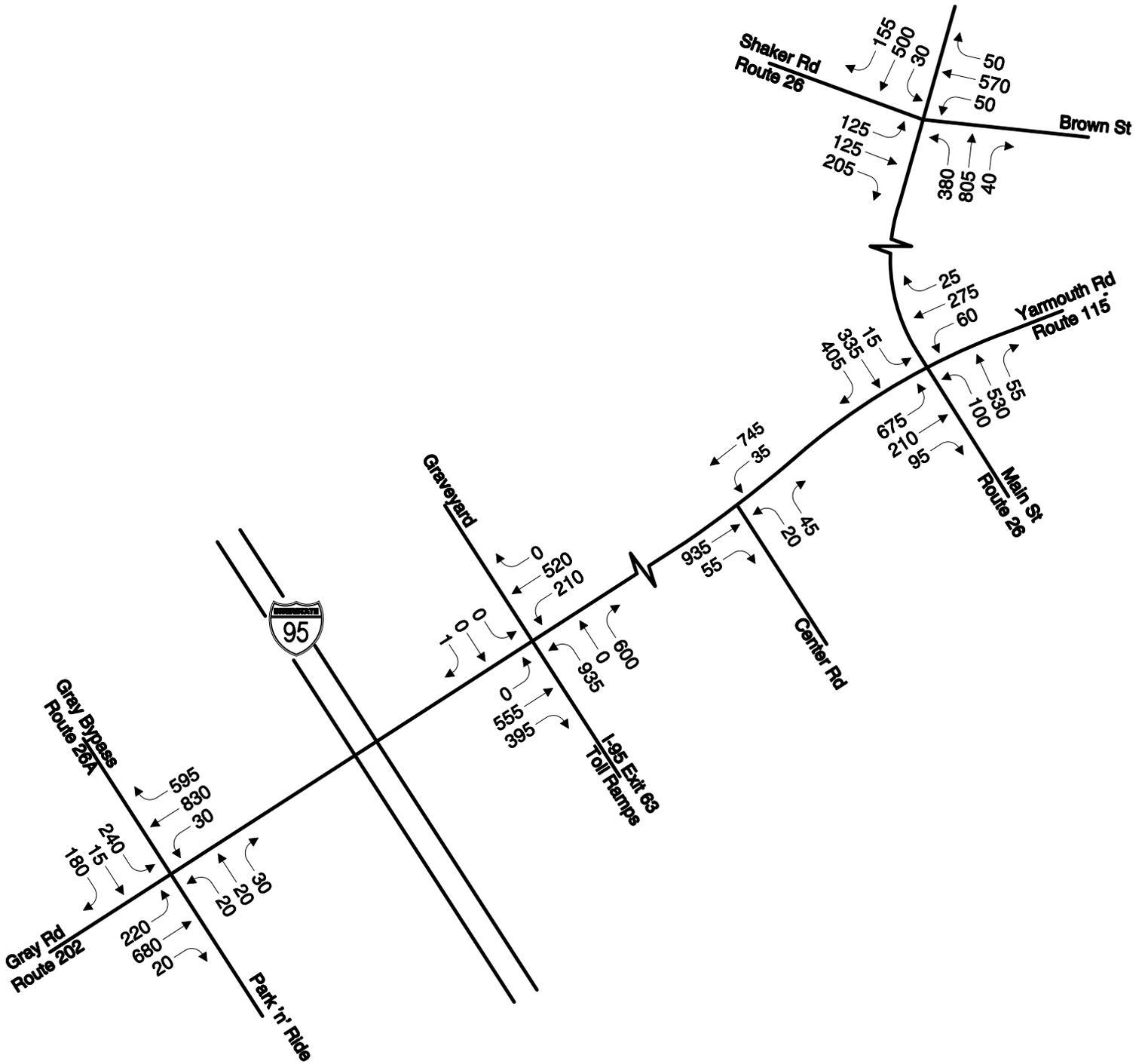


Not to Scale

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2032 Weekday AM
Peak Hour Intersection Traffic Volumes

Figure 3-1.1

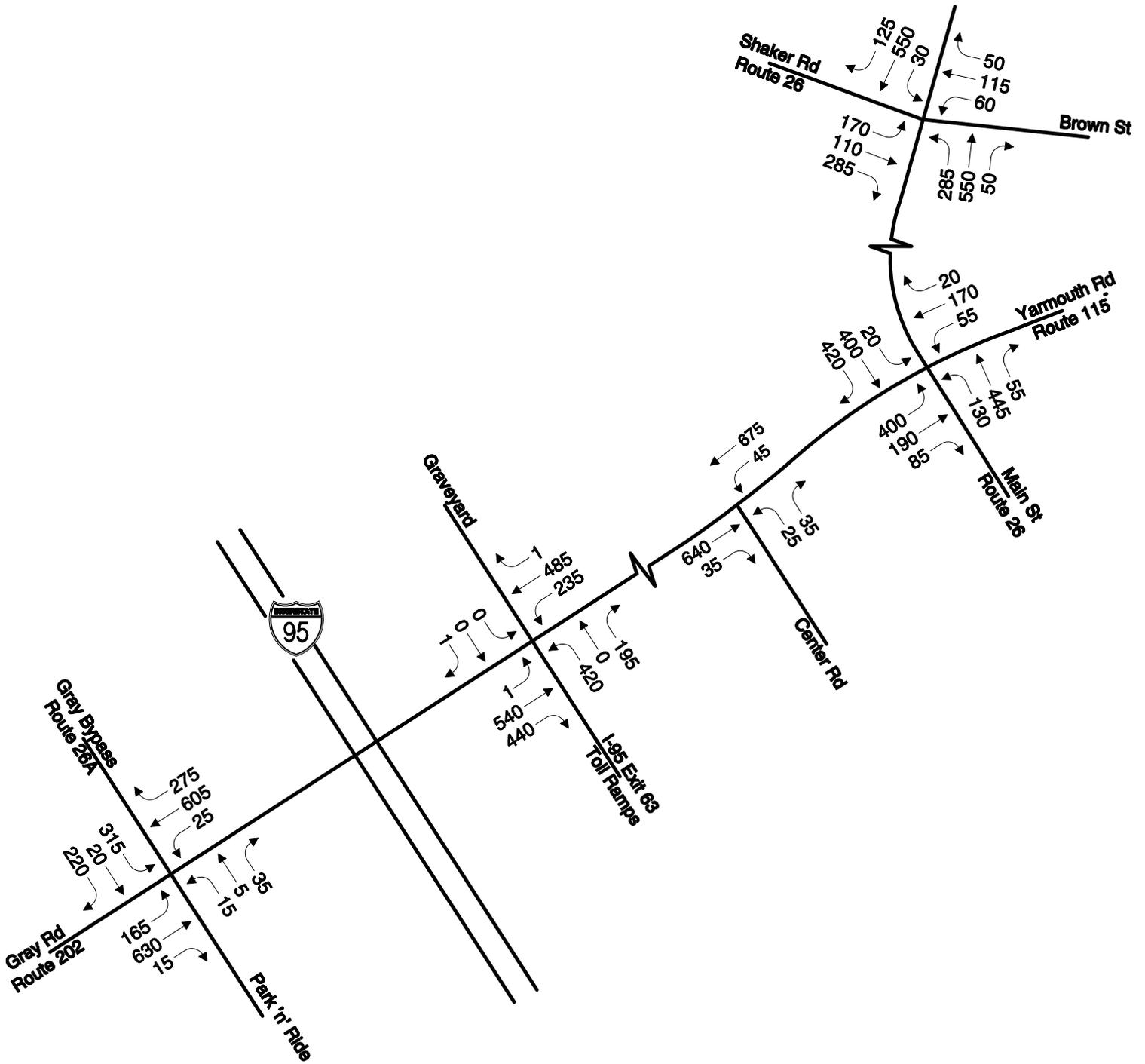


Not to Scale

Vanasse Hangen Brustlin, Inc.

2032 Weekday PM
Peak Hour Intersection Traffic Volumes

Figure 3-1.2



Not to Scale

Vanasse Hangen Brustlin, Inc.

2032 Saturday Midday
Peak Hour Intersections Traffic Volumes

Figure 3-1.3

4

Summary of Alternatives

4.1 Introduction

Chapter 4 summarizes the various alternatives identified as potentially achieving the stated purpose and need of the Feasibility Study. The evaluation process includes the No Action Alternative (Alternative 1) which is used as the basis for comparison to each alternative. The alternatives developed for the Feasibility Study and described in Sections 4.2 through 4.4 were conceived based on the alternatives that were suggested from the previous traffic study that was completed in 2012 in conjunction with MTA.

4.2 No Action Alternative (Alternative 1)

The No Build Alternative is essentially the continuation and perpetuation of the existing conditions and the shortcomings inherent in the current Study Area roadways, the interchange and intersections. The No Build Alternative serves as a baseline condition for comparison to other options.

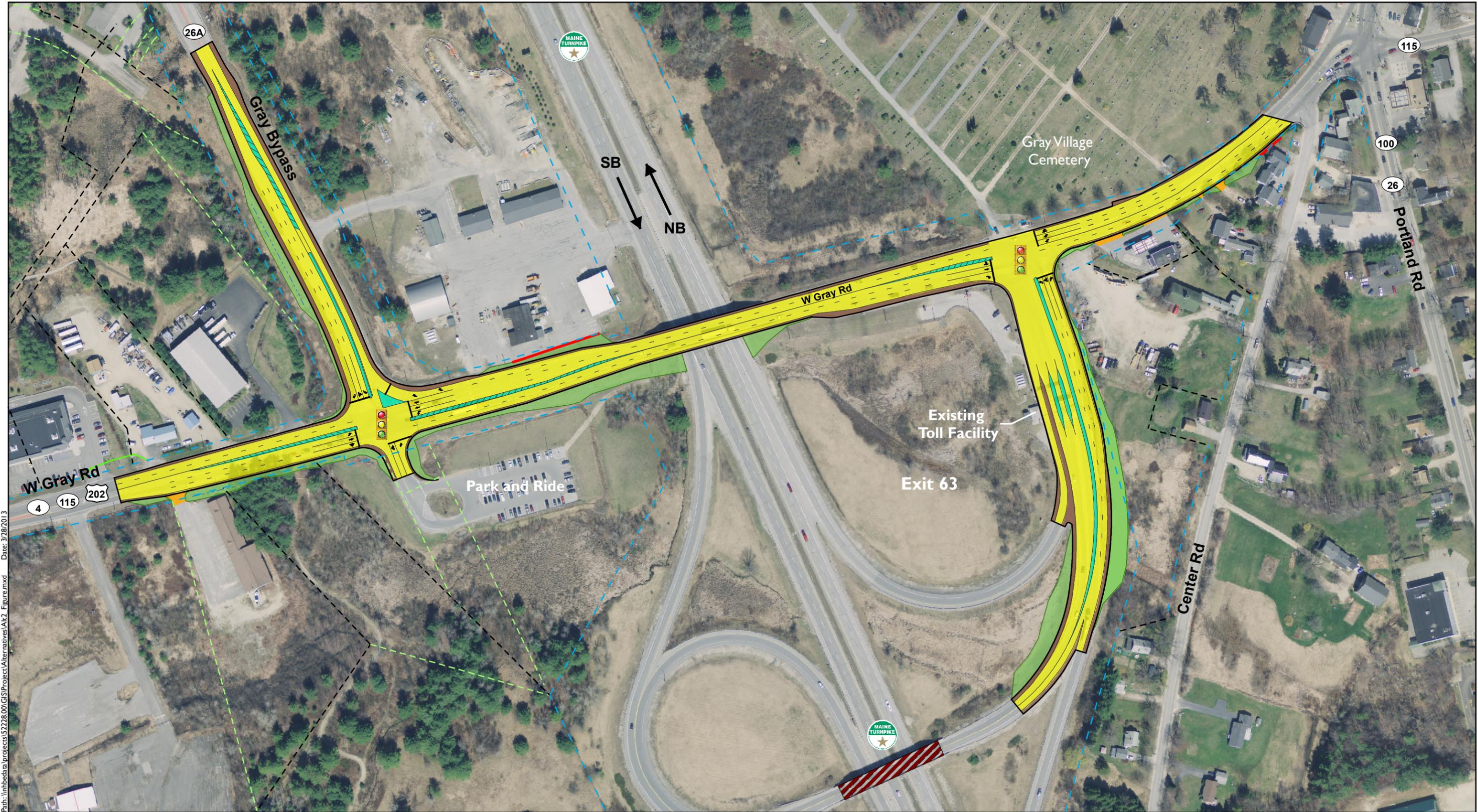
4.3 Alternative 2

Alternative 2 involves retaining the existing general traffic patterns with localized improvements to the roadways and intersections within the study area to support future traffic projections. See **Figure 4-1** for the general layout of this alternative.

The southbound ramps bridge would be rehabilitated and raised to achieve the desired vertical clearance of 15'-6". No bridge widening is necessary to support future traffic growth. The raising of the bridge would also require some reconstruction of the ramps to meet the proposed bridge elevations. The other ramps will not require any widening as the single lanes entering and exiting the Maine Turnpike are adequate.

The improvements at the US Route 202 and Gray Bypass intersection include:

- The addition of a eastbound shared through-right turn lane resulting in an exclusive left turn lane, an exclusive through lane and the shared through-right lane at the intersection.
- The addition of an exclusive right turn lane coming from the park and ride resulting in a shared left-through lane and the exclusive right turn lane at the intersection.
- The inclusion of a southbound shared through-left turn lane along the Gray Bypass resulting in an exclusive left turn lane, a shared left-through lane and the exclusive right turn lane at the intersection.



Path: \\nhb\beta\ta\projects\52228\00\GIS\Project\Alternatives\A12_Figure.mxd Date: 3/28/2013

- Legend**
- | | | | | | |
|---|-----------------------|---|---------------------------|---|----------------|
|  | Proposed Roadway |  | Proposed Edge of Pavement |  | ROW |
|  | Proposed Shoulder |  | Proposed Retaining Wall |  | Slope Easement |
|  | Proposed Slope Limits |  | Proposed Drainage Ditch |  | Property Line |
|  | Proposed Driveway |  | Proposed Paint Lines |  | Easements |
|  | Proposed Island | | | | |
|  | Bridge Rehabilitation | | | | |

VHB Vanasse Hangen Brustlin, Inc.

Figure 4-1
Alternative 2

Gray Interchange Feasibility Study
Maine Turnpike Authority

Gray, Maine





- The widening of US Route 202 to lengthen the westbound exclusive right turn lane back to the bridge over the Maine Turnpike resulting in an exclusive left turn lane, two exclusive through lanes and an exclusive right turn lane at the intersection.

The improvements to the US Route 202 and the Exit 63 ramps intersection include:

- The eastbound approach to the intersection remains unchanged with a shared left-through lane, an exclusive through lane and an exclusive right turn lane at the intersection.
- The addition of an westbound exclusive left turn lane resulting in two exclusive left turn lanes and a shared through-right lane at the intersection.
- The off ramp approach remains unchanged with an exclusive left turn lane, a shared left-through lane and an exclusive right turn lane at the intersection.

The improvements at the toll plaza area include:

- The addition of the second left turn lane off of US Route 202 which requires the widening of the approach roadway to the toll plaza.
- The projected traffic growth to enter the Maine Turnpike supports the widening of the toll plaza one additional E-ZPass lane.
- The projected increase in off ramp traffic requires the lengthening of the exclusive right turn lane as it approaches US Route 202.
- The additional toll plaza lane and the longer exclusive right turn lane approaching US Route 202 requires a widening of the existing off ramp area to the east to maintain the existing northbound on ramp lanes and the toll plaza administration building.
- The additional toll plaza lane requires realignment and widening of the southbound on ramp to provide for merging of the three southbound on ramp toll lanes into a single ramp lane prior to the southbound ramps bridge.

The two proposed eastbound through lanes along US Route 202 that start west of the Gray Bypass intersection and continue through the ramps intersection and into the Gray Village area requires the widening of the US Route 202 bridge over the Maine Turnpike to support the additional eastbound through lane.

The widening along US Route 202 also includes a retaining wall adjacent to the westbound lanes to maintain the paved area within the MTA maintenance facility. A second retaining wall is required for the eastbound traffic as it approaches the Center Road intersection to minimize impacts to the property on the corner.

The proposed widenings are designed to provide, at a minimum, the average queue for the controlling traffic movement for each leg of each intersection to allow vehicles to maneuver into the desired lane without being blocked by the vehicle queue.

The travel lane widths along US Route 202 and the Gray Bypass are conceptually designed to be 11' - 12' wide with shoulder widths of 4'-5'. The posted speeds of 30 MPH and 35 MPH have been set as a minimum design speed for US Route 202 and the Gray Bypass respectively. The median islands vary in width and would be a combination of raised and painted islands.

The ramp designs provide for 14' travel lanes with a 4' left shoulder and 8' right shoulder with design speeds established accordingly to the meet the intersection and acceleration and deceleration conditions.

4.4 Alternative 3

Alternative 3 involves the relocation of the southbound ramps to the west side of the Maine Turnpike to be aligned with the Gray Bypass intersection. The toll plaza, parking area and administration buildings for the toll plaza for the southbound on ramp would also be constructed adjacent to the proposed ramp. The existing southbound ramps bridge and the pavement for the existing ramps would be removed as necessary. See **Figure 4-2** for the general layout of this alternative.

The improvements at the US Route 202 and Gray Bypass intersection include:

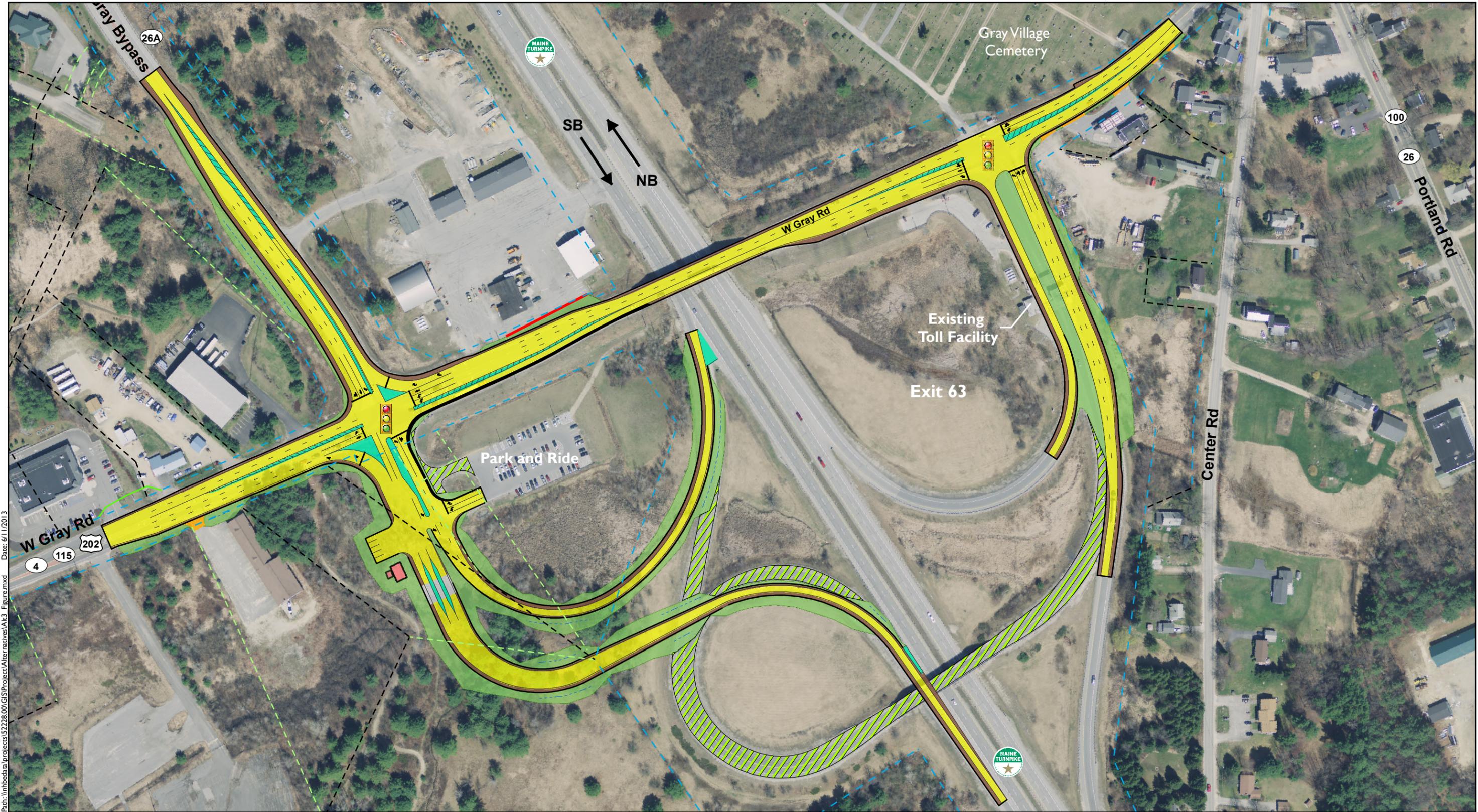
- The addition of a eastbound exclusive right turn lane resulting in an exclusive left turn lane, an exclusive through lane and an exclusive right turn lane at the intersection.
- The addition of an exclusive left turn lane coming from the southbound off ramp and Park and Ride area resulting in an exclusive left turn lane and a shared through-right lane at the intersection.
- The inclusion of a southbound through lane along the Gray Bypass resulting in an exclusive left turn lane, an exclusive through lane and shared through-right lane at the intersection.
- The widening of US Route 202 to lengthen the westbound exclusive right turn lane back to the bridge over the Maine Turnpike and the conversion of the innermost through lane to an exclusive left turn lane, resulting in two exclusive left turn lanes, an exclusive through lane and an exclusive right turn lane at the intersection.

The improvements to the US Route 202 and the Exit 63 ramps intersection include:

- The eastbound approach to the intersection remains unchanged with a shared left-through lane, an exclusive through lane and an exclusive right turn lane at the intersection.
- The westbound approach to the intersection remains unchanged with an exclusive left turn lane and a shared through-right turn lane at the intersection.
- The off ramp approach remains unchanged with an exclusive left turn lane, a shared left-through lane and an exclusive right turn lane at the intersection.

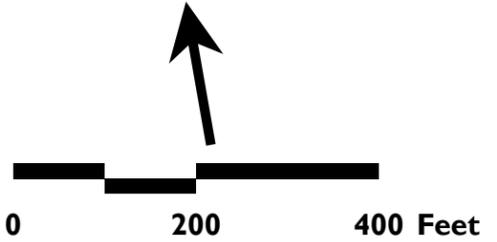
The improvements at the existing toll plaza area include:

- Removal of the existing toll plaza, parking area and administration buildings.
- The increase of the northbound off ramp traffic requires the lengthening of the exclusive right turn lane and the shift of these lanes to the east that requires a widening of the existing off ramp area.



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Proposed Roadway	Proposed Building	Proposed Edge of Pavement	ROW
Proposed Shoulder	Proposed Concrete Pad	Proposed Retaining Wall	Slope Easement
Proposed Slope Limits	Proposed Island	Proposed Drainage Ditch	Property Line
Proposed Driveway	Pavement and Bridge Removal	Proposed Paint Lines	Easements



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Figure 4-2
Alternative 3

Gray Interchange Feasibility Study
Maine Turnpike Authority

Gray, Maine





The improvements at the proposed toll plaza area include:

- Construction of a new toll plaza, parking area and administration buildings.
- The inclusion of opposing left turn lanes to access the park and ride and the toll plaza driveway.

The single proposed eastbound through lane along US Route 202 continues through the Gray Bypass intersection, over the existing Maine Turnpike bridge, no bridge widening required, before widening to the existing lane use at the Exit 63 ramps intersection and continue into the Gray Village area.

The widening along US Route 202 includes a retaining wall adjacent to the westbound lanes to maintain the paved area within the MTA maintenance facility.

The proposed widenings are designed to provide, at a minimum, the average queue for the controlling traffic movement for each leg of the intersection to allow vehicles to maneuver into the desired lane without being blocked by the vehicle queue.

The travel lane widths along US Route 202 and the Gray Bypass are conceptually designed to be 11' – 12' wide with shoulder widths of 4' -5'. The posted speeds of 30 MPH and 35 MPH have been set as a minimum design speed for US Route 202 and the Gray Bypass respectively. The median islands vary in width and would be a combination of raised and painted islands.

The ramp designs provide for 14' travel lanes with a 4' left shoulder and 8' right shoulder with design speeds designed accordingly to the meet the intersection and acceleration and deceleration conditions.

5

Evaluation of Alternatives

5.1 Evaluation Criteria

Review of the conceptual engineering plans described in Chapter 4, when considered in the context of the existing transportation system and environmental resources described in Chapters 2 and 3, allows comparison of the relative benefits and impacts of each of the alternatives.

As discussed in Chapter 1, the Purpose and Need Statement established transportation efficiency and safety as the primary objectives of this study. The other evaluation criteria in comparing the alternatives are traffic operations, Turnpike operations, construction cost estimates and environmental resource impacts.

The traffic operations of the alternatives are typically defined through level of service (LOS) with improvements striving for a LOS C or LOS D under the build condition in the future forecasted year. The location of existing park and ride has been established as a design control for this evaluation. The potential relocation of the park and ride to a new site off of the Gray Bypass is not being considered during the feasibility study unless it is determined to be critical in traffic operations.

The turnpike operations are defined by the level of efficiency achieved through the toll plaza. With limited information and modeling completed for the toll plaza area, identifying measurable changes in efficiency is not possible with certainty. The next phase of study is expected to include this higher level of data collection and modeling. Therefore, this evaluation is based upon anticipated benefits of improving the existing conditions.

The construction cost estimates prepared for the Feasibility Study are macro level planning estimates. The construction cost estimates quantify major items, such as earthwork, pavement, curbing, bridges, signals, etc. and apply percentage based increases in costs for similar items that are combined into a grouping of items such as drainage, signage, pavement markings, maintenance of traffic, etc. The resulting estimates consist of these major items with current 2013 unit prices plus the percentage based groupings of like items to arrive at a total construction cost estimate.

Understanding the potential impacts on environmental resources is another important element of the Feasibility Study. In order to review these issues, an impact analysis of each Alternative was conducted. As described in Chapter 2, available GIS data for the Study Area was obtained from various state agencies, MaineGIS, and at the local level. In addition, existing environmental information was verified and updated in the field based on a reconnaissance level effort. The existing cemetery sits immediately adjacent to US Route 202 and has been established as a design control to avoid in the development of alternatives.



Potential impacts were then calculated using a GIS overlay analysis whereby the footprint of each alternative was overlaid onto the various environmental resources. Table 5.1-1 presents a summary of the metrics used to evaluate the various environmental resources. Impacts presented in the Feasibility Study must be interpreted cautiously. First, only direct impacts were considered. However, certain resources, such as historic buildings or historic districts, can be affected indirectly. Second, all identified impacts are preliminary estimates because they are based on preliminary rough grading without site-specific survey contours or detailed engineering. And, the resource mapping relies primarily on landscape level environmental data rather than detailed site-specific studies that would be required during a formal NEPA or permit evaluation. The impacts, however, are still useful and appropriate to compare the relative impacts of each alternative.

Table 5.1-1. Environmental Evaluation Metrics

Resource/Impact	Metric
Wetlands	Acres of Dredge/Fill
Water Quality	Acres of New Pavement
Floodplains	Acres of New Pavement
Aquifer	Acres of Disturbance
Farmland	Acres of Disturbance
Rare, Threatened, Endangered Species/Habitat	Acres of Disturbance
Public Parks & Recreation	Within the Proposed Project Footprint
Historic/Archaeological Resources	# of Known Archaeological Sites # of Standing Potential Structures
Hazardous Waste	Within the Proposed Project Footprint

5.2 Alternatives Evaluation

Section 5.2 summarizes the evaluation results for each of the Alternatives considered in this Study, as well as the evaluation results for the No Action alternative.

Figure 5-1 shows the 2032 levels of service for each of the alternatives and copies of the traffic analyses are provided in Appendix C.

5.2.1 No Action (Alternative 1)

The No Action alternative is the continuation and perpetuation of the existing Study Area roadways and intersection. A traffic operations analysis, similar to that conducted for the 2012 existing condition, was conducted for the future 2032 peak hour traffic conditions.

Traffic Operations

This analysis was based upon the volumes previously shown in Figures 3-1.1, 3-1.2, and 3-1.3 for the projected 2032 weekday morning, weekday evening, and Saturday midday peak hours. By the forecast year 2032 several of the Study Area intersections

		2032 ALT 1			2032 ALT 2			2032 ALT 3		
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
① Route 202 & Route 26A (Gray Bypass)	AM	1.15	118	F	0.64	33	C	0.80	41	D
	PM	0.81	40	D	0.78	28	C	0.90	42	D
	SAT	0.74	33	C	0.50	24	C	0.64	29	C
② Route 202 & Exit 63 Ramps	AM	1.21	107	F	0.95	41	D	0.57	11	B
	PM	0.85	34	C	0.72	24	C	0.75	27	C
	SAT	0.57	18	B	0.47	17	B	0.58	18	B
③ Route 202 & Yarmouth Rd/Portland Rd	AM	0.74	35	C	0.72	35	C	0.74	35	C
	PM	1.11	86	F	0.96	46	D	0.92	45	D
	SAT	0.79	31	C	0.88	42	D	0.77	35	C
④ Route 202 & Shaker Rd/Brown St	AM	0.59	25	C	0.60	26	C	0.59	20	C
	PM	0.89	30	C	0.92	31	C	0.89	32	C
	SAT	0.81	24	C	0.77	25	C	0.77	27	C

*= Volume to Capacity Ratio.

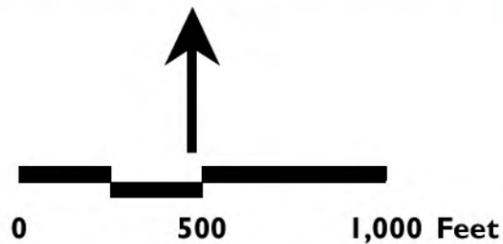
**=Delay in seconds per vehicle.

***=Level of Service.



Legend

- Streams (USGS)
- Assessor's Tax Parcels
- Intersection Number
- Alternative 3



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Figure 5-1
2032 Level of Service for Alternatives
I-95 Exit 63 Transportation Feasibility Study
Maine Turnpike Authority

Gray, Maine





are anticipated to reach capacity during peak hour conditions and operate at poor levels of service with long delays. More specifically, the intersection of US Route 202 and the Gray Bypass is expected to degrade from LOS E (62 seconds delay) operations identified for the 2012 existing weekday morning peak hour to LOS F (118 seconds delay) by the year 2032. The volume to capacity ratio under the 2032 weekday morning peak hour is projected to be 1.15, indicating that the intersection will no longer be able to accommodate the traffic volume demands placed upon it.

Similarly, the intersection of US Route 202 and the Exit 63 ramps is also expected to reach capacity, degrading from LOS D (48 seconds) operations under the 2012 weekday morning peak hour to LOS F (107 seconds) by the forecast year 2032. This intersection is also expected to experience traffic demands exceeding its capacity with a projected volume to capacity ratio of 1.21.

East of the interchange, the intersections of US Route 202 with Routes 100/26 and Route 115 and with Routes 26 and Brown Street were evaluated holding constant the limitations of the existing traffic signal timing and phasing plans for the corridor. Under this assumption, the intersection of US Route 202 at Routes 100/26 and Route 115 is projected to experience capacity issues during the 2032 weekday evening peak hour, operating at LOS F (86 seconds delay) with a volume to capacity ratio of 1.11.

Safety Impacts

The existing elements that contribute to potential safety concerns include:

- Traffic congestion
- Poor decision making based on congestion and geometric restrictions
- Confusing and limited signage entering the toll plaza area
- Toll plaza operations in issuing overlimit permits through the cash lane
- Single point of entry and exit to the Maine Turnpike through the toll plaza area and the ramps intersection with US Route 202
- Guardrail protection for the Maine Turnpike traffic travelling beneath the southbound ramps bridge
- Poor signal system timing along US Route 202 leading to congestion and poor decision making
- Two-way opposing southbound ramp traffic

The only improvement provided by Alternative 1 is the rehabilitation of the southbound ramps bridge which limits the opportunity for safety improvements to signage and signal upgrades. The remaining safety elements will either remain or get worse as traffic volumes increase.

Environmental Impacts

There are no anticipated environmental impacts for the No Action Alternative. The existing conditions are used as a measure to evaluate the relative impacts to



environmental and cultural resources. The impacts associated with Alternative 2 and Alternative 3 are discussed below using the evaluation methods and limits of interpretation as described in Section 5.1.

The environmental impact analysis for this Study did not address noise or air impacts which could be adversely affected over time by the No Action Alternative due to long queue times for traffic at failed intersections and at the toll booth.

Bridge Impacts

Alternative 1 requires a rehabilitation and continued use of the Ramp A bridge at MM 63.10 as it is currently configured.

Ramp A bridge at MM 63.10

The existing concrete deck requires replacement because of its poor condition. The HL-93 Inventory and Operating Level Rating Factors for the existing steel beams are greater than 1.0 so rating for the Maine legal load configurations is not required. An analysis was not performed to compare the life cycle cost of reusing the existing painted steel girders to replacement of them with new weathering steel plate girders. However, based on the very recent life cycle cost analysis VHB did to compare similar alternatives as part of the preliminary design of the rehabilitation of the Litchfield Road bridge at MM 106.90, replacement with new weathering steel plate girders is more cost effective because it eliminates future painting of the existing beams. The existing vertical clearance over Maine Turnpike is 14'-2" requiring a raise in the profile of the bridge and ramps to achieve a proposed vertical clearance of 15'-6". Consequently, VHB has assumed that the rehabilitation of the Ramp A bridge at MM 63.10 will include the following major elements:

- New A709 Grade 50w plate girders on new bearings
- New composite 8" reinforced concrete deck
- 3" bituminous concrete wearing surface with high-performance waterproofing membrane
- Concrete patch repair of delaminated and spalled areas of existing abutments and piers
- Abutment and pier reconstruction to obtain the necessary vertical clearance
- New expansion joints at both abutments
- New steel three-rail tubular bridge railing
- New approach guardrail and bridge rail transitions

No immediate repairs are recommended prior to the proposed rehabilitation, provided it occurs before the end of 2016, except for installation of shielding over the travel lanes to contain any additional spalled concrete falling from the concrete deck fascias.



Turnpike Impacts

The No Action Alternative does not modify the existing toll plaza operations. Therefore, with traffic volumes projected to increase over time the existing transportation and toll plaza deficiencies would be expected to worsen.

Purpose and Need

The No Action Alternative does not improve traffic efficiency, provides limited safety improvements and is not considered a viable alternative for future study.

5.2.2 Alternative 2

Traffic operations, turnpike operations and maintenance, environmental impacts, transportation efficiency, safety and construction costs were evaluated for Alternative 2. These evaluations, similar to those conducted for the existing condition and Alternative 1 (No Build), were conducted assuming the completion of the physical improvements determined to be necessary to support this alternative through the forecast year 2032.

Transportation Operations

The traffic operations analysis for this alternative was based upon the volumes previously shown in **Figures 3-1.1, 3-1.2, and 3-1.3** for the projected 2032 weekday morning, weekday evening, and Saturday midday peak hours. As defined by the evaluation criteria for alternatives, the recommended physical geometric improvements for the Study Area intersections result in projected LOS C or D (or better) traffic operations through the forecast year 2032 peak hour conditions. As described in Section 4.3, Alternative 2 includes intersection improvements at the US Route 202 intersections with the Gray Bypass and the Exit 63 ramps, but does not include improvements for the other intersections to the east of the ramps. With the implementation of the improvements at the Gray Bypass and ramp intersections, traffic flow along the US Route 202 corridor is anticipated to improve allowing for the use of a coordinated traffic signal system to better manage flow for the intersections to the east of the interchange. Incorporating the Study Area intersections into one coordinated signal system under Alternative 2 is expected to result in LOS D or better operations for the 2032 weekday morning, weekday evening, and Saturday midday peak hours for all four signalized locations.



Safety Impacts

The existing elements that contribute to potential safety concerns include:

- Traffic congestion
- Poor decision making based on congestion and geometric restrictions
- Confusing and limited signage entering the toll plaza area
- Toll plaza operations in issuing overlimit permits through the cash lane
- Single point of entry and exit to the Maine Turnpike through the toll plaza area and the ramps intersection with US Route 202
- Guardrail protection for the Maine Turnpike traffic travelling beneath the southbound ramps bridge
- Poor signal system timing along US Route 202 leading to congestion and poor decision making
- Two-way opposing southbound ramp traffic

Alternative 2 provides overall safety improvements by reducing congestion with the construction of a coordinated signal system, the addition of another E-ZPass lane, and the inclusion of additional lanes throughout the study area to better manage the traffic. Safety in the toll plaza area will also be improved through improved signage directing traffic to correct turn and toll lanes.

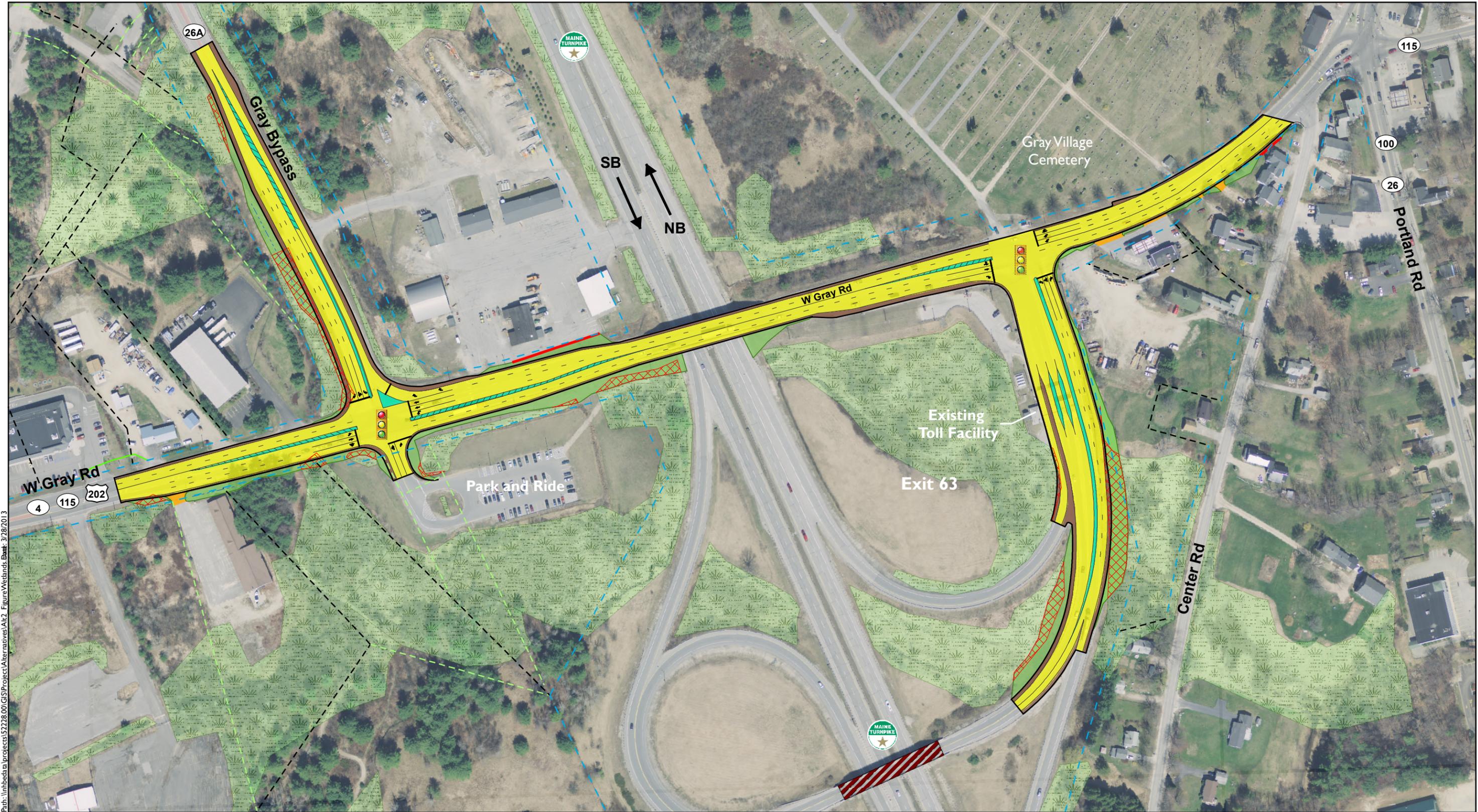
Alternative 2 does not address the guardrail protection along the Maine Turnpike, the single point of entry and exit through the toll plaza and the intersection with US Route 202 and the two-way opposing southbound ramp traffic. This alternative does not increase the distance between the intersection and the toll plaza, maintaining the same decision time to enter the correct lane.

Environmental Impacts

The environmental impacts of Alternative 2 to environmental and cultural resources are discussed below using the evaluation methods and limits of interpretation as described in Section 5.1.

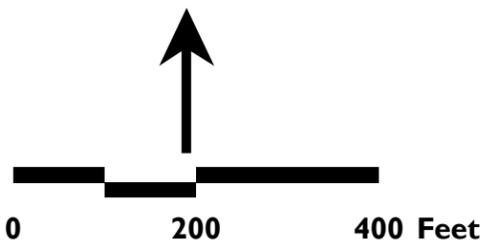
Alternative 2 would result in approximately 0.7 acres of impact to wetlands at eleven impact areas involving eight (8) of the nineteen wetlands identified within the Study Area as shown on **Figure 5.2.2-1**. Most of the areas of these impacts are associated with widening the existing roadway at the existing toll facility to add an extra lane. In all impact locations the proposed impacts would occur to edges of previously disturbed wetlands at locations immediately adjacent to existing pavement.

The primary measure for water quality used in this study is the amount of new impervious surfaces associated with the construction of each Alternative (measured as the number of acres of new pavement). Alternative 2 would result in 1.3 acres of new impervious surfaces within the Study Area for a total impervious surface area of 8.2 acres. The effect of the increase in impervious surfaces will be considered as part



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- Legend**
- | | | | |
|-----------------------|---------------------------|----------------|---|
| Proposed Roadway | Proposed Edge of Pavement | ROW | Wetland Resources within Project Area (Approximate) |
| Proposed Shoulder | Proposed Retaining Wall | Slope Easement | Wetland Impact |
| Proposed Slope Limits | Proposed Drainage Ditch | Property Line | |
| Proposed Driveway | Proposed Paint Lines | Easements | |
| Proposed Island | | | |
| Bridge Rehabilitation | | | |



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Figure 5-2.2.1
Alternative 2 - Wetland Impacts

Gray Interchange Feasibility Study
Maine Turnpike Authority

Gray, Maine





of the Maine Stormwater Construction General Permit, however there are no surface water resources within the Study Area so there would be no direct effect on surface waters or water quality. The removed location of surface water resources also means there would be a lower potential for adverse impact on surface water quality if Alternative 2 were constructed.

There are no floodplains within the Study Area, thus the addition of impervious surface due to construction of Alternative 2 would not have any direct impact on floodplains.

Alternative 2 would involve disturbance to approximately 0.7 acres that overlay the mapped aquifer and Gray Village Aquifer Protection District. These impacts would be associated with widening US Route 202 from the Exit 63 ramps intersection back to the Gray Village Center to improve traffic flows in this area as shown on **Figure 5.2.2-2**. Much of this area is currently paved and the disturbance would be due to repaving at the time the road would be widened.

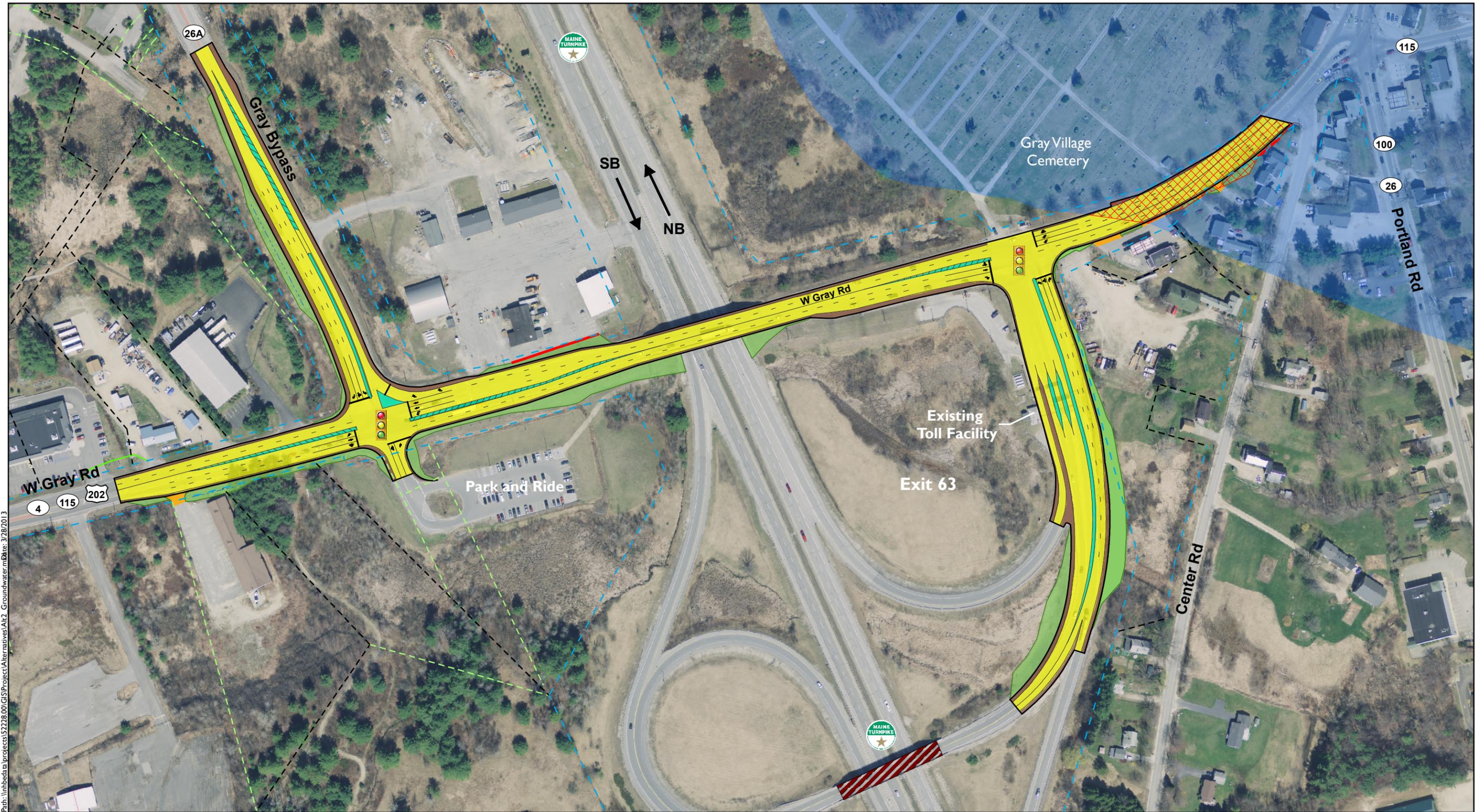
Alternative 2 would result in the conversion of 2.2 acres of soils that are currently mapped by NRCS as Prime Farmland Soils and the conversion of 0.6 acres of soils that are currently mapped as Farmlands of Statewide Importance. The majority of these impacts to soils mapped by NRCS as important farmlands are to areas that are not currently in active agriculture and/or have already been impacted and/or paved by the existing transportation infrastructure as shown on **Figure 5.2.2-3**. The agricultural potential of these areas has been compromised by development activities that have already occurred within the Study Area.

There are no State rare, threatened or endangered species of plants or animals within the Study Area. In addition, the MDIF&W has not mapped any Significant Wildlife Habitats or Essential Fisheries Habitat within the Study Area so there would not be any impacts to known species of concern at the State level if Alternative 2 were constructed.

The USFWS has indicated that the potential exists for the federally listed species to be impacted by either Alternative 2 or Alternative 3. A Biological Assessment or evaluation of habitat would need to be conducted in coordination with USFWS officials to determine the actual presence or absence of the species and/or the critical habitat to support said species. The two species of concern are the New England Cottontail rabbit and the Small Whorled pogonia.

An archeological study has not yet been completed and no data on archeological resources were obtained from the Maine Historic Preservation Commission.

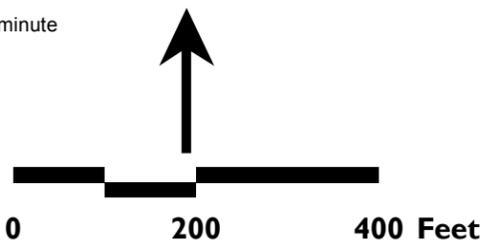
There are no known occurrences of hazardous materials sites within the study footprint, so it is unlikely that there will be any direct impacts relative to hazardous materials for Alternative 2. However, there are several potential sites in the Study



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Legend

- | | | | |
|-----------------------|---------------------------|----------------|--|
| Proposed Roadway | Proposed Edge of Pavement | ROW | Significant Aquifer Resources |
| Proposed Shoulder | Proposed Retaining Wall | Slope Easement | Aquifer expected to yield 10-50 gallons-per-minute to a properly constructed well. |
| Proposed Slope Limits | Proposed Drainage Ditch | Property Line | Aquifer Impact |
| Proposed Driveway | Proposed Paint Lines | Easements | |
| Proposed Island | | | |
| Bridge Rehabilitation | | | |



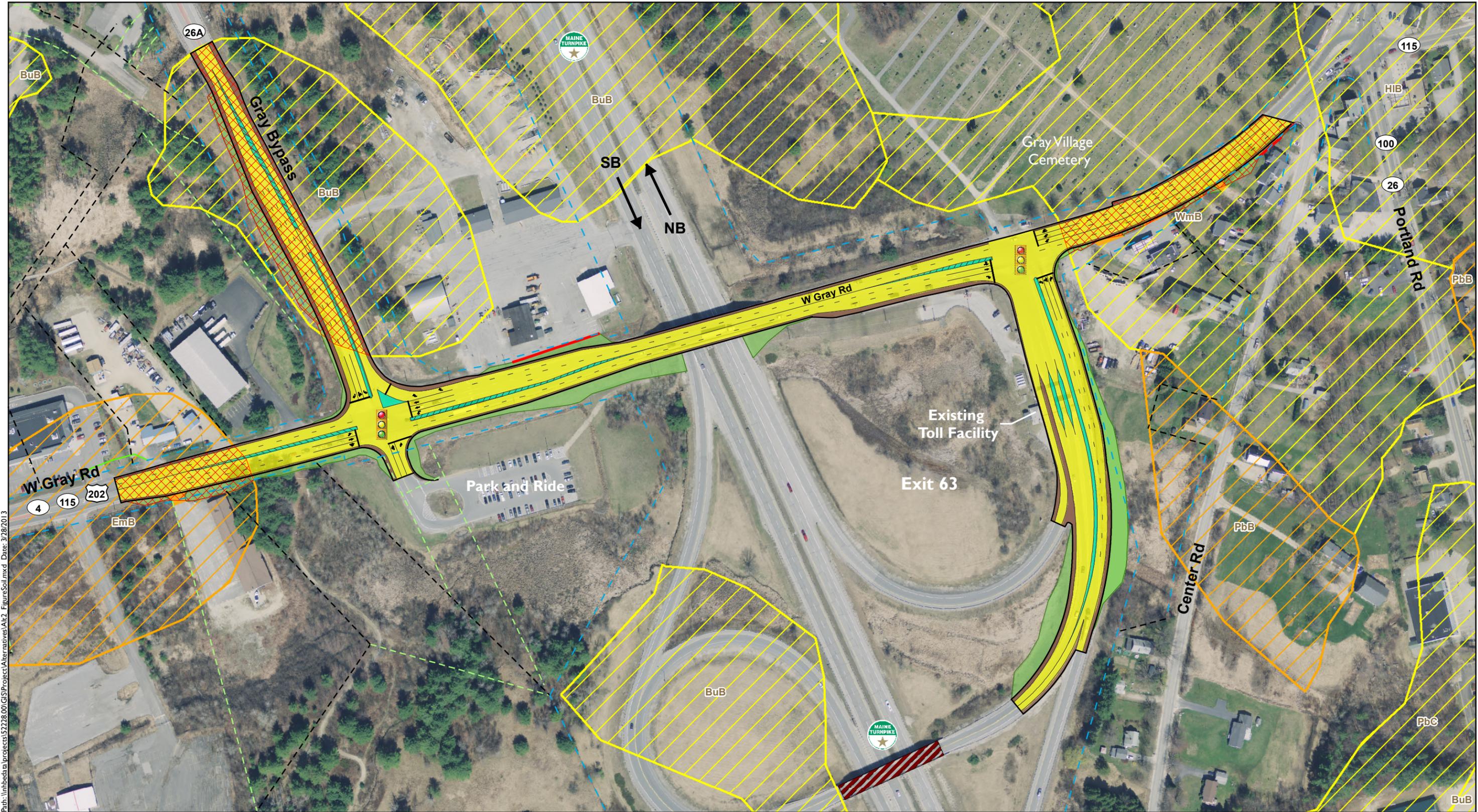
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Figure 5-2.2.2
Alternative 2 - Aquifer Impacts

Gray Interchange Feasibility Study
Maine Turnpike Authority

Gray, Maine

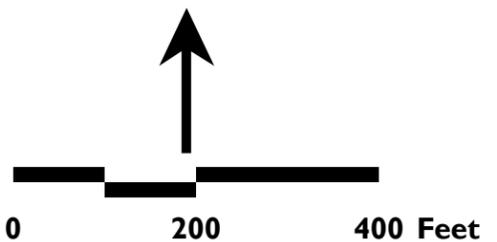




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- Legend**
- Proposed Roadway
 - Proposed Shoulder
 - Proposed Slope Limits
 - Proposed Driveway
 - Proposed Island
 - Bridge Rehabilitation
 - Proposed Edge of Pavement
 - Proposed Retaining Wall
 - Proposed Drainage Ditch
 - Proposed Paint Lines
 - ROW
 - Slope Easement
 - Property Line
 - Easements

- NRCS Farmland Soils**
- All areas are prime farmland
 - Farmland of statewide importance
 - NRCS Farmland Soils Impact



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Figure 5-2.2.3
Alternative 2 - Farmland Soil Impacts

Gray Interchange Feasibility Study
Maine Turnpike Authority

Gray, Maine





Area. Further investigation into these potential sites is recommended prior to or during preliminary design.

With respect to historical structures there are two properties listed on the National Register and two National Register eligible properties either within and/or in close proximity to the Study Area. Alternative 2 may result in a direct taking to the Morrill House and the Mayall Snow House both of which are documented as eligible properties for the National Register (2002). All four properties would need to be studied to determine potential for indirect effect and an architectural survey would need to be completed to determine the presence or absence of additional properties that may be eligible for the National Register.

Turnpike Impacts

Alternative 2 includes modifications to the existing toll plaza area with the inclusion of an additional toll lane. The US Route 202 improvements include the addition of a second left turn lane entering the toll plaza area for vehicles travelling westbound along US Route 202. This along with maintaining the eastbound right turn lane into the toll plaza area require drivers to identify and determine their maneuver and complete their maneuver to get to their desired ramp or toll lane, all with an additional lane and vehicle queue during the decision making process. Data provided by MTA indicates that peak hour demands at the E-ZPass only lane are approaching capacity, suggesting that a second E-ZPass lane is likely needed to process demands efficiently and to keep vehicle queuing from backing into US Route 202.

The existing overhead sign structure just prior to the toll plaza would be replaced with the addition of a toll lane. Supplemental signage would be included for the left and right turning traffic to improve guidance in entering the proper lanes prior to traversing through the toll plaza.

The addition of a toll lane increases the volume of traffic that can be processed through the toll plaza throughout the entire day. The additional toll lane could be constructed to be an exclusive E-ZPass lane or a shared E-ZPass/cash lane to address peak hour volume needs and for permitting of overlimit vehicles.

The toll plaza widening occurs to the east to maintain the existing conditions of the northbound ramp and administration building. The widening to the east also impacts the northbound and southbound off ramp traffic as they come together and determine which lane to enter as they approach the US Route 202 intersection. The existing three lanes at the US Route 202 intersection remain unchanged except for a shift in alignment to the east. The southbound on ramp requires a widening to merge the three toll lanes into a single lane prior to reaching the southbound ramps bridge.



The current procedure for issuing overlimit permits would remain unchanged with vehicles maneuvering through traffic to enter the cash lane. Once in the cash lane and at the toll booth, the permit is processed before the vehicle is allowed to continue to the southbound on ramp.

The long term maintenance operations and costs are increased with this alternative due to the increased width of the US Route 202 bridge and the widening of the existing toll plaza. The southbound ramps bridge will be rehabilitated but requires normal maintenance practices.

Bridge Impacts

Alternative 2 requires a 12' widening and rehabilitation of the US Route 202 bridge at MM 63.30 and rehabilitation and continued use of the Ramp A bridge at MM 63.10 as it is currently configured.

US Route 202 bridge at MM 63.30

The existing steel girders are in generally good condition and have a controlling RF > 1.0 for all legal load configurations. They can be reused with minor selective field painting. The concrete deck is also in good condition and does not require rehabilitation. Minor concrete patch repair of delaminated and spalled areas of existing abutments and piers is required. No immediate repairs are recommended prior to the proposed rehabilitation, provided it occurs before the end of 2016. The widening of the bridge will be similar to the 2006 widening to add another lane. The widening will include approximately 12' of new concrete deck, and two new steel girders with bearings. The widening will also include extension of each abutment and separate standalone extensions of each pier, all supported by steel H-piles.

Ramp A bridge at MM 63.10

The existing concrete deck requires replacement because of its poor condition. The HL-93 Inventory and Operating Level Rating Factors for the existing steel beams are greater than 1.0 so rating for the Maine legal load configurations is not required. An analysis was not performed to compare the life cycle cost of reusing the existing painted steel girders to replacement of them with new weathering steel plate girders. However, based on the very recent life cycle cost analysis VHB did to compare similar alternatives as part of the preliminary design of the rehabilitation of the Litchfield Road bridge at MM 106.90, replacement with new weathering steel plate girders is more cost effective because it eliminates future painting of the existing beams. The existing vertical clearance over Maine Turnpike is 14'-2" requiring a raise in the profile of the bridge and ramps to achieve a proposed vertical clearance of 15'-6". Consequently, VHB has assumed that the rehabilitation of the Ramp A bridge at MM 63.10 will include the following major elements:

- New A709 Grade 50w plate girders on new bearings
- New composite 8" reinforced concrete deck
- 3" bituminous concrete wearing surface with high-performance waterproofing membrane



- Concrete patch repair of delaminated and spalled areas of existing abutments and piers
- Abutment and pier reconstruction to obtain the necessary vertical clearance
- New expansion joints at both abutments
- New steel three-rail tubular bridge railing
- New approach guardrail and bridge rail transitions

No immediate repairs are recommended prior to the proposed rehabilitation, provided it occurs before the end of 2016, except for installation of shielding over the travel lanes to contain any additional spalled concrete falling from the concrete deck fascias.

Construction Cost Estimate

The planning-level construction cost estimate for Alternative 2 is \$7.2 million. This construction costs estimate is in 2013 dollars and includes the following major construction elements:

- Roadway improvements along US Route 202, the Gray Bypass and the on and off ramp areas
- Signal replacement and upgrades to the existing signalized intersections within the Study Area
- The rehabilitation of the existing southbound ramps bridge which includes the replacement of the structural steel and the concrete deck
- The southbound ramps bridge approach roadway work
- The widening of the US Route 202 bridge for the additional eastbound through lane
- The expansion of the existing toll plaza by a single lane
- The construction of two retaining walls on US Route 202

The construction cost estimate would be further refined as project development advances beyond the Feasibility Study and details of the design and construction costs are better defined. This estimate does not include right-of-way, utility relocation, permitting, and design engineering. The estimate also does not include construction, permitting and engineering costs for potential wetland mitigation, park and ride relocation to the Gray Bypass site, and the replacement of the existing northbound and southbound taper acceleration lanes with parallel lanes.

Purpose and Need

Alternative 2 improves transportation efficiency and promotes safer travel conditions with the improvements shown in **Figure 4-1**. Transportation efficiency and safety is improved within the Study Area as follows:

- The combination of roadway and bridge widening by adding additional turn lanes and queue storage at the signalized intersections
- The optimization of the signal system along US Route 202 from the Gray Bypass intersection into Gray Village

- The addition of a toll lane increases the processing capacity of the facility resulting in fewer backups approaching the toll plaza
- The inclusion of guide signs provides better decision making opportunities for travelers that are not familiar with the toll plaza area

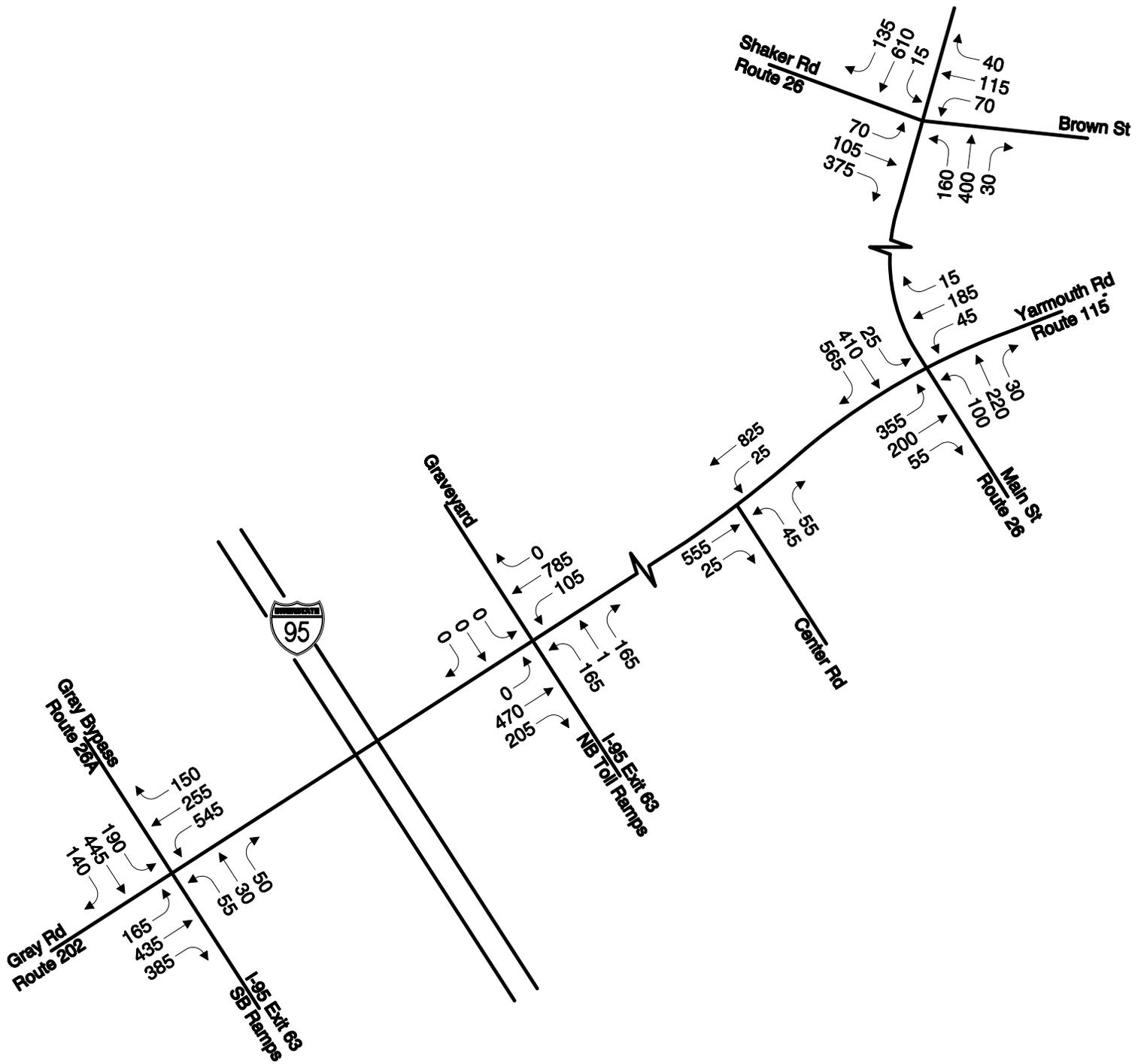
5.2.3 Alternative 3

Traffic operations, turnpike operations and maintenance, environmental impacts, transportation efficiency, safety and construction costs were evaluated for Alternative 3. These evaluations, similar to those conducted for the existing condition and Alternative 1 (No Build), were conducted assuming the completion of the physical improvements determined to be necessary to support this alternative through the forecast year 2032.

Transportation Operations

It is important to note that the 2032 forecast year traffic volume networks previously developed for Alternatives 1 and 2 were modified to reflect the reconfiguration of the southbound ramps assumed under Alternative 3. **Figures 5-2.3.1, 5-2.3.2, and 5-2.3.3** respectively show the 2032 weekday morning, weekday evening, and Saturday midday peak hour traffic volume networks for this alternative.

As defined by the evaluation criteria for alternatives, the recommended physical geometric improvements for the Study Area intersections result in projected LOS C or D (or better) traffic operations through the forecast year 2032 peak hour conditions. As described in Section 4.4, Alternative 3 includes intersection improvements at the US Route 202 intersection with the Gray Bypass through the reconfiguration of the southbound ramps; relocation of the toll plaza opposite the Gray Bypass; minor modifications to the US Route 202 intersection with the Exit 63 ramps. Similar to Alternative 2, no improvements are assumed for the other intersections to the east of the ramps under this alternative. Alternative 3 provides increased transportation operations at the toll plaza area by increasing the length required to make decisions and provide improved signage. Transportation operations are also improved by separating the northbound and southbound traffic movements to and from the Maine Turnpike which better defines their movements and reduces the confusion and congestion at the toll plaza and the US Route 202 intersections. With the implementation of the alternative improvements, traffic flow along the US Route 202 corridor is anticipated to improve substantially allowing for the use of a coordinated traffic signal system to better manage flow for the intersections to the east of the interchange. Incorporating the Study Area intersections into one coordinated signal system under Alternative 3 is expected to result in LOS D or better operations for the 2032 weekday morning, weekday evening, and Saturday midday peak hours for all four signalized locations.

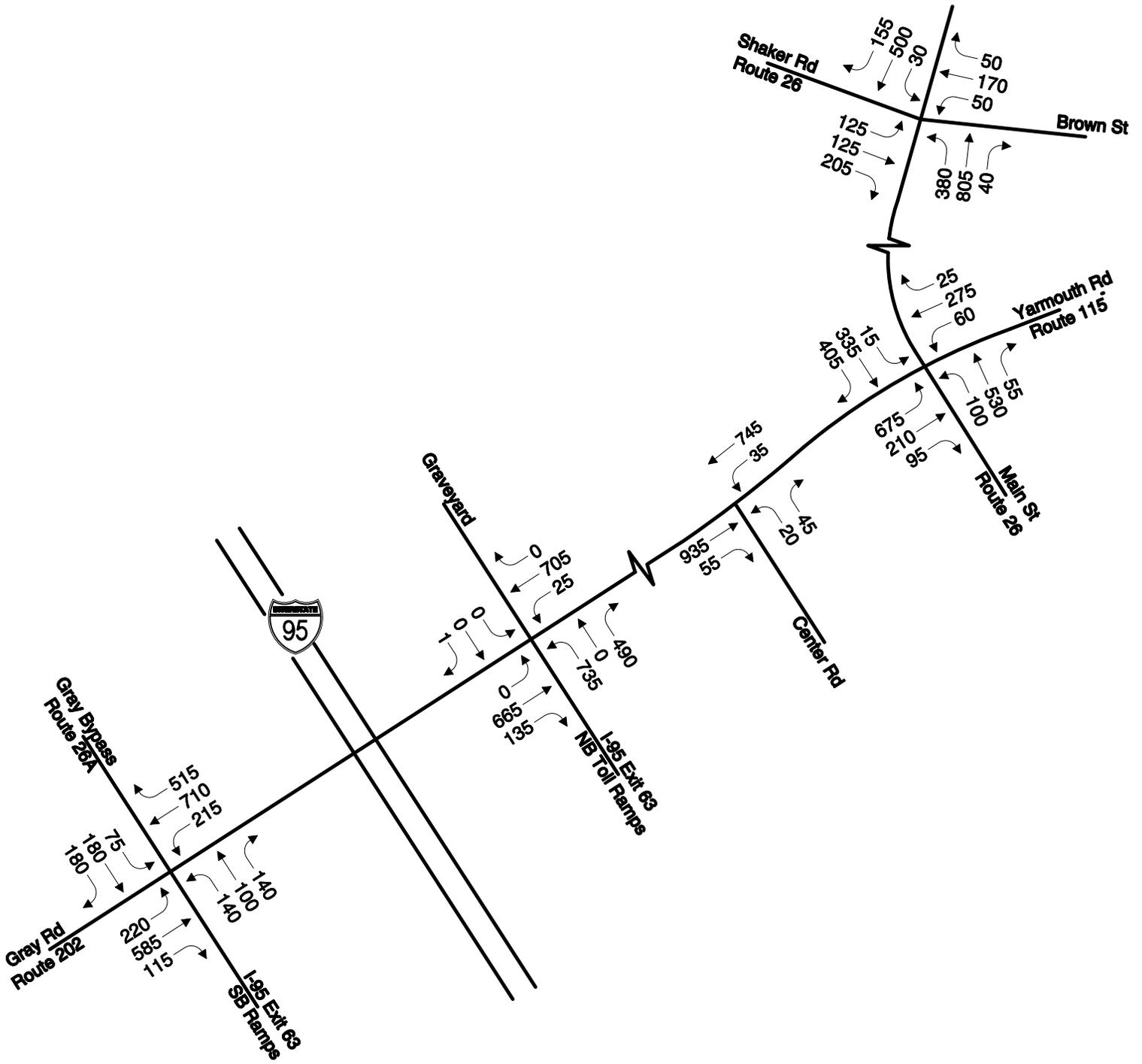


Not to Scale

Vanasse Hangen Brustlin, Inc.

Alternative 3 2032 Weekday AM
Peak Hour Intersection Traffic Volumes

Figure 5-2.1

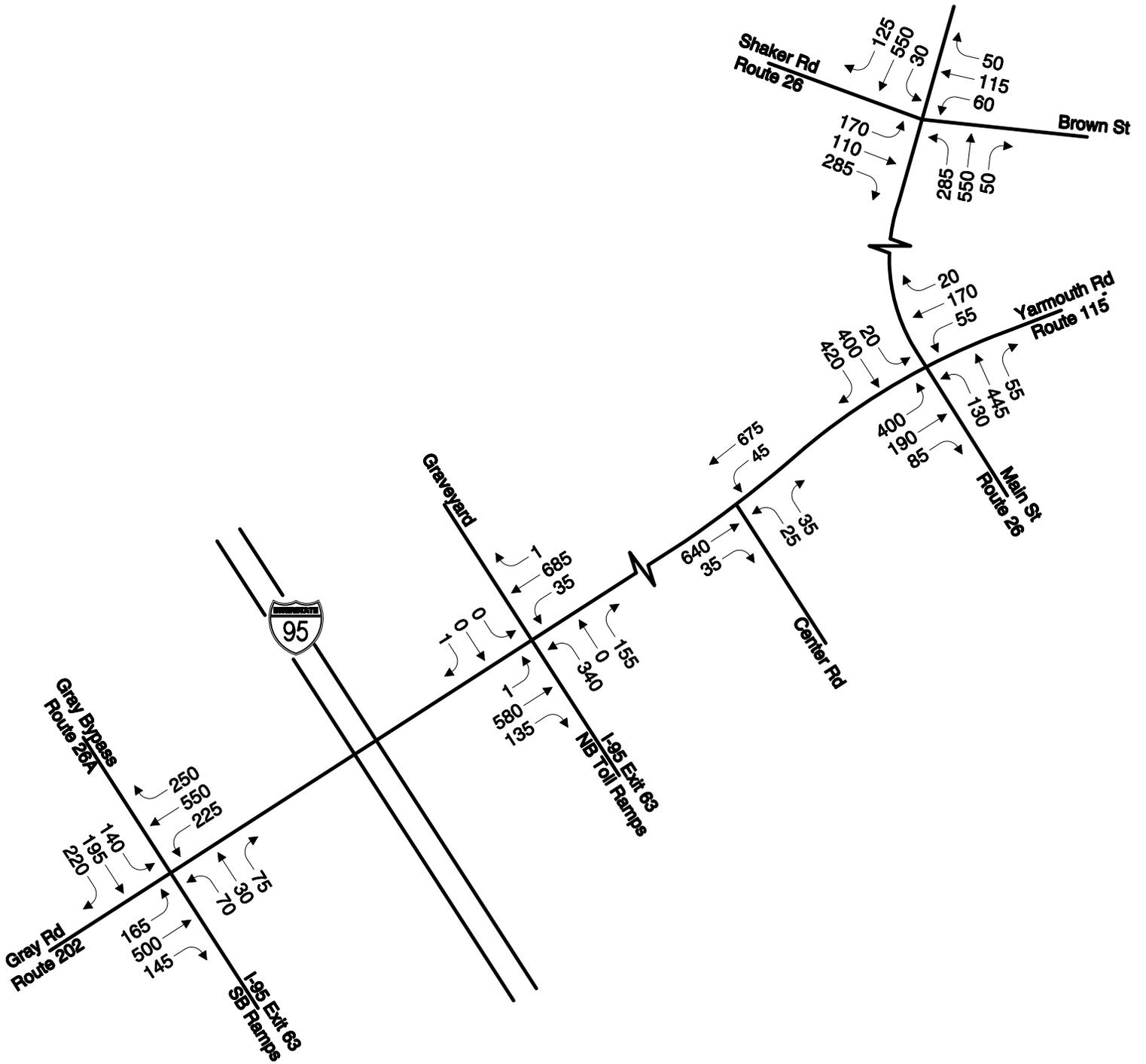


Not to Scale

Vanasse Hangen Brustlin, Inc.

Alternative 3 2032 Weekday PM
Peak Hour Intersection Traffic Volumes

Figure 5-2.2



Not to Scale

Vanasse Hangen Brustlin, Inc.

Alternative 3 2032 Saturday Midday
Peak Hour Intersection Traffic Volumes

Figure 5-2.3



Safety Impacts

The existing elements that contribute to potential safety concerns include:

- Traffic congestion
- Poor decision making based on congestion and geometric restrictions
- Confusing and limited signage entering the toll plaza area
- Toll plaza operations in issuing overlimit permits through the cash lane
- Single point of entry and exit to the Maine Turnpike through the toll plaza area and the ramps intersection with US Route 202
- Guardrail protection for the Maine Turnpike traffic travelling beneath the southbound ramps bridge
- Poor signal system timing along US Route 202 leading to congestion and poor decision making
- Two-way opposing southbound ramp traffic

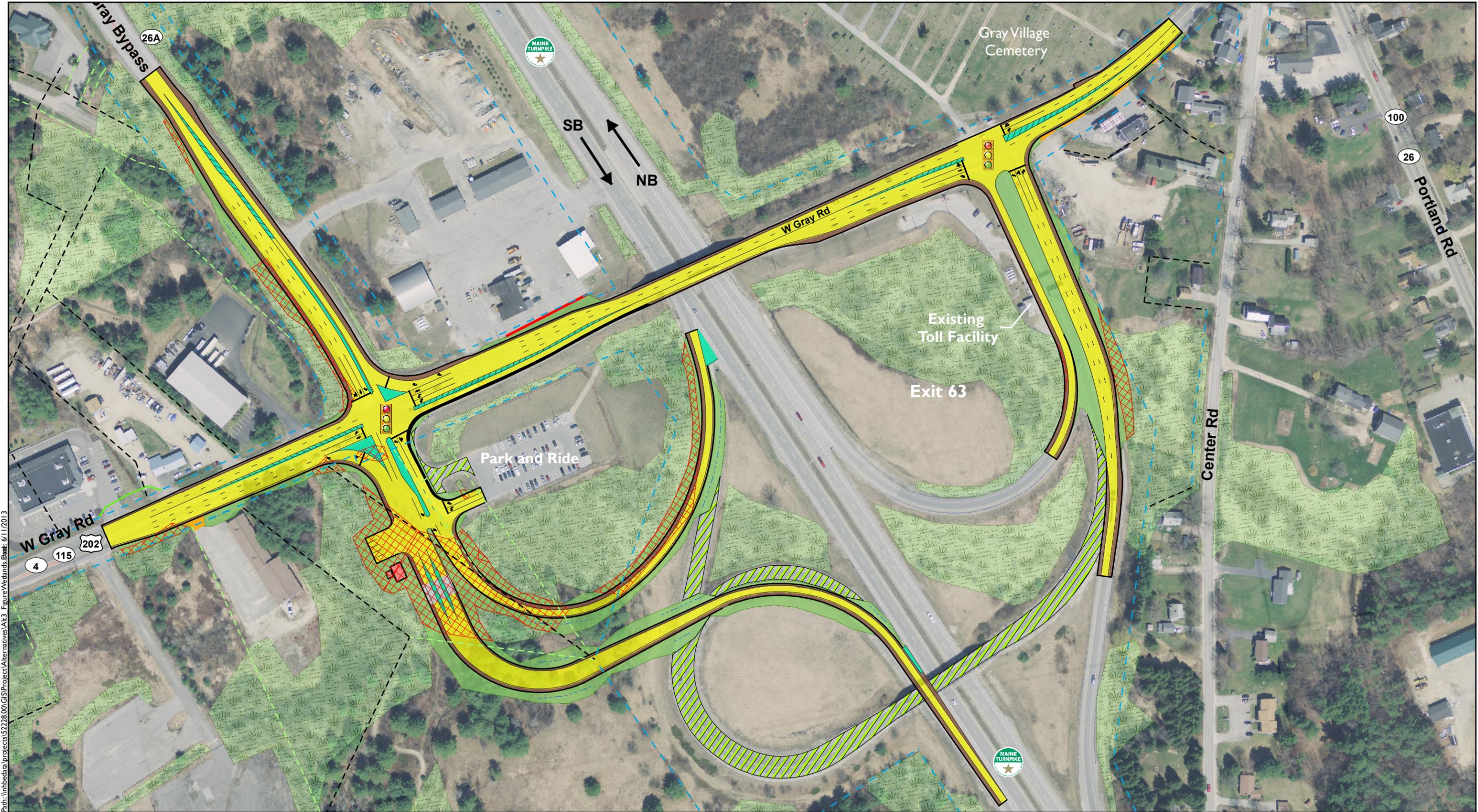
Alternative 3 provides overall safety improvements by reducing congestion with the construction of a coordinated signal system, the addition of another E-ZPass lane, and the inclusion of additional lanes throughout the study area to better manage the traffic.

In addition, the relocation of the toll plaza and the southbound ramps within Alternative 3 provides several safety related benefits as a result of providing independent northbound and southbound access to the Maine Turnpike, increased time for decision making with the toll plaza being located further from the US Route 202 intersection, and the elimination of the two-way traffic condition for the southbound ramps with separated southbound on and off ramps. The removal of the southbound ramps bridge allows the guardrail along the northbound and southbound barrels to be removed, thereby improving safety by removing the hazards from within the clearzone.

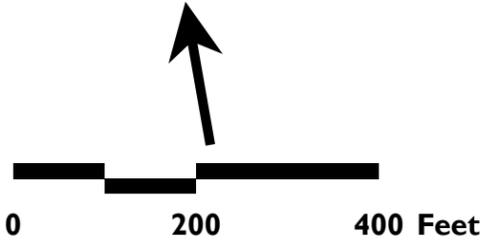
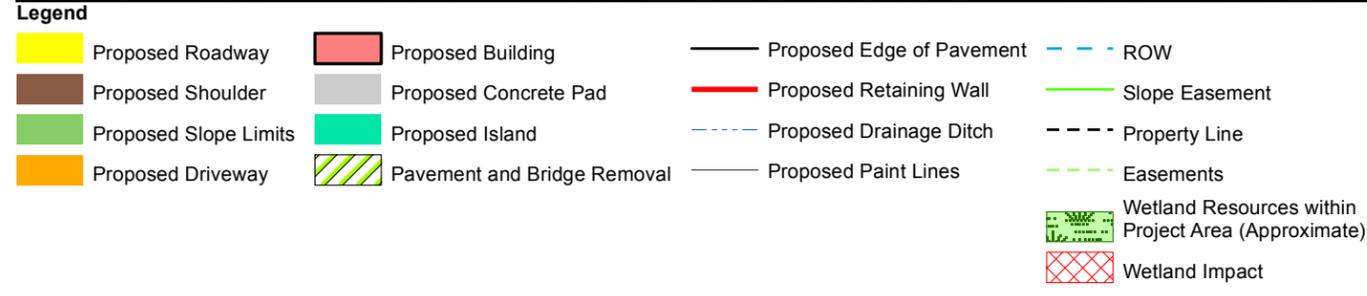
Environmental Impacts

The environmental impacts of Alternative 3 to environmental and cultural resources are discussed below using the evaluation methods and limits of interpretation as described in Section 5.1.

Alternative 3 would result in approximately 2.6 acres of impact to wetlands at nine (9) impact areas involving eight (8) of the nineteen wetlands identified within the Study Area as shown on **Figure 5-2.3.4**. The largest area of impact would be to the large wetland that is adjacent to the existing park and ride along the south side of US Route 202. Three areas of impact would occur to this wetland, of which the largest area of impact would be for the construction of a new toll facility and associated infrastructure and the construction of a new southbound on ramp from the Maine Turnpike. Much of this impact area has not been previously disturbed. The remaining impacts are similar to those for Alternative 2 and would occur to the



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VHB Vanasse Hangen Brustlin, Inc.

Figure 5-2.3.4
Alternative 3 - Wetland Impacts

Gray Interchange Feasibility Study
Maine Turnpike Authority

Gray, Maine





edges of existing wetlands in locations where they have been previously disturbed by construction of the existing roads.

The primary measure for water quality used in this study is the amount of new impervious surfaces associated with the construction of each Alternative (measured as the number of acres of new pavement). Alternative 3 would result in 1.2 acres of new impervious surfaces within the Study Area for a total impervious surface area of 9.9 acres. This total includes consideration of the 1.7 acres where impervious pavement would be removed. The effect of the increase in impervious surfaces will be considered as part of the Maine Stormwater Construction General Permit, however there are no surface water resources within the Study Area so there would be no direct effect on surface waters or water quality. The removed location of surface water resources also means there would be a lower potential for adverse impact on surface water quality if Alternative 3 were constructed.

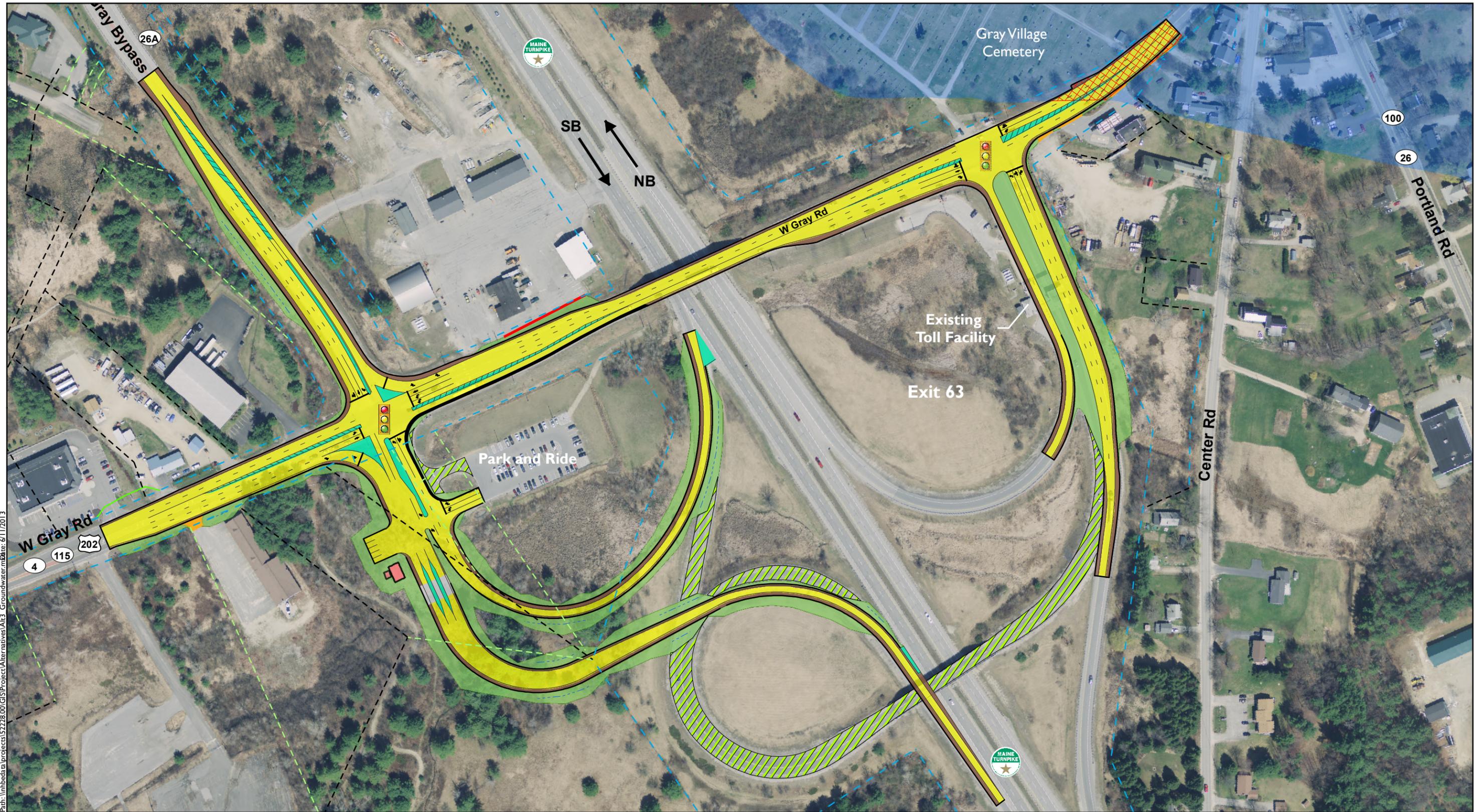
There are no floodplains within the Study Area, thus the addition of impervious surface due to construction of Alternative 3 would not have any direct impact on floodplains.

Alternative 3 would involve disturbance to approximately 0.3 acres that overlay the mapped aquifer and Gray Village Aquifer Protection District. Alternative 3 would result in a smaller disturbance area within the Gray Village Aquifer Protection District than Alternative 2 as shown on **Figure 5-2.3.5**. Much of the proposed disturbance area is currently paved and the disturbance would be due to repaving at the time the road improvements would be made.

Alternative 3 would result in the conversion of 0.7 acres of soils that are currently mapped by NRCS as Prime Farmland Soils and the conversion of 2.8 acres of soils that are currently mapped as Farmlands of Statewide Importance. All of the proposed impacts to soils mapped as Prime Farmland by NRCS have already been developed and are currently paved. The majority of the proposed impacts to soils mapped by NRCS as Farmlands of Statewide Importance are to areas that are not currently in active agriculture and/or are currently identified as wetlands by the field reconnaissance investigations for this Study as shown on **Figure 5-2.3.6**. The agricultural potential of these areas may be lower than the mapped soil units would indicate.

There are no State rare, threatened or endangered species of plants or animals within the Study Area. In addition, the MDIF&W has not mapped any Significant Wildlife Habitats or Essential Fisheries Habitat within the Study Area so there would not be any impacts to known species of concern at the State level if Alternative 3 were constructed.

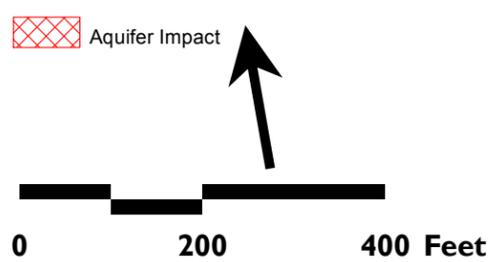
The USFWS has indicated that the potential exists for the federally listed species to be impacted by either Alternative 2 or Alternative 3. A Biological Assessment or evaluation of habitat would need to be conducted in coordination with USFWS



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Legend

- | | | | |
|-----------------------|-----------------------------|---------------------------|----------------|
| Proposed Roadway | Proposed Building | Proposed Edge of Pavement | ROW |
| Proposed Shoulder | Proposed Concrete Pad | Proposed Retaining Wall | Slope Easement |
| Proposed Slope Limits | Proposed Island | Proposed Drainage Ditch | Property Line |
| Proposed Driveway | Pavement and Bridge Removal | Proposed Paint Lines | Easements |
- Significant Aquifer Resources
 Aquifer expected to yield 10-50 gallons-per-minute to a properly constructed well.



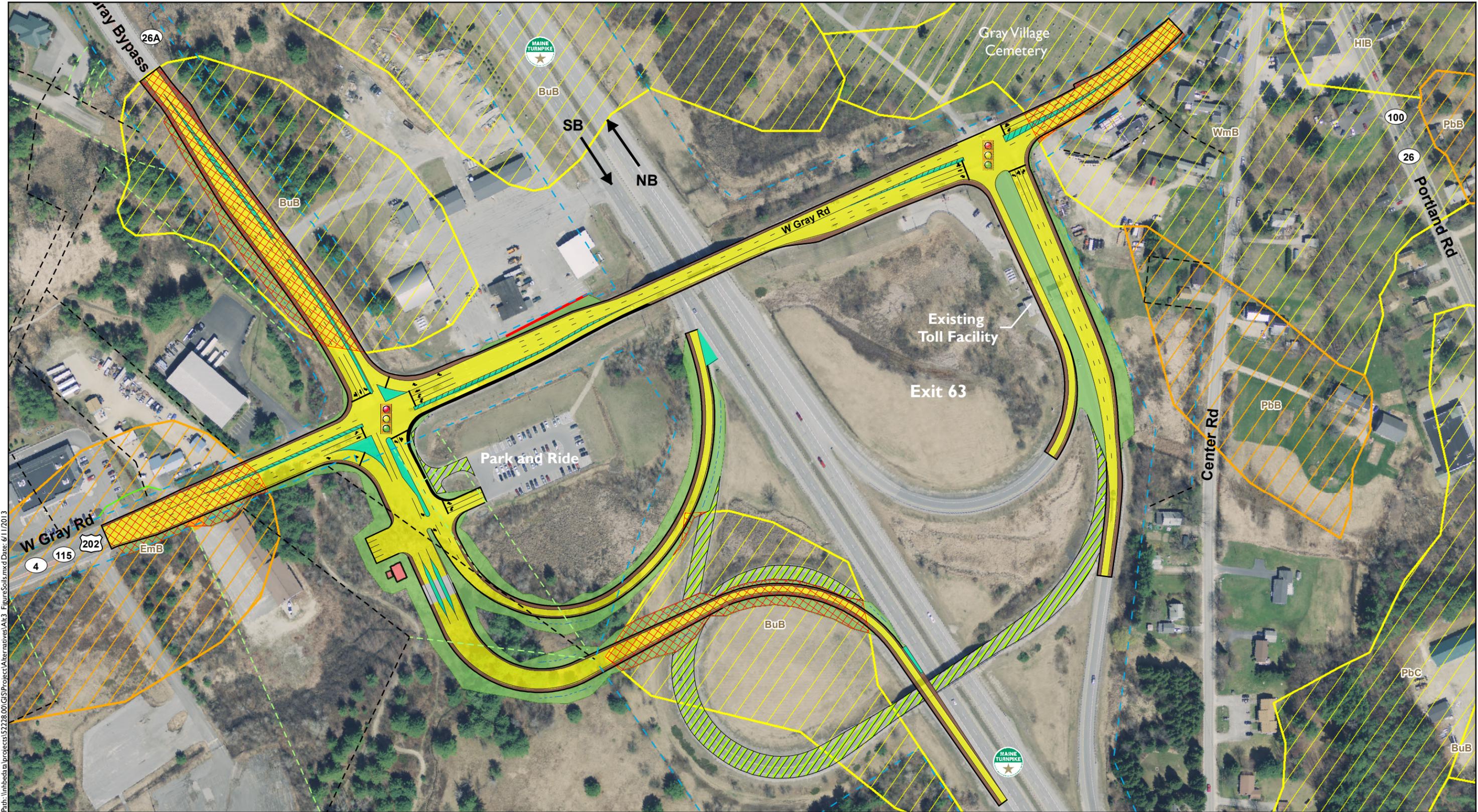
VHB Vanasse Hangen Brustlin, Inc.

Figure 5-2.3.5
Alternative 3 - Aquifer Impacts

Gray Interchange Feasibility Study
Maine Turnpike Authority

Gray, Maine

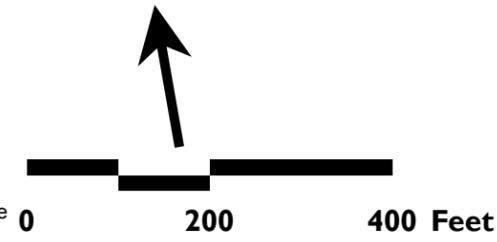




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Legend

- | | | | |
|-----------------------|-----------------------------|---------------------------|----------------------------------|
| Proposed Roadway | Proposed Building | Proposed Edge of Pavement | Slope Easement |
| Proposed Shoulder | Proposed Concrete Pad | Proposed Retaining Wall | Property Line |
| Proposed Slope Limits | Proposed Island | Proposed Drainage Ditch | Easements |
| Proposed Driveway | Pavement and Bridge Removal | Proposed Paint Lines | NRCS Farmland Soils |
| | | ROW | All areas are prime farmland |
| | | | Farmland of statewide importance |
| | | | NRCS Farmland Soils Impact |



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Figure 5-2.3.6
Alternative 3 - Farmland Soil Impacts

Gray Interchange Feasibility Study
Maine Turnpike Authority

Gray, Maine





officials to determine the actual presence or absence of the species and/or the critical habitat to support said species. The two species of concern are the New England Cottontail rabbit and the Small Whorled pogonia.

There are no known occurrences of hazardous materials sites within the study footprint, so it is unlikely that there will be any direct impacts relative to hazardous materials for Alternative 3. However, there are several sites in the Study Area. Further investigation into these potential sites is recommended prior to or during preliminary design.

An archeological study has not yet been completed and no data on archeological resources were obtained from the Maine Historic Preservation Commission.

With respect to historical structures there are two properties listed on the National Register and two National Register eligible properties either within and/or in close proximity to the Study Area. Alternative 3 as currently proposed would not likely result in a direct taking to any of the known National Register listed or National Register eligible properties in the Study Area. All four properties would need to be studied to determine potential for indirect effect and an architectural survey would need to be completed to determine the presence or absence of additional properties that may be eligible for the National Register.

Turnpike Impacts

Alternative 3 constructs new southbound ramps, a new three lane toll plaza, administration building, and parking area on the west side of the Maine Turnpike. The existing toll plaza facility will be removed with the northbound on and off ramp traffic being processed through the signalized intersection with US Route 202. The existing southbound ramps bridge and pavement would be removed.

The new toll facility provides significant improvements over Alternatives 1 and 2 as it provides for only the southbound on ramp traffic to traverse through the toll plaza. The toll plaza is located approximately 50 feet further away from the intersection of US Route 202 than the existing condition, which provides more distance to make better decisions. The existing park and ride would remain in its current location as park and ride traffic is minor and can be accommodated.

The major traffic movement to enter the toll plaza area would be from the two through lanes from the Gray Bypass. The through lanes directly align drivers with the toll plaza and associated signage to better identify which lane they want to traverse through at the toll plaza. The overhead sign structure and supplemental signage before entering the toll plaza area would be designed to provide guidance for drivers accessing the southbound on ramp and the park and ride.

The three lane toll plaza increases the volume of traffic that can be processed through the toll plaza throughout the entire day. The additional toll lane could be



constructed to be an exclusive E-ZPass lane or a shared E-ZPass/cash lane to address peak hour volume needs and for permitting of overlimit vehicles.

The current methodology for issuing overlimit permits would remain unchanged with vehicles maneuvering through traffic to enter the cash lane. Once in the cash lane and at the toll booth, the permit is processed before the vehicle is allowed to continue to the southbound on ramp.

The long term maintenance costs with Alternative 3 would be much less than Alternatives 1 and 2 with the elimination of the southbound ramps bridge. The construction of the new toll plaza also reduces maintenance costs since the existing toll plaza is much older and will require repairs and upgrades much sooner than the new toll plaza. Alternative 3 does not include the US Route 202 bridge widening which Alternative 2 does and increases the maintenance costs associated with Alternative 2.

Bridge Impacts

Alternative 3 may include minor bridge repairs of the US Route 202 bridge at MM 63.30 and removal of the Ramp A bridge at MM 63.10.

US Route 202 bridge at MM 63.30

The existing steel girders are in generally good condition and have a controlling RF > 1 for all legal load configurations. No immediate repairs are recommended prior to the project. Bridge repairs are currently scheduled for 2020, however they could occur as part of this project. The concrete deck is also in good condition and does not require rehabilitation. Minor concrete patch repair of delaminated and spalled areas of existing abutments and piers is required. No immediate repairs are recommended prior to the proposed minor bridge repairs, provided it occurs before the end of 2016.

Ramp A bridge at MM 63.10

The removal of the Ramp A bridge will include complete removal of the superstructure and removal of the piers and abutments to below grade. No immediate repairs are recommended prior to the proposed bridge removal, provided it occurs before the end of 2016, except for installation of shielding over the travel lanes to contain any additional spalled concrete falling from the concrete deck fascias.

Construction Cost Estimate

The construction cost estimate for Alternative 3 is \$6.3 million at the planning level. This construction cost estimate is in 2013 dollars and includes the following major construction elements:

- Roadway improvements along US Route 202 and the Gray Bypass
- Construction of new southbound on and off ramps
- Ramp improvements to the existing northbound ramps



- Signal replacement and upgrades to the existing signalized intersections within the Study Area
- The removal of the existing southbound ramps bridge and associated ramp pavement
- The construction of a new toll plaza, administration building and parking area
- Removal of the existing toll plaza, administration building and parking area
- The construction of one retaining wall on US Route 202

The construction cost estimate would be further refined as project development advances beyond the Feasibility Study and details of the design and construction are better defined. This estimate does not include right-of-way, utility relocation, permitting, design engineering and construction engineering. The estimate also does not include construction, permitting and engineering costs for potential wetland mitigation, park and ride relocation to the Gray Bypass site, and the replacement of the existing northbound and southbound taper acceleration lanes with parallel lanes.

Purpose and Need

Alternative 3 improves transportation efficiency and promotes safer travel conditions with the improvements shown in **Figure 4-2**. Transportation efficiency and safety is improved within the Study Area as follows:

- The relocation of the toll plaza to the west side of the turnpike eliminates the confusion with the northbound on ramp traffic
- The separation of the ramp movements improves transportation efficiency by directing southbound traffic destined for the Gray Bypass and the Maine Turnpike
- The addition of a third toll lane increases the processing capacity of the facility resulting in fewer backups approaching the toll plaza
- The distance from the US Route 202 intersection to the toll plaza is increased by 50 feet providing more distance for motorists to maneuver into the appropriate lane
- The roadway widening accommodates additional turn lanes and queue storage at the signalized intersections
- The optimization of the signal system along US Route 202 from the Gray Bypass intersection into Gray Village
- The inclusion of separate guide signs for the independent northbound and southbound ramps provides better decision making opportunities for travelers that are not familiar with the toll plaza area
- The removal of the southbound ramps bridge removes the guardrail and pier hazards

5.2.4 Comparison of Alternatives

The comparison of alternatives, as shown in **Table 5.2.4-1**, is provided to aid in the evaluation of Alternatives 2 and 3 in order to determine a preferred alternative. The alternative with greater benefits or less impacts for each evaluation criteria has been highlighted.

Table 5.2.4-1 Comparison of Alternatives

Study Element	Alternative 2	Alternative 3
Transportation Efficiency	Improved over existing condition	Improved over existing condition & Alternative 2
Safety	Improved over existing condition	Improved over existing condition & Alternative 2
Traffic Operations	Improved over existing condition (LOS C/D)	Improved over existing condition (LOS C/D)
Turnpike Operations	Improved over existing condition	Improved over existing condition & Alternative 2
Turnpike Maintenance Costs	Reduced over existing condition	Reduced over existing condition & Alternative 2
Construction Cost Estimate	\$7.2 M	\$6.3M
Wetlands	0.7 acres	2.6 acres
Water Quality	1.3 acres of additional impervious surface	1.2 acres of additional impervious surface
Floodplain	No floodplain within area	No floodplain within area
Aquifer	0.7 acres	0.3 acres
Farmland	2.8 acres	3.5 acres
Rare, Threatened, Endangered Species/Habitat	Identified 2 potential species – New England Cottontail rabbit and the Small Whorled pogonia	Identified 2 potential species – New England Cottontail rabbit and the Small Whorled pogonia
Historic & Archaeological Resource	2 properties potentially impacted	No properties impacted
Hazardous Materials	No known direct impacts	No known direct impacts

In reviewing the above table, Alternative 3 has greater benefits and lesser impacts for eight of the criteria with Alternative 2 having the edge for two criteria and four criteria showing no change between alternatives.

The estimated planning-level construction costs above do not include the following at this time:

- Replacement of the existing tapered northbound and southbound acceleration lanes with parallel acceleration lanes
- Wetland mitigation costs
- Relocation of the existing park and ride facility to the site on the Gray Bypass
- Right of way costs are not included in the cost estimates, however, the right of way costs are anticipated to be minimal.

These potential improvements and construction costs will be determined and included during the design and permitting phase of the project.

6

Conclusions

6.1 Conclusions

The purpose of this Gray Interchange Feasibility Study is to develop and evaluate transportation alternatives to improve the transportation efficiency and reduce safety problems at the Exit 63 interchange in Gray, Maine. The needs for the project identified transportation operations deficiencies at the toll plaza and bridge condition deficiencies for the southbound ramps bridge.

Through the course of alternative development and evaluation of potential impacts the No Build Alternative was dismissed as it did not provide improvements to transportation efficiency and reduce safety problems. The existing traffic operational and structural deficiencies will continue to degrade over time.

Alternatives 2 and 3 both provide improvement to transportation efficiency and reduce safety problems. These primary goals of the Feasibility Study along with the evaluation criteria for traffic operations, maintenance requirements, environmental resources and estimated construction costs all must be considered as they vary between alternatives and in the selection of the preferred alternative.

Alternative 3 provides greater transportation efficiency, safety benefits, turnpike operations and turnpike maintenance cost savings primarily through the relocation of the southbound ramps to the west side of the Maine Turnpike. The provision for individual ramp intersections allows for fewer distractions and better decision making opportunities in transitioning from the Maine Turnpike to a slower speed town setting as they approach US Route 202. The elimination of the northbound on ramp traffic mixing with the southbound on ramp traffic approaching the toll plaza area increases the operational efficiencies at the toll plaza. The maintenance costs of the Maine Turnpike facility will be less with Alternative 3 as it removes the southbound ramps bridge and maintains the width of the US Route 202 bridge, which Alternative 2 widens by 12 feet. The safety improvements for Alternative 3 are greater than Alternative 2 by separating all the ramp movements and eliminating the guardrail and pier hazards related to the removal of the existing southbound ramps bridge.

The evaluation of the environmental resources for Alternatives 2 and 3 provides mixed results. The wetlands and farmland soils impacts would be greater for Alternative 3. The area of impervious surfaces and aquifer impacts along with the potential for impacts to potentially historic properties are greater for Alternative 2. There are no differences in potential impacts to rare, threatened and endangered species and hazardous materials with either alternative.

The construction costs for Alternative 2 are slightly higher than Alternative 3 due primarily to the additional bridge costs associated with the bridge widening of the US Route 202 bridge and rehabilitation and raising of the southbound ramps bridge.

Ultimately, it is the MTA that determines the direction for additional study or the selection of a preferred alternative to enter into the next phase of permitting and design. The results indicate that both alternatives achieve the study purpose of improving transportation efficiency and safety, with Alternative 3 providing greater benefits in concert with the Purpose and Need Statement.



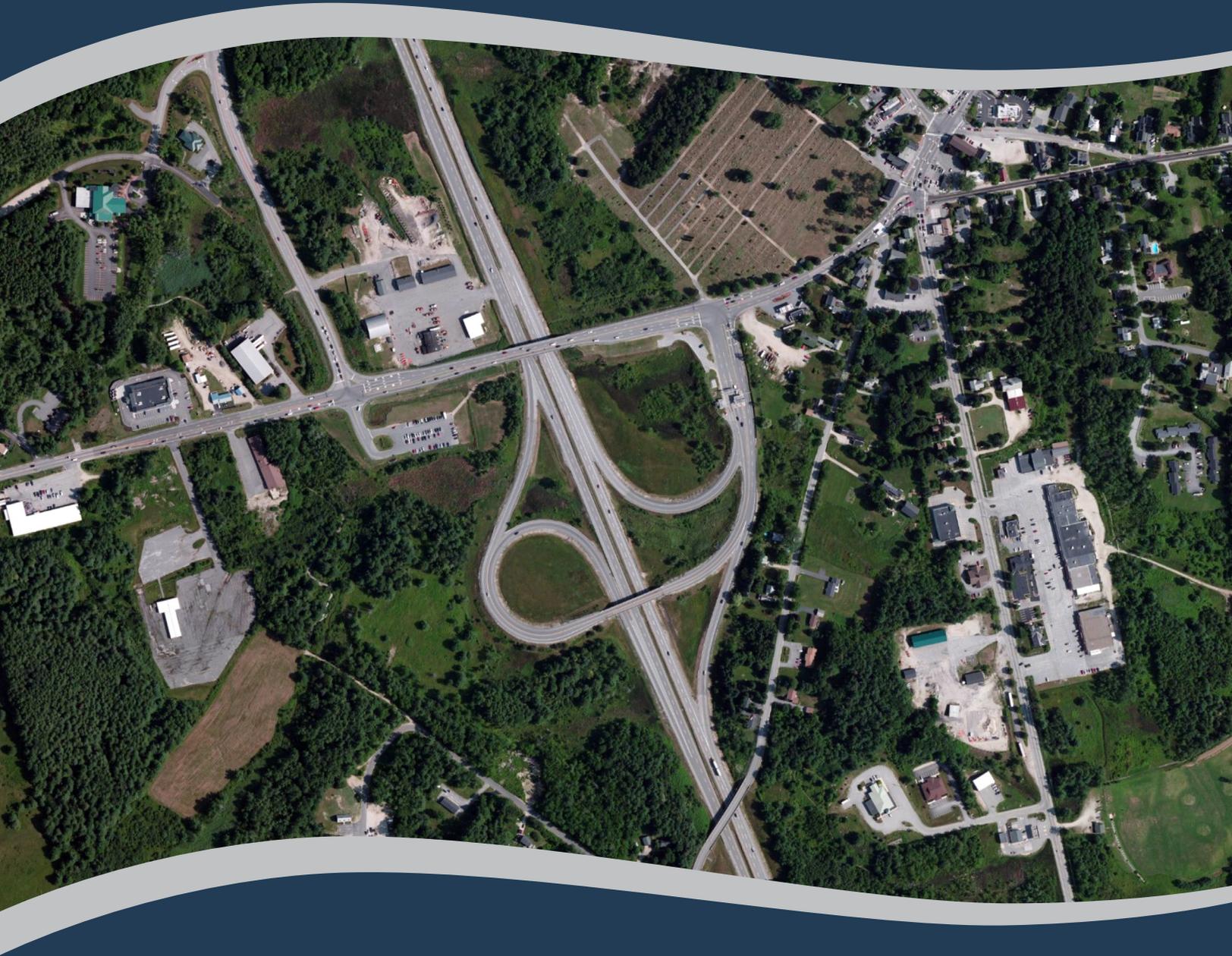
Vanasse Hangen Brustlin, Inc.

www.vhb.com

July 3, 2013

Gray Interchange

Feasibility Study - Appendices



SUBMITTED TO
The Maine Turnpike Authority



SUBMITTED BY
Vanasse Hangen Brustlin, Inc.

APPENDIX A - TRAFFIC VOLUME DATA

Accurate Counts
978-664-2565

Location : Route 202
Location : West of Exit 63 Ramps
City/State: Gray, ME

Start Time	09-Sep-12 Sun	WB		Hour Totals		EB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		24	178			20	194				
12:15		32	158			7	168				
12:30		12	180			9	189				
12:45		16	183	84	699	18	176	54	727	138	1426
01:00		22	141			12	150				
01:15		19	174			13	158				
01:30		20	143			15	174				
01:45		13	152	74	610	10	174	50	656	124	1266
02:00		11	157			6	157				
02:15		13	137			11	148				
02:30		5	144			6	168				
02:45		6	145	35	583	6	168	29	641	64	1224
03:00		2	127			7	154				
03:15		1	142			6	135				
03:30		5	143			7	174				
03:45		4	155	12	567	4	177	24	640	36	1207
04:00		2	111			16	156				
04:15		12	165			11	154				
04:30		7	156			7	141				
04:45		6	150	27	582	14	195	48	646	75	1228
05:00		12	113			18	176				
05:15		7	133			15	158				
05:30		13	139			21	162				
05:45		10	118	42	503	23	128	77	624	119	1127
06:00		9	135			31	125				
06:15		24	142			43	132				
06:30		19	127			38	138				
06:45		23	118	75	522	33	120	145	515	220	1037
07:00		23	95			44	102				
07:15		39	97			33	91				
07:30		34	89			65	82				
07:45		53	96	149	377	65	83	207	358	356	735
08:00		55	71			80	73				
08:15		59	53			102	62				
08:30		68	64			115	54				
08:45		59	63	241	251	111	62	408	251	649	502
09:00		78	38			124	60				
09:15		83	52			143	38				
09:30		132	33			169	34				
09:45		133	29	426	152	136	33	572	165	998	317
10:00		112	27			170	34				
10:15		127	37			158	24				
10:30		135	25			171	13				
10:45		150	15	524	104	161	22	660	93	1184	197
11:00		154	16			184	17				
11:15		149	21			177	25				
11:30		152	15			187	12				
11:45		156	16	611	68	170	9	718	63	1329	131
Total		2300	5018			2992	5379			5292	10397
Percent		31.4%	68.6%			35.7%	64.3%			33.7%	66.3%
Grand Total		11971	25726			17045	21830			29016	47556
Percent		31.8%	68.2%			43.8%	56.2%			37.9%	62.1%

ADT ADT 19,143 AADT 19,143

Accurate Counts
978-664-2565

Location : Route 202
Location : West of Exit 63 Ramps
City/State: Gray, ME

Start Time	08-Sep-12 Sat	WB		Hour Totals		EB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		31	192			25	189				
12:15		23	151			13	170				
12:30		19	172			13	159				
12:45		16	168	89	683	15	158	66	676	155	1359
01:00		12	160			18	164				
01:15		13	175			14	164				
01:30		11	147			12	162				
01:45		14	164	50	646	5	166	49	656	99	1302
02:00		7	172			5	161				
02:15		8	158			16	177				
02:30		8	138			5	175				
02:45		8	149	31	617	5	170	31	683	62	1300
03:00		9	139			9	169				
03:15		4	163			9	166				
03:30		5	176			7	145				
03:45		4	171	22	649	11	154	36	634	58	1283
04:00		7	141			14	179				
04:15		13	187			18	155				
04:30		10	194			18	155				
04:45		12	173	42	695	21	176	71	665	113	1360
05:00		10	141			45	139				
05:15		17	140			33	148				
05:30		26	172			47	152				
05:45		13	111	66	564	50	132	175	571	241	1135
06:00		21	124			46	118				
06:15		31	137			68	134				
06:30		44	125			91	105				
06:45		59	109	155	495	74	91	279	448	434	943
07:00		51	104			70	81				
07:15		50	98			95	81				
07:30		68	84			96	74				
07:45		79	106	248	392	95	70	356	306	604	698
08:00		71	108			90	84				
08:15		90	84			119	73				
08:30		130	92			130	54				
08:45		162	68	453	352	161	65	500	276	953	628
09:00		140	64			142	62				
09:15		132	88			145	51				
09:30		158	64			167	49				
09:45		167	43	597	259	159	46	613	208	1210	467
10:00		161	48			153	39				
10:15		176	36			179	37				
10:30		158	46			200	34				
10:45		142	38	637	168	197	27	729	137	1366	305
11:00		187	27			175	30				
11:15		181	33			171	16				
11:30		178	30			169	20				
11:45		188	20	734	110	187	18	702	84	1436	194
Total		3124	5630			3607	5344			6731	10974
Percent		35.7%	64.3%			40.3%	59.7%			38.0%	62.0%

Accurate Counts

978-664-2565

Location : Route 26A
 Location : North of Route 202
 City/State: Gray, ME

Start Time	06-Sep-12 Thu	SB		Hour Totals		NB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		14	69			12	66				
12:15		11	88			6	83				
12:30		9	64			4	84				
12:45		4	85	38	306	7	63	29	296	67	602
01:00		12	91			6	68				
01:15		11	71			4	80				
01:30		13	77			2	78				
01:45		14	82	50	321	3	78	15	304	65	625
02:00		10	86			5	90				
02:15		9	99			7	81				
02:30		12	90			3	99				
02:45		8	96	39	371	5	100	20	370	59	741
03:00		9	79			1	97				
03:15		21	76			2	112				
03:30		24	114			1	113				
03:45		22	78	76	347	7	125	11	447	87	794
04:00		27	118			19	119				
04:15		26	80			7	139				
04:30		34	127			14	160				
04:45		43	90	130	415	3	162	43	580	173	995
05:00		38	98			16	171				
05:15		64	95			15	165				
05:30		61	89			17	192				
05:45		59	69	222	351	19	171	67	699	289	1050
06:00		91	78			39	145				
06:15		137	69			54	98				
06:30		141	50			52	133				
06:45		170	43	539	240	80	76	225	452	764	692
07:00		164	42			95	82				
07:15		168	44			103	69				
07:30		207	61			42	66				
07:45		153	36	692	183	72	60	312	277	1004	460
08:00		118	49			53	69				
08:15		104	38			51	62				
08:30		136	42			54	54				
08:45		107	33	465	162	67	44	225	229	690	391
09:00		77	50			58	53				
09:15		99	30			51	50				
09:30		58	29			58	44				
09:45		83	27	317	136	60	18	227	165	544	301
10:00		71	32			78	17				
10:15		80	15			74	28				
10:30		73	27			68	17				
10:45		77	18	301	92	63	18	283	80	584	172
11:00		98	21			76	17				
11:15		60	12			63	16				
11:30		79	3			71	13				
11:45		64	9	301	45	62	19	272	65	573	110
Total		3170	2969			1729	3964			4899	6933
Percent		51.6%	48.4%			30.4%	69.6%			41.4%	58.6%

Accurate Counts 978-664-2565

Location : Route 202
 Location : West of Exit 63 Ramps
 City/State: Gray, ME

Start Time	03-Sep-12		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB
12:00 AM	*	*	*	*	*	*	33	37	65	37	89	66	84	54	68	48
01:00	*	*	*	*	*	*	28	25	46	50	50	49	74	50	50	44
02:00	*	*	*	*	*	*	26	58	42	44	31	31	35	29	34	40
03:00	*	*	*	*	*	*	32	81	20	69	22	36	12	24	22	52
04:00	*	*	*	*	*	*	68	157	71	155	42	71	27	48	52	108
05:00	*	*	*	*	*	*	187	405	170	343	66	175	42	77	116	250
06:00	*	*	*	*	*	*	386	818	361	816	155	279	75	145	244	514
07:00	*	*	*	*	*	*	496	1158	457	1101	248	356	149	207	338	706
08:00	*	*	*	*	*	*	446	795	469	742	453	500	241	408	402	611
09:00	*	*	*	*	*	*	478	605	500	608	597	613	426	572	500	600
10:00	*	*	*	*	*	*	489	527	538	618	637	729	524	660	547	634
11:00	*	*	*	*	*	*	534	567	605	630	734	702	611	718	621	654
12:00 PM	*	*	*	*	*	*	589	546	693	676	683	676	699	727	666	656
01:00	*	*	*	*	*	*	609	614	683	614	646	656	610	656	637	635
02:00	*	*	*	*	*	*	690	622	721	725	617	683	583	641	653	668
03:00	*	*	*	*	*	*	817	685	958	741	649	634	567	640	748	675
04:00	*	*	*	*	*	*	1064	712	1188	770	695	665	582	646	882	698
05:00	*	*	*	*	*	*	1186	638	1251	708	564	571	503	624	876	635
06:00	*	*	*	*	*	*	728	452	804	551	495	448	522	515	637	492
07:00	*	*	*	*	*	*	463	294	589	381	392	306	377	358	455	335
08:00	*	*	*	*	*	*	399	273	438	285	352	276	251	251	360	271
09:00	*	*	*	*	*	*	230	175	327	205	259	208	152	165	242	188
10:00	*	*	*	*	*	*	133	121	228	182	168	137	104	93	158	133
11:00	*	*	*	*	*	*	111	55	179	82	110	84	68	63	117	71
Lane	0	0	0	0	0	0	10222	10420	11403	11133	8754	8951	7318	8371	9425	9718
Day	0	0	0	0	0	0	20642	22536	22536	17705	15689	19143				
AM Peak	-	-	-	-	-	-	11:00	07:00	11:00	07:00	11:00	10:00	11:00	11:00	11:00	07:00
Vol.	-	-	-	-	-	-	534	1158	605	1101	734	729	611	718	621	706
PM Peak	-	-	-	-	-	-	17:00	16:00	17:00	16:00	14:00	14:00	12:00	12:00	16:00	16:00
Vol.	-	-	-	-	-	-	1186	712	1251	770	695	683	699	727	882	698
Comb. Total	0	0	0	0	0	0	20642	22536	22536	17705	15689	19143				
ADT	ADT 19,143	20642	22536	22536	17705	15689	19143									

Accurate Counts
978-664-2565

Location : Route 202
Location : West of Exit 63 Ramps
City/State: Gray, ME

Start Time	07-Sep-12 Fri	WB		Hour Totals		EB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		16	159			11	136				
12:15		20	175			13	173				
12:30		15	169			6	184				
12:45		14	190	65	693	7	183	37	676	102	1369
01:00		16	171			16	160				
01:15		7	162			11	159				
01:30		10	185			9	151				
01:45		13	165	46	683	14	144	50	614	96	1297
02:00		16	177			11	165				
02:15		11	172			4	184				
02:30		9	178			14	184				
02:45		6	194	42	721	15	192	44	725	86	1446
03:00		9	228			9	145				
03:15		3	205			18	177				
03:30		4	254			16	210				
03:45		4	271	20	958	26	209	69	741	89	1699
04:00		19	292			32	198				
04:15		9	275			33	192				
04:30		14	307			38	206				
04:45		29	314	71	1188	52	174	155	770	226	1958
05:00		25	327			57	187				
05:15		41	309			90	171				
05:30		51	346			97	167				
05:45		53	269	170	1251	99	183	343	708	513	1959
06:00		60	224			126	161				
06:15		80	221			206	143				
06:30		97	197			228	140				
06:45		124	162	361	804	256	107	816	551	1177	1355
07:00		112	173			262	100				
07:15		105	133			263	109				
07:30		127	157			305	99				
07:45		113	126	457	589	271	73	1101	381	1558	970
08:00		120	132			207	82				
08:15		99	113			208	88				
08:30		120	103			172	53				
08:45		130	90	469	438	155	62	742	285	1211	723
09:00		135	87			138	48				
09:15		125	93			175	53				
09:30		140	75			151	57				
09:45		100	72	500	327	144	47	608	205	1108	532
10:00		136	60			153	51				
10:15		108	62			140	40				
10:30		159	58			154	55				
10:45		135	48	538	228	171	36	618	182	1156	410
11:00		152	51			141	34				
11:15		156	59			141	23				
11:30		134	41			174	10				
11:45		163	28	605	179	174	15	630	82	1235	261
Total		3344	8059			5213	5920			8557	13979
Percent		29.3%	70.7%			46.8%	53.2%			38.0%	62.0%

Accurate Counts
978-664-2565

Location : Route 202
Location : West of Exit 63 Ramps
City/State: Gray, ME

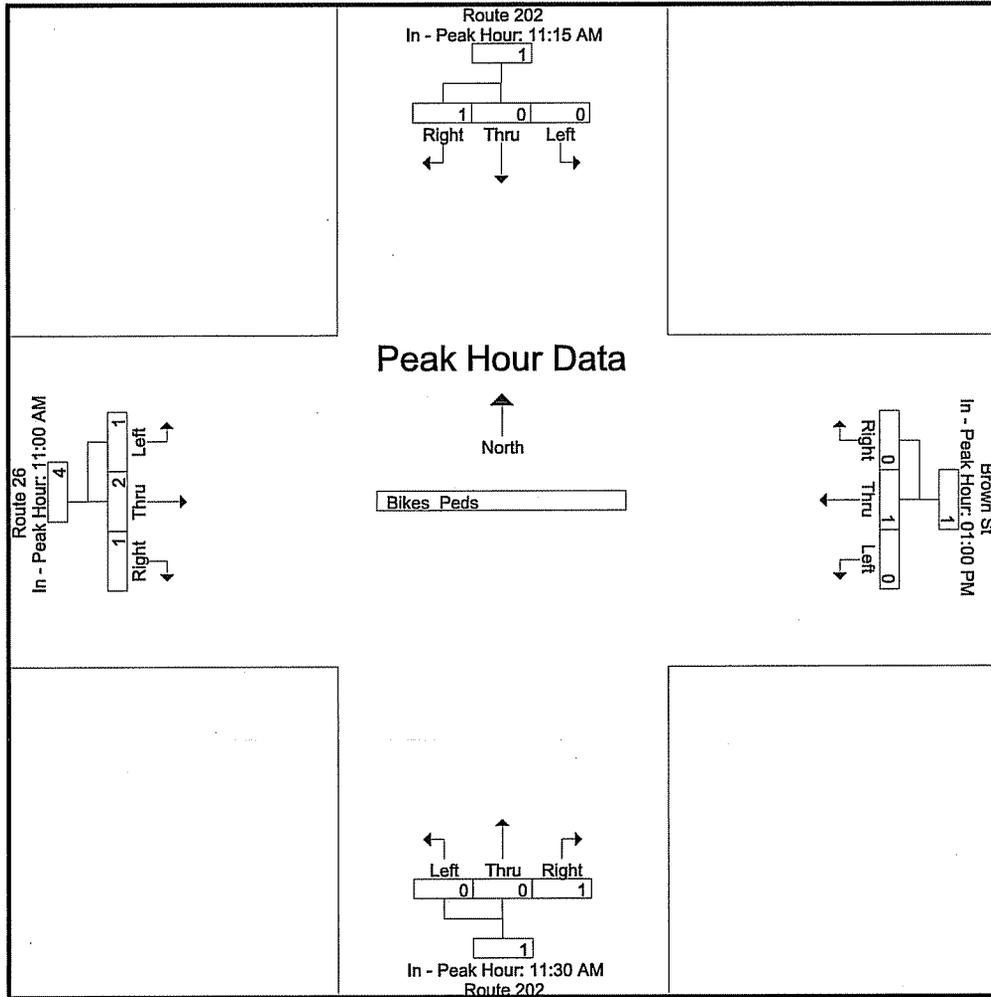
Start Time	06-Sep-12 Thu	WB		Hour Totals		EB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		12	165			11	144				
12:15		10	151			8	146				
12:30		4	138			10	124				
12:45		7	135	33	589	8	132	37	546	70	1135
01:00		7	142			9	162				
01:15		8	157			3	145				
01:30		4	165			4	149				
01:45		9	145	28	609	9	158	25	614	53	1223
02:00		9	159			13	144				
02:15		11	157			15	148				
02:30		1	192			14	173				
02:45		5	182	26	690	16	157	58	622	84	1312
03:00		7	188			19	183				
03:15		3	186			18	125				
03:30		12	201			19	199				
03:45		10	242	32	817	25	178	81	685	113	1502
04:00		19	227			26	169				
04:15		13	263			40	183				
04:30		25	275			36	202				
04:45		11	299	68	1064	55	158	157	712	225	1776
05:00		27	283			75	179				
05:15		39	317			86	166				
05:30		55	306			128	164				
05:45		66	280	187	1186	116	129	405	638	592	1824
06:00		65	233			159	129				
06:15		75	182			185	125				
06:30		121	167			205	113				
06:45		125	146	386	728	269	85	818	452	1204	1180
07:00		127	121			271	88				
07:15		135	126			292	69				
07:30		125	118			303	72				
07:45		109	98	496	463	292	65	1158	294	1654	757
08:00		100	103			222	83				
08:15		102	111			209	81				
08:30		114	100			191	64				
08:45		130	85	446	399	173	45	795	273	1241	672
09:00		116	57			151	58				
09:15		116	70			162	44				
09:30		120	59			152	34				
09:45		126	44	478	230	140	39	605	175	1083	405
10:00		123	34			134	36				
10:15		120	39			121	28				
10:30		125	34			128	32				
10:45		121	26	489	133	144	25	527	121	1016	254
11:00		123	37			153	25				
11:15		148	32			145	15				
11:30		124	21			136	6				
11:45		139	21	534	111	133	9	567	55	1101	166
Total		3203	7019			5233	5187			8436	12206
Percent		31.3%	68.7%			50.2%	49.8%			40.9%	59.1%



Accurate Counts
978-664-2565

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy

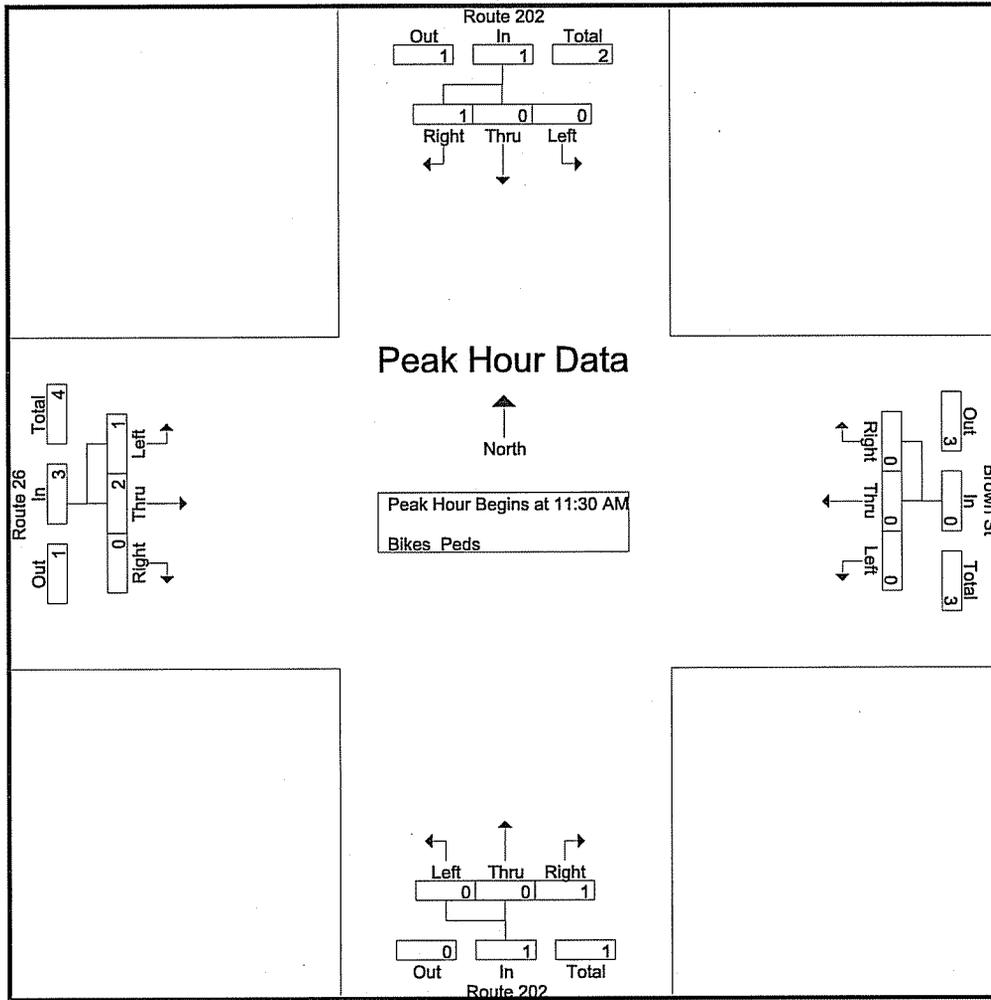
File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 3



Accurate Counts
978-664-2565

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 2

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy



Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:15 AM				01:00 PM				11:30 AM				11:00 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
+45 mins.	0	0	1	1	0	1	0	1	0	0	1	1	1	0	0	1
Total Volume	0	0	1	1	0	1	0	1	0	0	1	1	1	2	1	4
% App. Total	0	0	100		0	100	0		0	0	100		25	50	25	
PHF	.000	.000	.250	.250	.000	.250	.000	.250	.000	.000	.250	.250	.250	.250	.250	.500

Accurate Counts
978-664-2565

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 1

Groups Printed- Bikes Peds

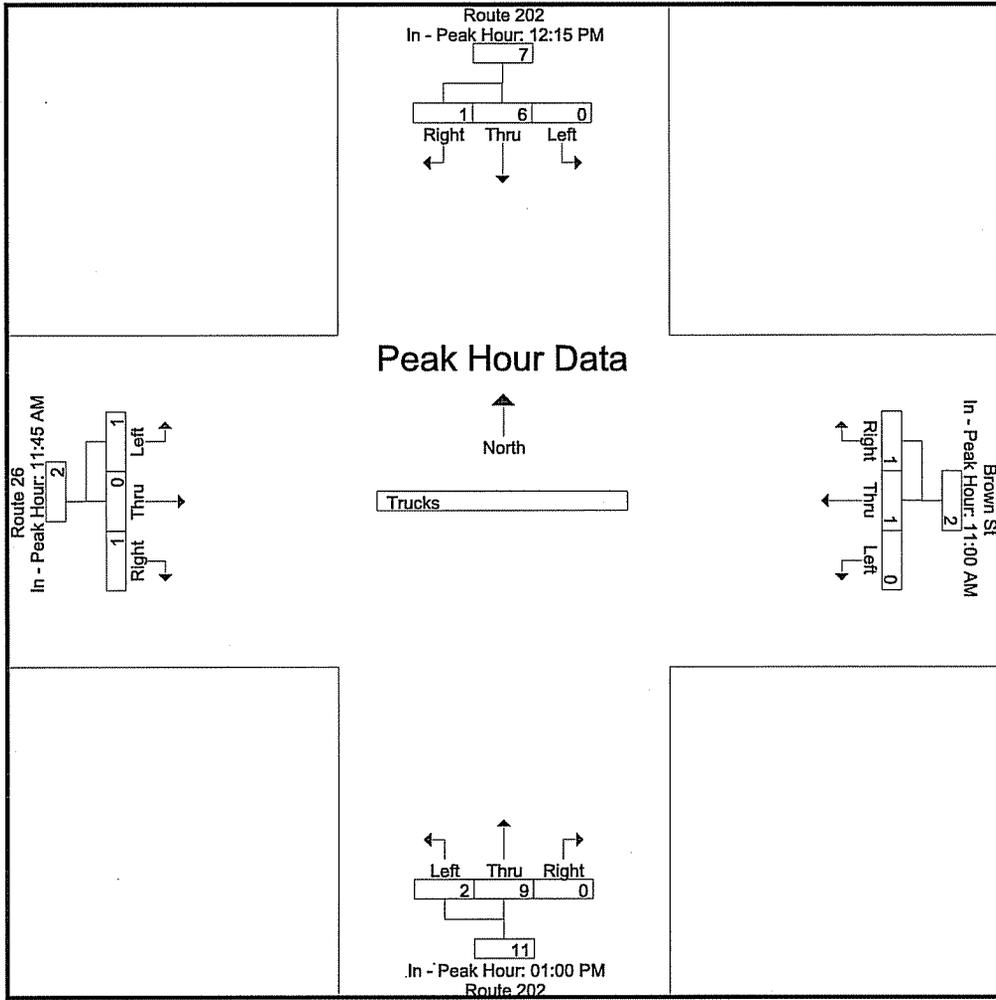
Start Time	Route 202 From North				Brown St From East				Route 202 From South				Route 26 From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	2	0	0	0	0	0	0	0	2	0	2	0	0	4	2	6
11:45 AM	0	0	0	2	0	0	0	0	0	0	0	2	1	0	0	0	4	1	5
Total	0	0	0	4	0	0	0	0	0	0	0	4	1	2	1	0	8	4	12
12:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
12:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	2
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4	0	4
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	0	0	0	0	1	0	0	0	0	0	4	0	0	0	0	4	1	5
Grand Total	0	0	1	4	0	1	0	0	0	0	1	8	1	2	1	0	12	7	19
Apprch %	0	0	100		0	100	0		0	0	100		25	50	25				
Total %	0	0	14.3		0	14.3	0		0	0	14.3		14.3	28.6	14.3		63.2	36.8	

Start Time	Route 202 From North				Brown St From East				Route 202 From South				Route 26 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:30 AM																	
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
12:00 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
12:15 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
Total Volume	0	0	1	1	0	0	0	0	0	0	1	1	1	2	0	3	5
% App. Total	0	0	100		0	0	0		0	0	100		33.3	66.7	0		
PHF	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.250	.250	.250	.250	.000	.375	.625

Accurate Counts
978-664-2565

File Name : 522280S
Site Code : 5222800:
Start Date : 9/8/2012
Page No : 3

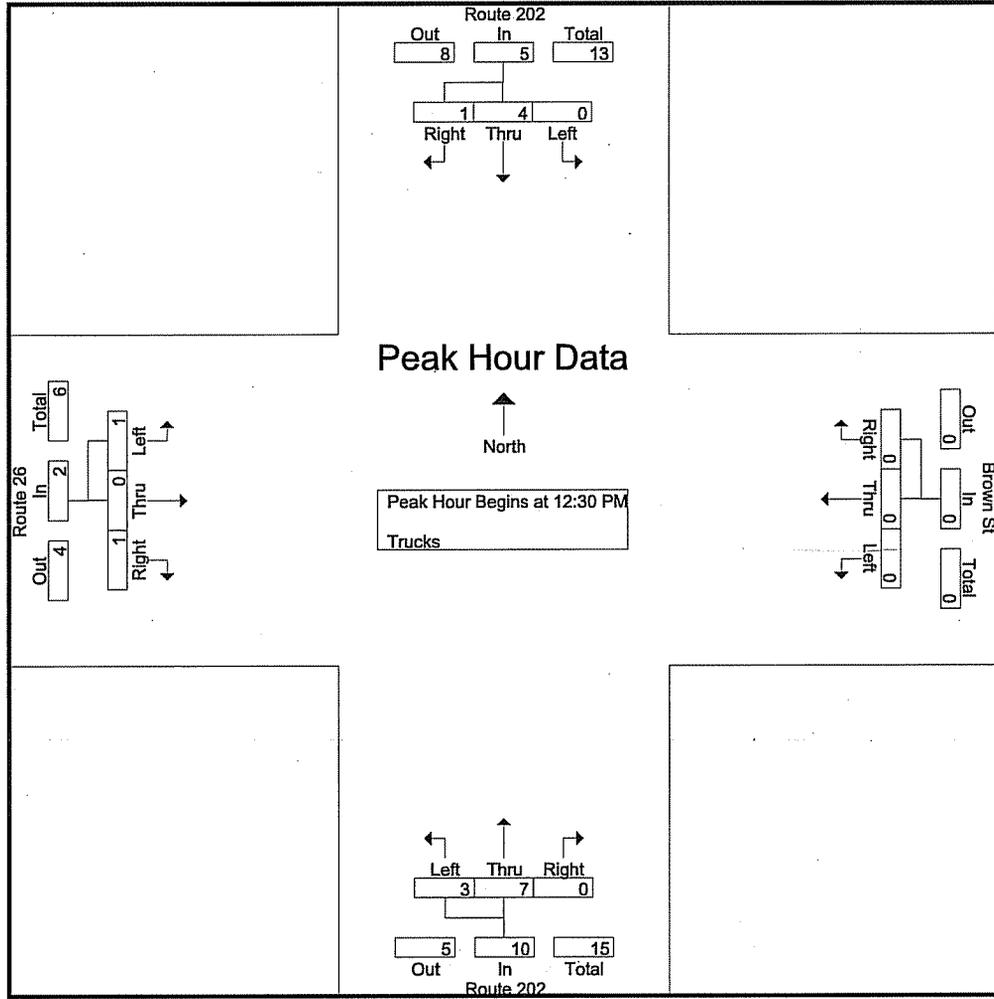
N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy



Accurate Counts
978-664-2565

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 2



Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:15 PM				11:00 AM				01:00 PM				11:45 AM			
+0 mins.	0	2	0	2	0	0	1	1	0	2	0	2	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	1	4	0	5	0	0	1	1
+30 mins.	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	1	1	0	1	0	1	1	3	0	4	1	0	0	1
Total Volume	0	6	1	7	0	1	1	2	2	9	0	11	1	0	1	2
% App. Total	0	85.7	14.3		0	50	50		18.2	81.8	0		50	0	50	
PHF	.000	.375	.250	.438	.000	.250	.250	.500	.500	.563	.000	.550	.250	.000	.250	.500

Accurate Counts
978-664-2565

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 1

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy

Groups Printed- Trucks

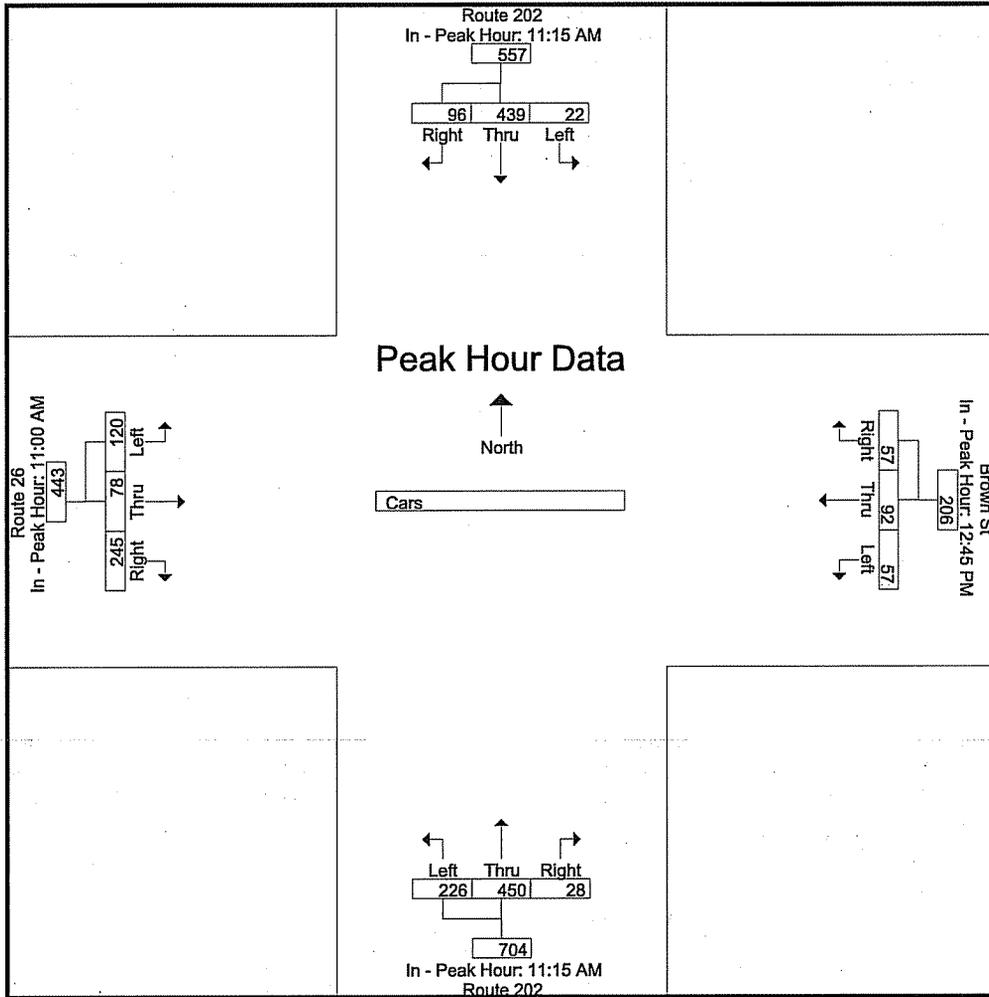
Start Time	Route 202 From North			Brown St From East			Route 202 From South			Route 26 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11:00 AM	0	0	1	0	0	1	0	4	0	0	0	0	6
11:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
11:30 AM	0	1	0	0	0	0	0	1	0	0	0	0	2
11:45 AM	0	2	0	0	1	0	0	3	0	0	0	0	6
Total	0	3	1	0	1	1	0	9	0	0	0	0	15
12:00 PM	0	0	0	0	0	0	0	1	0	0	0	1	2
12:15 PM	0	2	0	0	0	0	0	2	0	0	0	0	4
12:30 PM	0	0	0	0	0	0	1	1	0	1	0	0	3
12:45 PM	0	4	0	0	0	0	1	0	0	0	0	0	5
Total	0	6	0	0	0	0	2	4	0	1	0	1	14
01:00 PM	0	0	1	0	0	0	0	2	0	0	0	0	3
01:15 PM	0	0	0	0	0	0	1	4	0	0	0	1	6
01:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	2
01:45 PM	1	0	0	0	0	0	1	3	0	0	0	0	5
Total	1	1	1	0	0	1	2	9	0	0	0	1	16
Grand Total	1	10	2	0	1	2	4	22	0	1	0	2	45
Apprch %	7.7	76.9	15.4	0	33.3	66.7	15.4	84.6	0	33.3	0	66.7	
Total %	2.2	22.2	4.4	0	2.2	4.4	8.9	48.9	0	2.2	0	4.4	

Start Time	Route 202 From North				Brown St From East				Route 202 From South				Route 26 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:30 PM																	
12:30 PM	0	0	0	0	0	0	0	0	1	1	0	2	1	0	0	1	3
12:45 PM	0	4	0	4	0	0	0	0	1	0	0	1	0	0	0	0	5
01:00 PM	0	0	1	1	0	0	0	0	0	2	0	2	0	0	0	0	3
01:15 PM	0	0	0	0	0	0	0	0	1	4	0	5	0	0	1	1	6
Total Volume	0	4	1	5	0	0	0	0	3	7	0	10	1	0	1	2	17
% App. Total	0	80	20		0	0	0		30	70	0		50	0	50		
PHF	.000	.250	.250	.313	.000	.000	.000	.000	.750	.438	.000	.500	.250	.000	.250	.500	.708

Accurate Counts
978-664-2565

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy

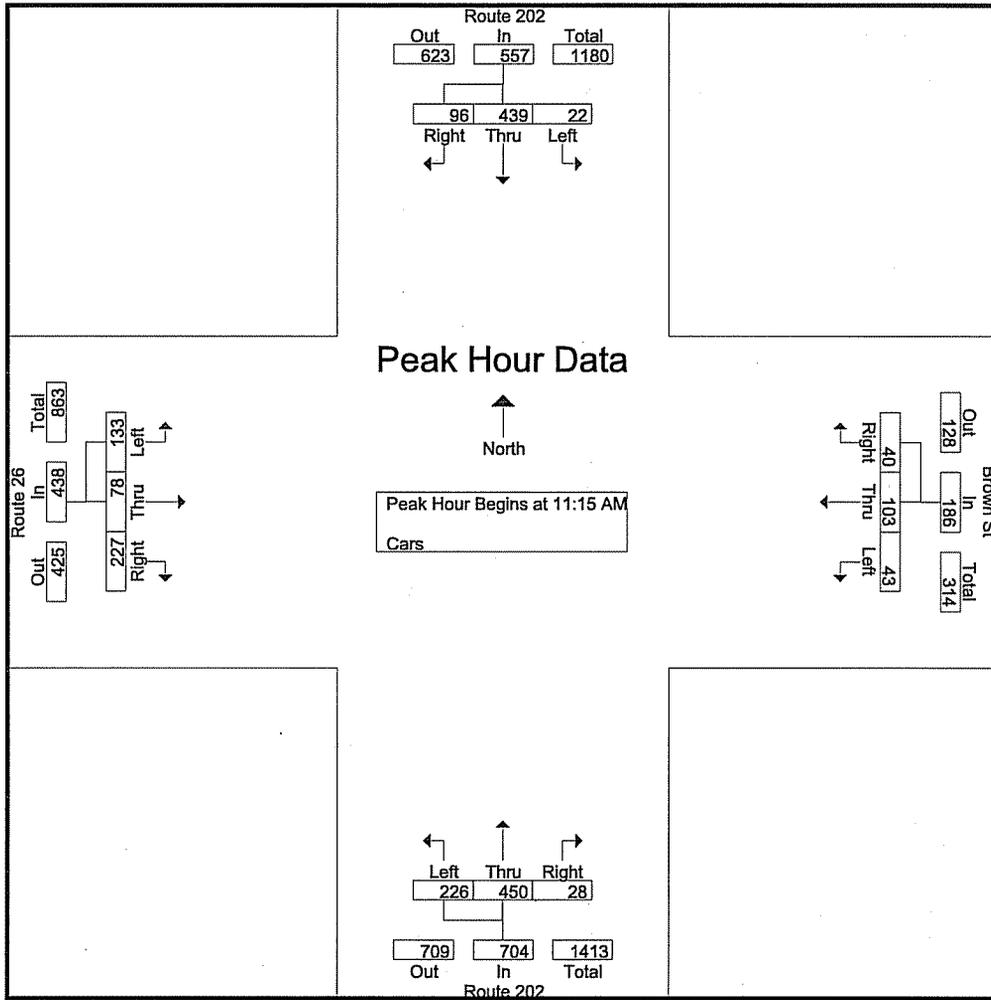
File Name : 522280S
Site Code : 5222800:
Start Date : 9/8/2012
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy

File Name : 522280S
Site Code : 5222800:
Start Date : 9/8/2012
Page No : 2



Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:15 AM				12:45 PM				11:15 AM				11:00 AM			
+0 mins.	3	102	22	127	11	24	10	45	58	106	2	166	17	20	74	111
+15 mins.	6	118	29	153	18	25	20	63	50	111	10	171	26	17	52	95
+30 mins.	9	111	26	146	14	24	15	53	57	104	7	168	52	24	58	134
+45 mins.	4	108	19	131	14	19	12	45	61	129	9	199	25	17	61	103
Total Volume	22	439	96	557	57	92	57	206	226	450	28	704	120	78	245	443
% App. Total	3.9	78.8	17.2		27.7	44.7	27.7		32.1	63.9	4		27.1	17.6	55.3	
PHF	.611	.930	.828	.910	.792	.920	.713	.817	.926	.872	.700	.884	.577	.813	.828	.826

Accurate Counts
978-664-2565

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 1

Groups Printed- Cars

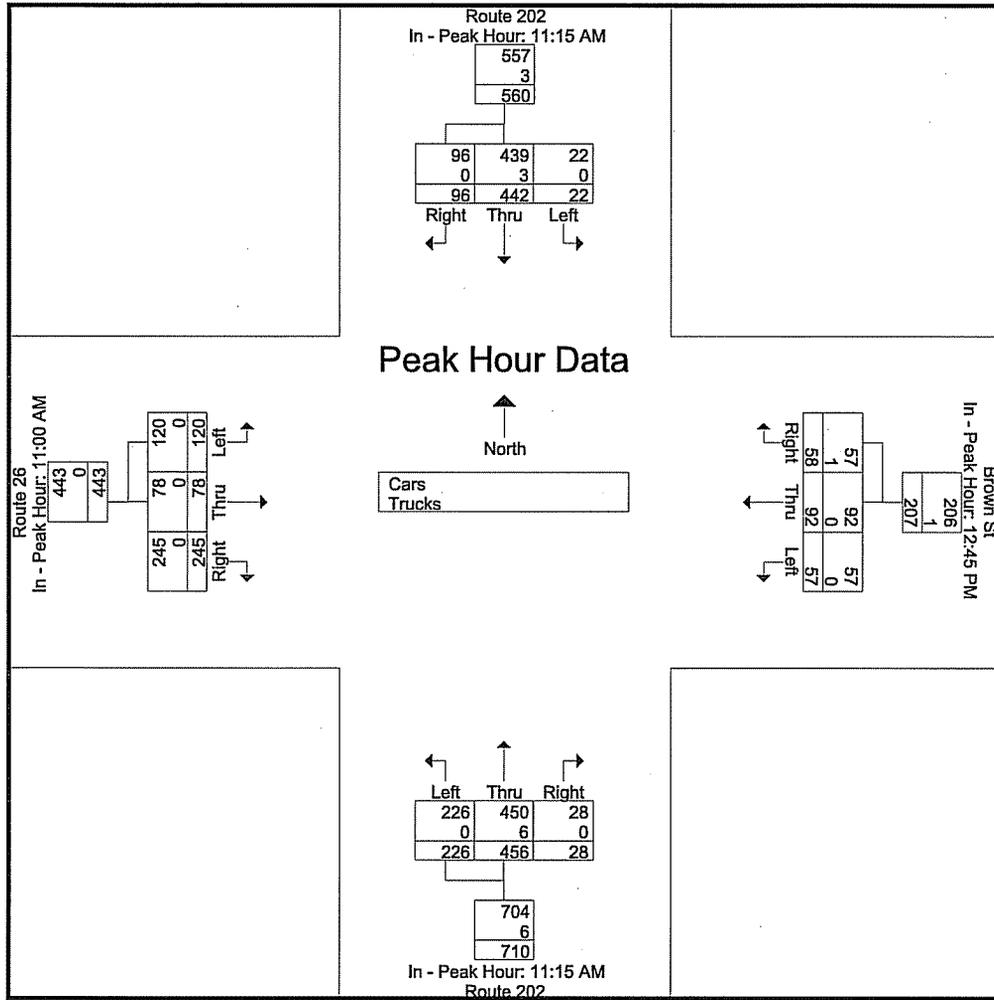
Start Time	Route 202 From North			Brown St From East			Route 202 From South			Route 26 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11:00 AM	4	78	31	12	23	7	73	83	8	17	20	74	430
11:15 AM	3	102	22	11	29	8	58	106	2	26	17	52	436
11:30 AM	6	118	29	12	18	12	50	111	10	52	24	58	500
11:45 AM	9	111	26	7	24	10	57	104	7	25	17	61	458
Total	22	409	108	42	94	37	238	404	27	120	78	245	1824
12:00 PM	4	108	19	13	32	10	61	129	9	30	20	56	491
12:15 PM	3	86	20	15	14	7	55	76	9	24	24	47	380
12:30 PM	8	79	21	9	19	10	39	97	8	22	20	49	381
12:45 PM	7	103	32	11	24	10	43	71	13	15	25	40	394
Total	22	376	92	48	89	37	198	373	39	91	89	192	1646
01:00 PM	3	118	34	18	25	20	42	94	12	22	18	35	441
01:15 PM	1	81	17	14	24	15	45	85	8	24	15	30	359
01:30 PM	7	86	14	14	19	12	39	72	7	17	20	44	351
01:45 PM	2	94	10	16	14	7	44	89	8	18	10	42	354
Total	13	379	75	62	82	54	170	340	35	81	63	151	1505
Grand Total	57	1164	275	152	265	128	606	1117	101	292	230	588	4975
Apprch %	3.8	77.8	18.4	27.9	48.6	23.5	33.2	61.2	5.5	26.3	20.7	53	
Total %	1.1	23.4	5.5	3.1	5.3	2.6	12.2	22.5	2	5.9	4.6	11.8	

Start Time	Route 202 From North				Brown St From East				Route 202 From South				Route 26 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:15 AM																	
11:15 AM	3	102	22	127	11	29	8	48	58	106	2	166	26	17	52	95	436
11:30 AM	6	118	29	153	12	18	12	42	50	111	10	171	52	24	58	134	500
11:45 AM	9	111	26	146	7	24	10	41	57	104	7	168	25	17	61	103	458
12:00 PM	4	108	19	131	13	32	10	55	61	129	9	199	30	20	56	106	491
Total Volume	22	439	96	557	43	103	40	186	226	450	28	704	133	78	227	438	1885
% App. Total	3.9	78.8	17.2		23.1	55.4	21.5		32.1	63.9	4		30.4	17.8	51.8		
PHF	.611	.930	.828	.910	.827	.805	.833	.845	.926	.872	.700	.884	.639	.813	.930	.817	.943

Accurate Counts
978-664-2565

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 3

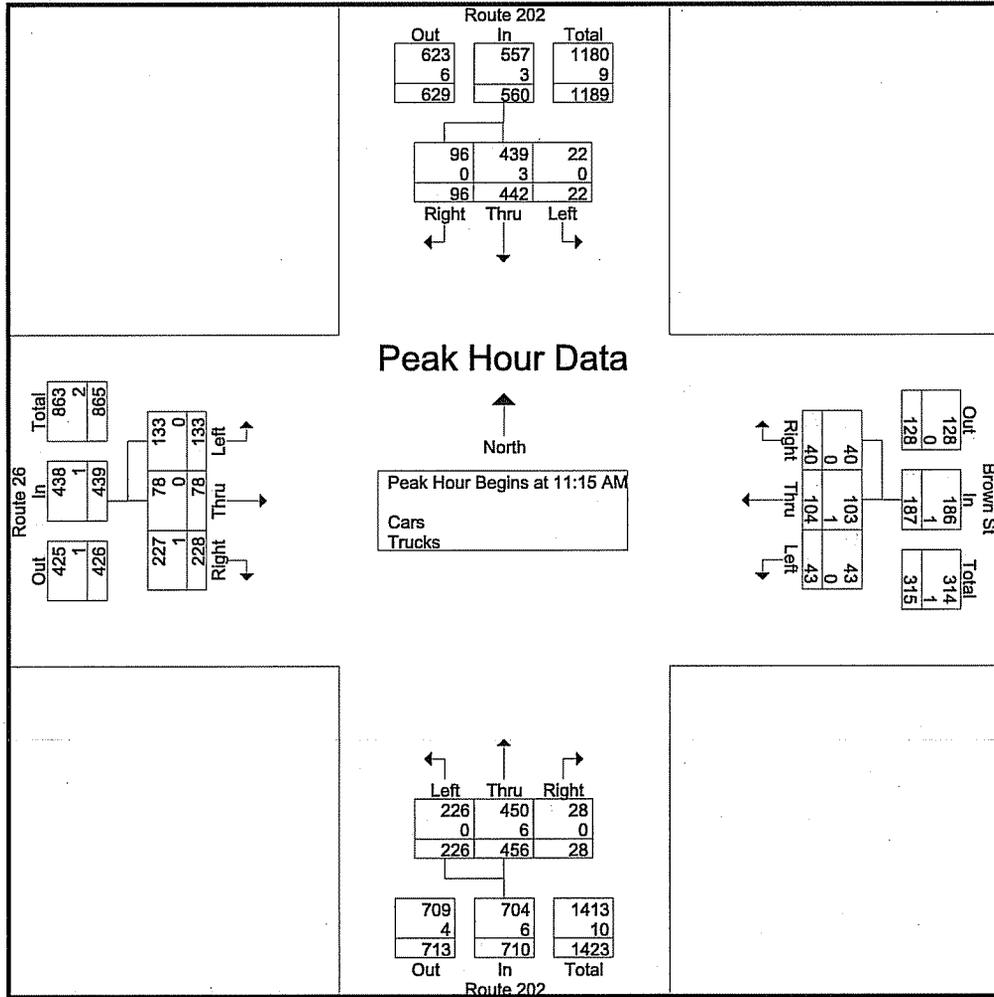
N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy



Accurate Counts
978-664-2565

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 2



Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:15 AM				12:45 PM				11:15 AM				11:00 AM			
+0 mins.	3	102	22	127	11	24	10	45	58	107	2	167	17	20	74	111
+15 mins.	6	119	29	154	18	25	20	63	50	112	10	172	26	17	52	95
+30 mins.	9	113	26	148	14	24	15	53	57	107	7	171	52	24	58	134
+45 mins.	4	108	19	131	14	19	13	46	61	130	9	200	25	17	61	103
Total Volume	22	442	96	560	57	92	58	207	226	456	28	710	120	78	245	443
% App. Total	3.9	78.9	17.1		27.5	44.4	28		31.8	64.2	3.9		27.1	17.6	55.3	
PHF	.611	.929	.828	.909	.792	.920	.725	.821	.926	.877	.700	.888	.577	.813	.828	.826
Cars	22	439	96	557	57	92	57	206	226	450	28	704	120	78	245	443
% Cars	100	99.3	100	99.5	100	100	98.3	99.5	100	98.7	100	99.2	100	100	100	100
Trucks	0	3	0	3	0	0	1	1	0	6	0	6	0	0	0	0
% Trucks	0	0.7	0	0.5	0	0	1.7	0.5	0	1.3	0	0.8	0	0	0	0

Accurate Counts
978-664-2565

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 1

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy

Groups Printed- Cars - Trucks

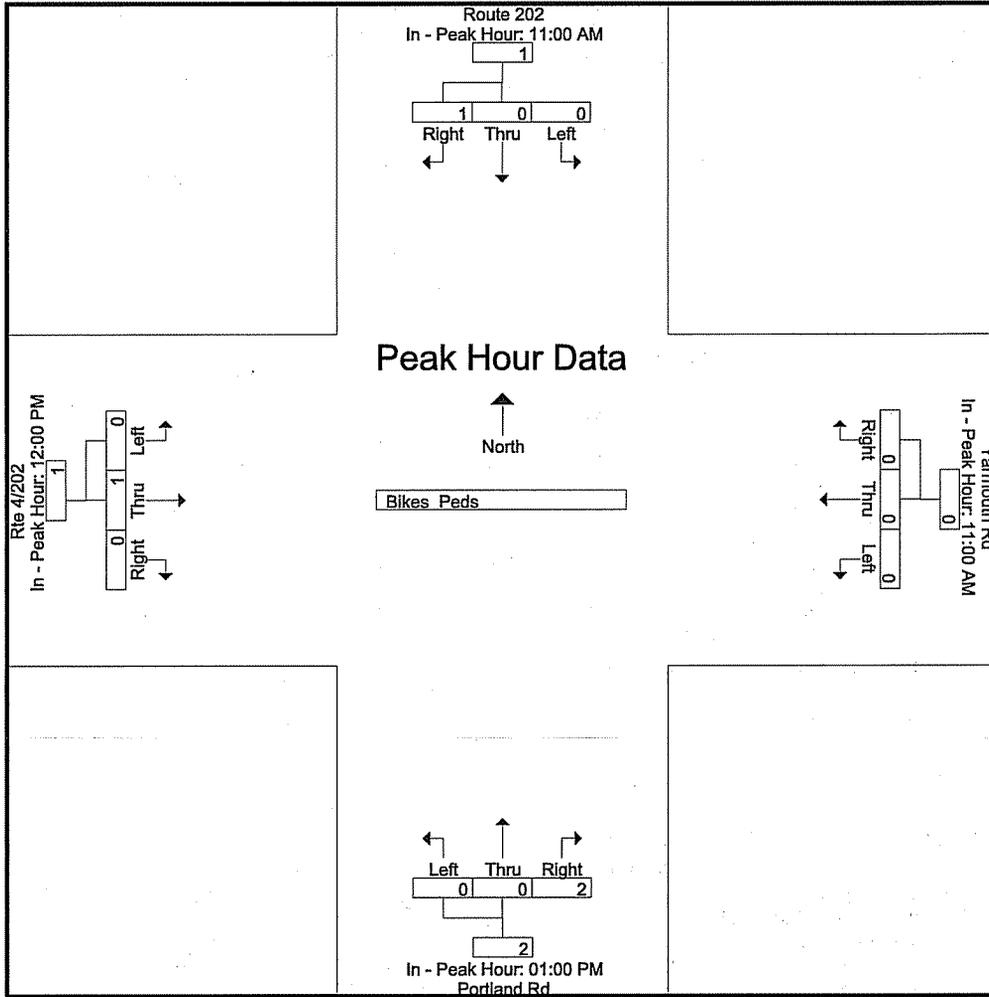
Start Time	Route 202 From North			Brown St From East			Route 202 From South			Route 26 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11:00 AM	4	78	32	12	23	8	73	87	8	17	20	74	436
11:15 AM	3	102	22	11	29	8	58	107	2	26	17	52	437
11:30 AM	6	119	29	12	18	12	50	112	10	52	24	58	502
11:45 AM	9	113	26	7	25	10	57	107	7	25	17	61	464
Total	22	412	109	42	95	38	238	413	27	120	78	245	1839
12:00 PM	4	108	19	13	32	10	61	130	9	30	20	57	493
12:15 PM	3	88	20	15	14	7	55	78	9	24	24	47	384
12:30 PM	8	79	21	9	19	10	40	98	8	23	20	49	384
12:45 PM	7	107	32	11	24	10	44	71	13	15	25	40	399
Total	22	382	92	48	89	37	200	377	39	92	89	193	1660
01:00 PM	3	118	35	18	25	20	42	96	12	22	18	35	444
01:15 PM	1	81	17	14	24	15	46	89	8	24	15	31	365
01:30 PM	7	87	14	14	19	13	39	72	7	17	20	44	353
01:45 PM	3	94	10	16	14	7	45	92	8	18	10	42	359
Total	14	380	76	62	82	55	172	349	35	81	63	152	1521
Grand Total	58	1174	277	152	266	130	610	1139	101	293	230	590	5020
Apprch %	3.8	77.8	18.4	27.7	48.5	23.7	33	61.6	5.5	26.3	20.7	53	
Total %	1.2	23.4	5.5	3	5.3	2.6	12.2	22.7	2	5.8	4.6	11.8	
Cars	57	1164	275	152	265	128	606	1117	101	292	230	588	4975
% Cars	98.3	99.1	99.3	100	99.6	98.5	99.3	98.1	100	99.7	100	99.7	99.1
Trucks	1	10	2	0	1	2	4	22	0	1	0	2	45
% Trucks	1.7	0.9	0.7	0	0.4	1.5	0.7	1.9	0	0.3	0	0.3	0.9

Start Time	Route 202 From North				Brown St From East				Route 202 From South				Route 26 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:15 AM																	
11:15 AM	3	102	22	127	11	29	8	48	58	107	2	167	26	17	52	95	437
11:30 AM	6	119	29	154	12	18	12	42	50	112	10	172	52	24	58	134	502
11:45 AM	9	113	26	148	7	25	10	42	57	107	7	171	25	17	61	103	464
12:00 PM	4	108	19	131	13	32	10	55	61	130	9	200	30	20	57	107	493
Total Volume	22	442	96	560	43	104	40	187	226	456	28	710	133	78	228	439	1896
% App. Total	3.9	78.9	17.1		23	55.6	21.4		31.8	64.2	3.9		30.3	17.8	51.9		
PHF	.611	.929	.828	.909	.827	.813	.833	.850	.926	.877	.700	.888	.639	.813	.934	.819	.944
Cars	22	439	96	557	43	103	40	186	226	450	28	704	133	78	227	438	1885
% Cars	100	99.3	100	99.5	100	99.0	100	99.5	100	98.7	100	99.2	100	100	99.6	99.8	99.4
Trucks	0	3	0	3	0	1	0	1	0	6	0	6	0	0	1	1	11
% Trucks	0	0.7	0	0.5	0	1.0	0	0.5	0	1.3	0	0.8	0	0	0.4	0.2	0.6

Accurate Counts
978-664-2565

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 3

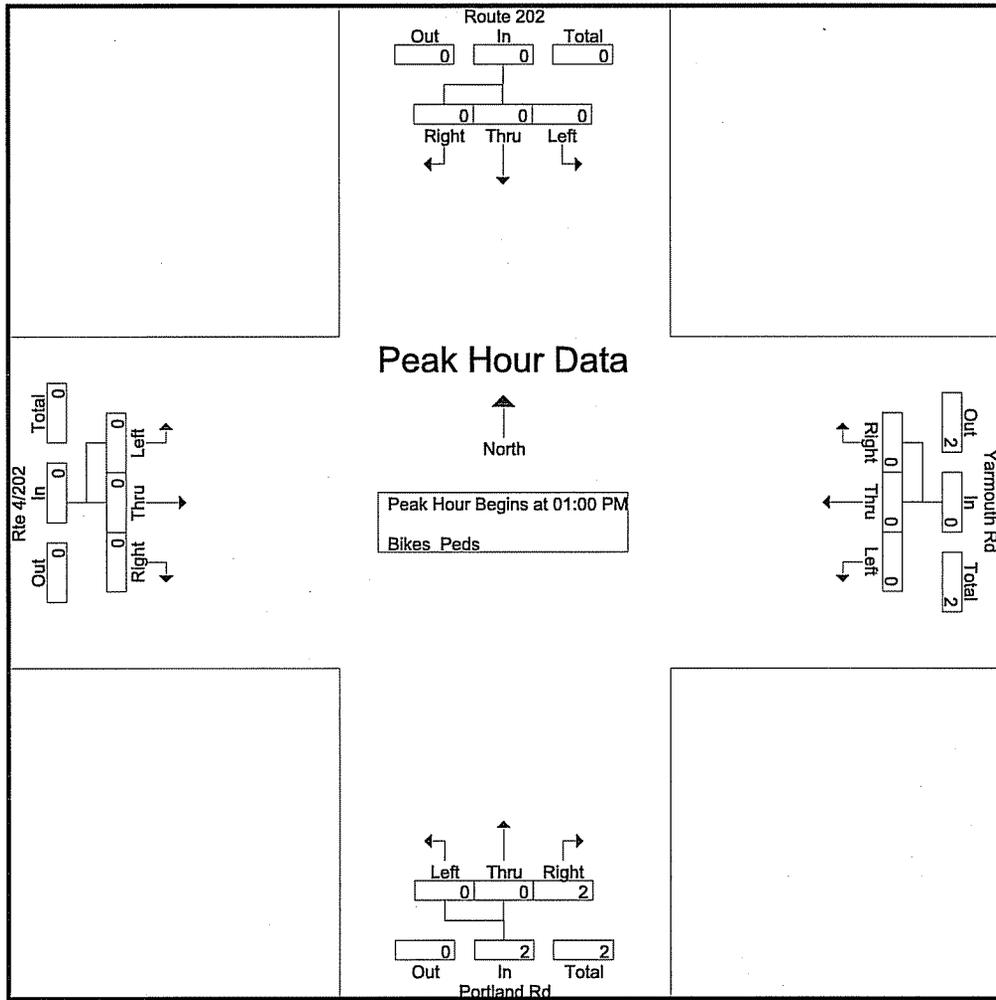


Accurate Counts

978-664-2565

File Name : 522280S
 Site Code : 5222800
 Start Date : 9/8/2012
 Page No : 2

N/S Street : Route 202 / Portland Rd
 E/W Street : Yarmouth Rd / Route 4/202
 City/State : Gray, ME
 Weather : Cloudy



Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	11:00 AM				11:00 AM				01:00 PM				12:00 PM			
+0 mins.	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	2	2	0	1	0	1
Total Volume	0	0	1	1	0	0	0	0	0	0	2	2	0	1	0	1
% App. Total	0	0	100		0	0	0		0	0	100		0	100	0	
PHF	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.250	.250	.000	.250	.000	.250

Accurate Counts
978-664-2565

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 1

Groups Printed- Bikes Peds

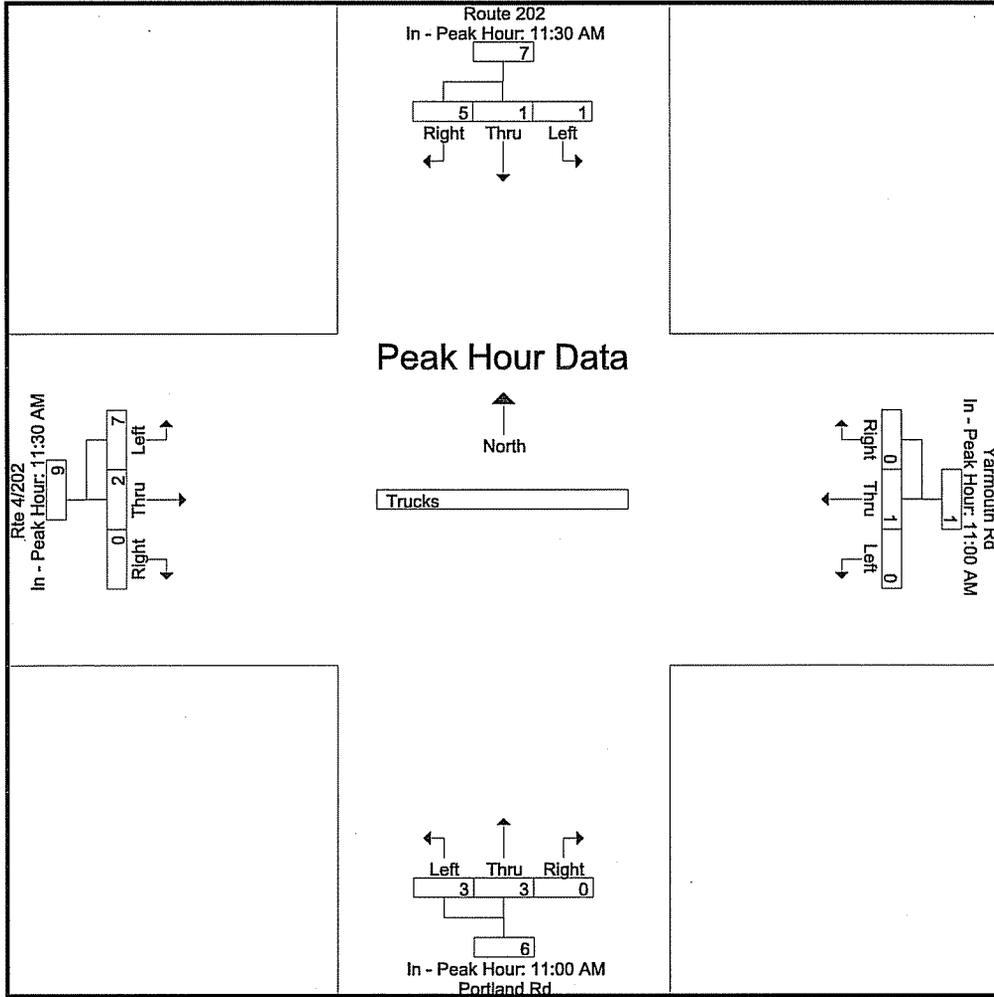
Start Time	Route 202 From North				Yarmouth Rd From East				Portland Rd From South				Rte 4/202 From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
11:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
11:15 AM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	2
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	2	1	3
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	2
Total	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	2
Grand Total	0	0	1	0	0	0	0	2	0	0	2	0	0	1	0	0	2	4	6
Apprch %	0	0	100		0	0	0		0	0	100		0	100	0				
Total %	0	0	25		0	0	0		0	0	50		0	25	0		33.3	66.7	

Start Time	Route 202 From North				Yarmouth Rd From East				Portland Rd From South				Rte 4/202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	2
Total Volume	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	2
% App. Total	0	0	0		0	0	0		0	0	100		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.250

Accurate Counts
978-664-2565

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 3

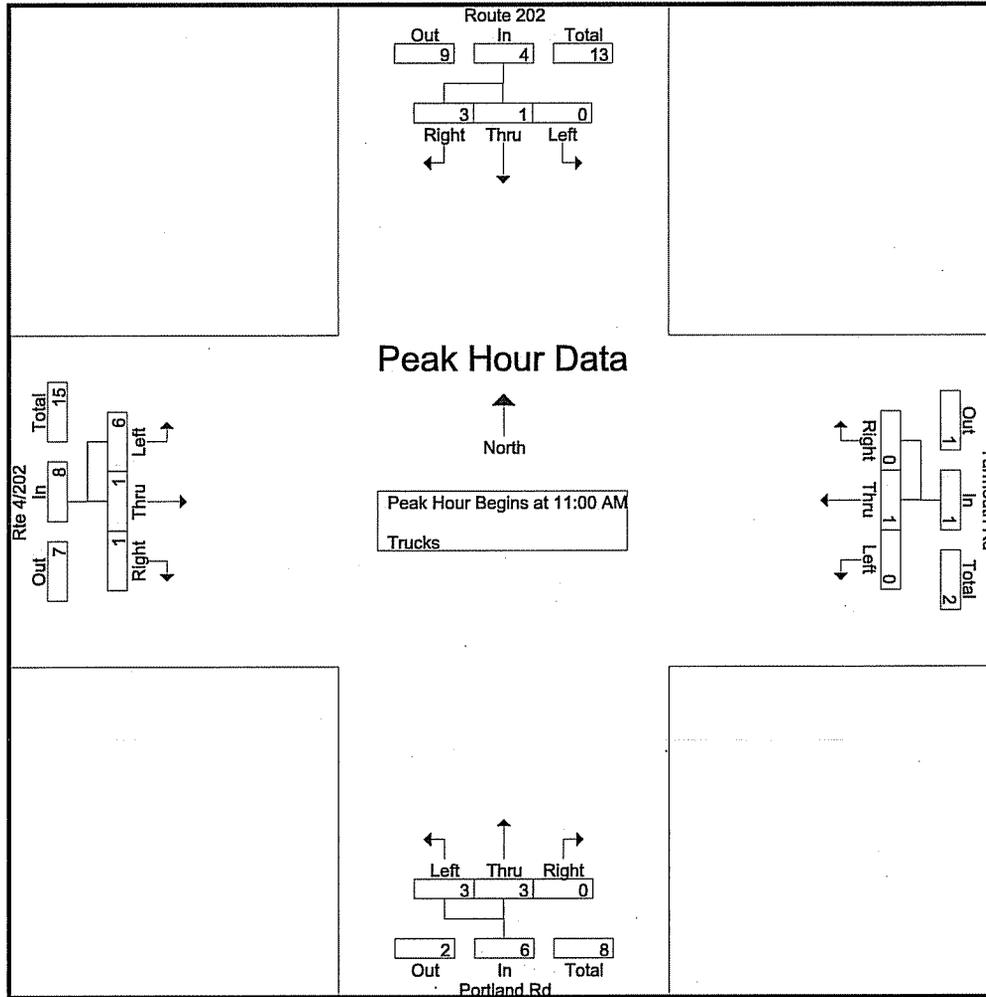
N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy



Accurate Counts
978-664-2565

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 2



Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:30 AM				11:00 AM				11:00 AM				11:30 AM			
+0 mins.	0	1	1	2	0	1	0	1	2	2	0	4	1	0	0	1
+15 mins.	0	0	2	2	0	0	0	0	1	1	0	2	3	1	0	4
+30 mins.	1	0	0	1	0	0	0	0	0	0	0	0	1	1	0	2
+45 mins.	0	0	2	2	0	0	0	0	0	0	0	0	2	0	0	2
Total Volume	1	1	5	7	0	1	0	1	3	3	0	6	7	2	0	9
% App. Total	14.3	14.3	71.4		0	100	0		50	50	0		77.8	22.2	0	
PHF	.250	.250	.625	.875	.000	.250	.000	.250	.375	.375	.000	.375	.583	.500	.000	.563

Accurate Counts
978-664-2565

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 1

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy

Groups Printed- Trucks

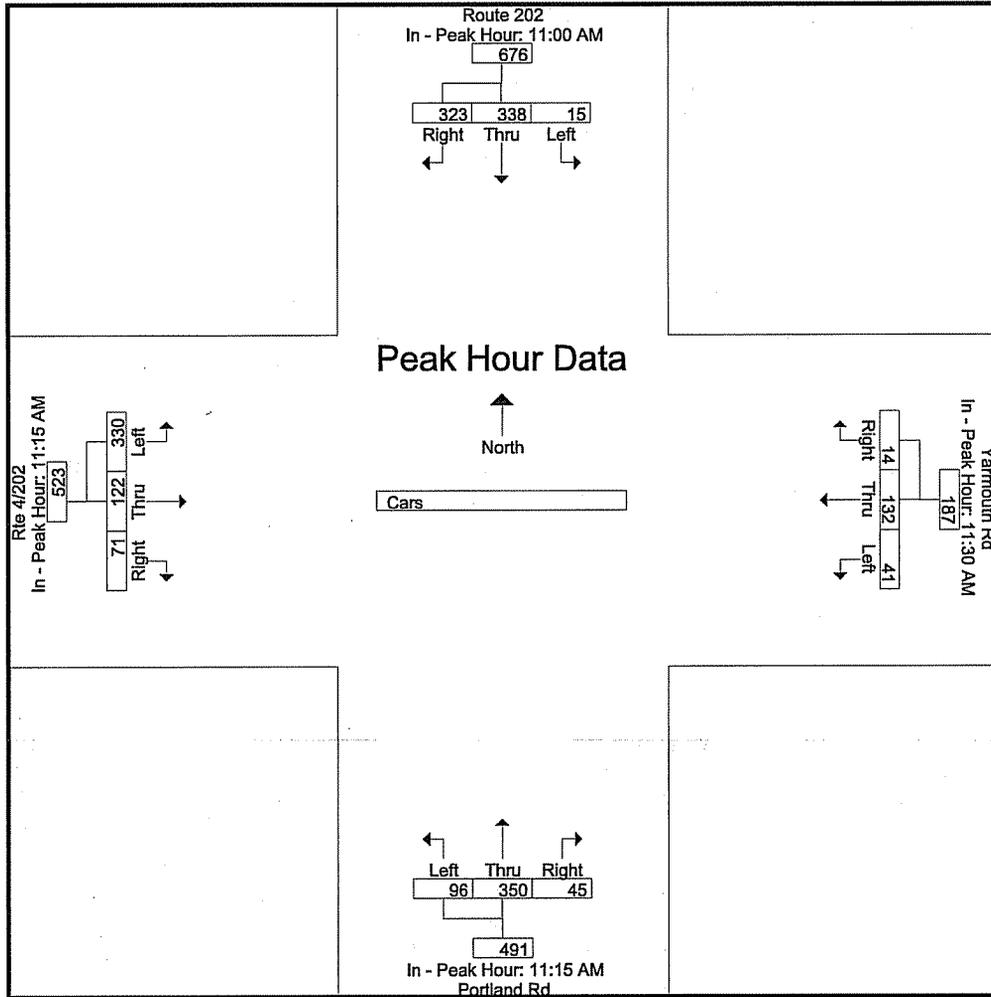
Start Time	Route 202 From North			Yarmouth Rd From East			Portland Rd From South			Rte 4/202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11:00 AM	0	0	0	0	1	0	2	2	0	2	0	1	8
11:15 AM	0	0	0	0	0	0	1	1	0	0	0	0	2
11:30 AM	0	1	1	0	0	0	0	0	0	1	0	0	3
11:45 AM	0	0	2	0	0	0	0	0	0	3	1	0	6
Total	0	1	3	0	1	0	3	3	0	6	1	1	19
12:00 PM	1	0	0	0	1	0	0	0	0	1	1	0	4
12:15 PM	0	0	2	0	0	0	0	0	0	2	0	0	4
12:30 PM	0	0	0	0	0	0	0	1	0	1	0	0	2
12:45 PM	0	1	2	0	0	0	0	0	0	1	0	0	4
Total	1	1	4	0	1	0	0	1	0	5	1	0	14
01:00 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
01:15 PM	0	1	0	0	0	0	0	1	0	4	0	0	6
01:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	2
01:45 PM	0	0	0	0	0	0	0	0	0	3	0	0	3
Total	0	2	0	1	0	0	0	3	0	7	0	0	13
Grand Total	1	4	7	1	2	0	3	7	0	18	2	1	46
Apprch %	8.3	33.3	58.3	33.3	66.7	0	30	70	0	85.7	9.5	4.8	
Total %	2.2	8.7	15.2	2.2	4.3	0	6.5	15.2	0	39.1	4.3	2.2	

Start Time	Route 202 From North				Yarmouth Rd From East				Portland Rd From South				Rte 4/202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:00 AM																	
11:00 AM	0	0	0	0	0	1	0	1	2	2	0	4	2	0	1	3	8
11:15 AM	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	2
11:30 AM	0	1	1	2	0	0	0	0	0	0	0	0	1	0	0	1	3
11:45 AM	0	0	2	2	0	0	0	0	0	0	0	0	3	1	0	4	6
Total Volume	0	1	3	4	0	1	0	1	3	3	0	6	6	1	1	8	19
% App. Total	0	25	75		0	100	0		50	50	0		75	12.5	12.5		
PHF	.000	.250	.375	.500	.000	.250	.000	.250	.375	.375	.000	.375	.500	.250	.250	.500	.594

Accurate Counts
978-664-2565

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy

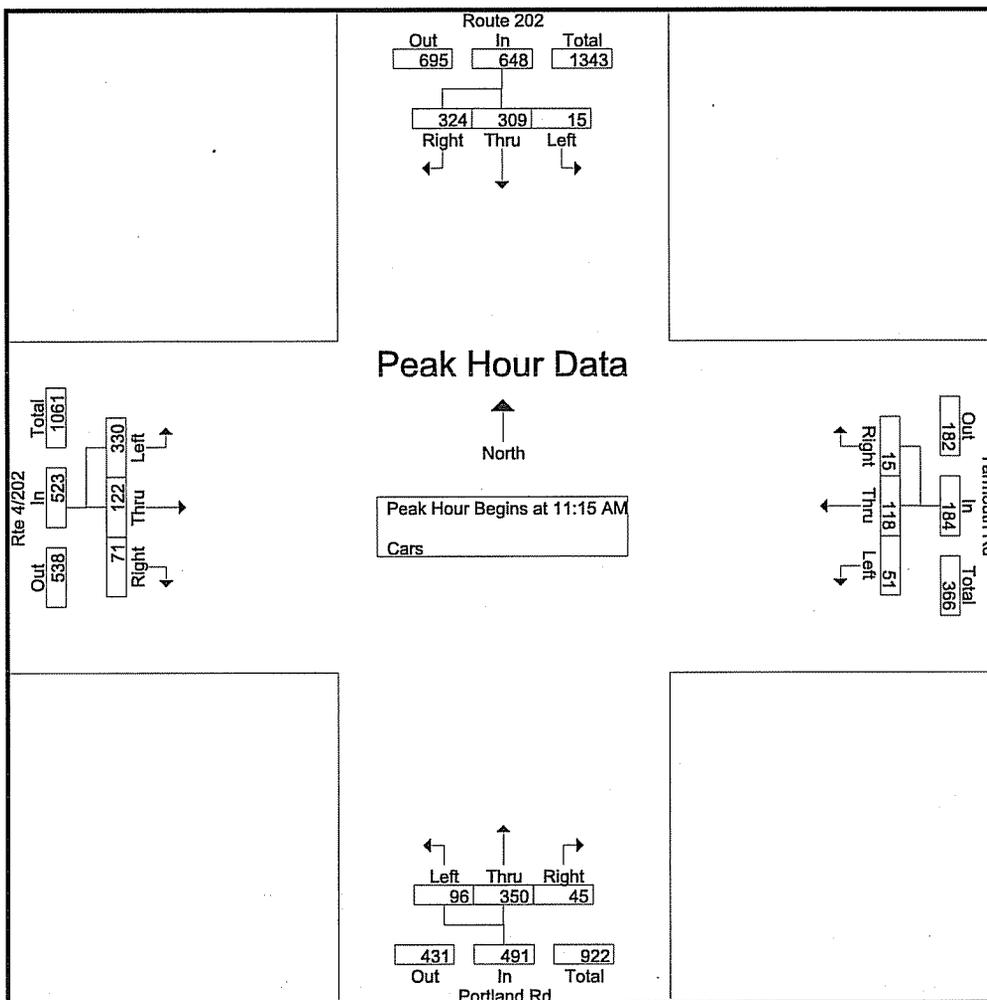
File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 3



Accurate Counts
978-664-2565

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 2

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy



Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:00 AM				11:30 AM				11:15 AM				11:15 AM			
+0 mins.	4	90	72	166	11	32	3	46	22	82	9	113	84	17	17	118
+15 mins.	4	74	71	149	15	38	5	58	24	84	10	118	77	25	17	119
+30 mins.	6	83	98	187	12	27	3	42	22	91	9	122	85	32	15	132
+45 mins.	1	91	82	174	3	35	3	41	28	93	17	138	84	48	22	154
Total Volume	15	338	323	676	41	132	14	187	96	350	45	491	330	122	71	523
% App. Total	2.2	50	47.8		21.9	70.6	7.5		19.6	71.3	9.2		63.1	23.3	13.6	
PHF	.625	.929	.824	.904	.683	.868	.700	.806	.857	.941	.662	.889	.971	.635	.807	.849

Accurate Counts
978-664-2565

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 1

Groups Printed- Cars

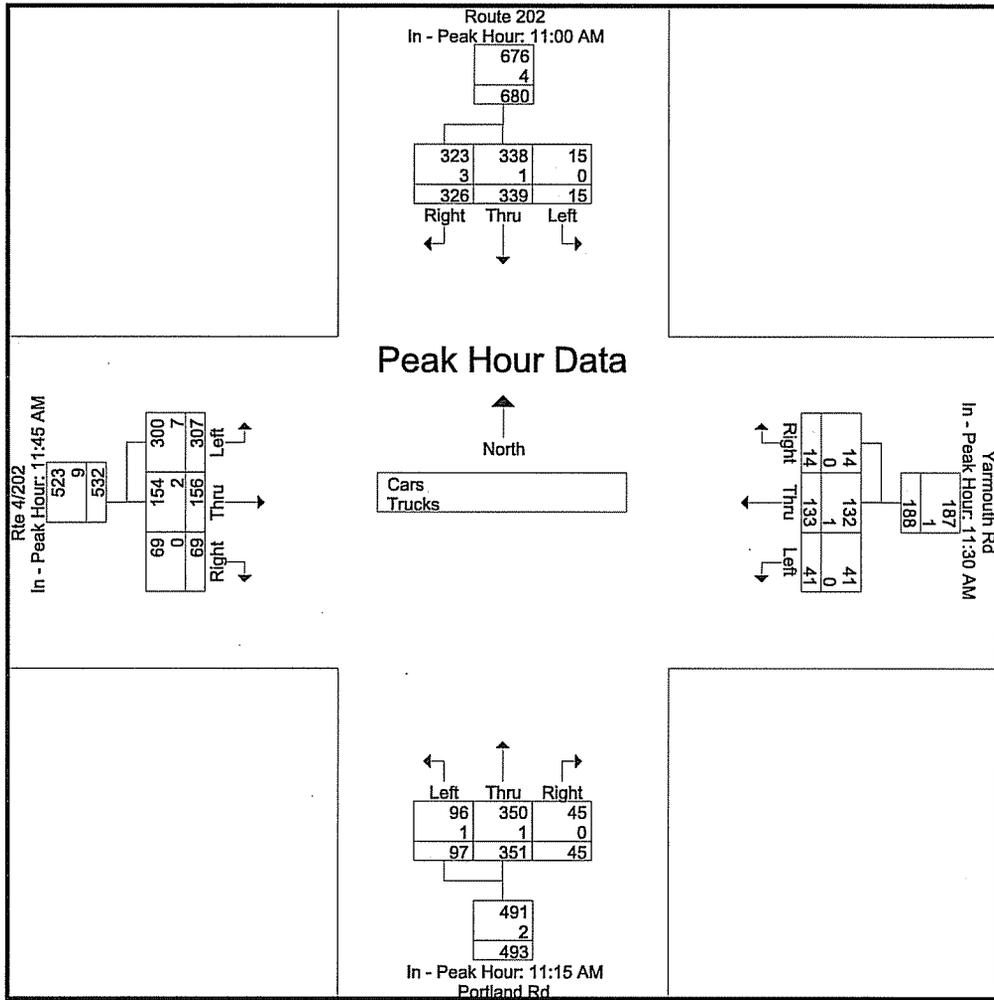
Start Time	Route 202 From North			Yarmouth Rd From East			Portland Rd From South			Rte 4/202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11:00 AM	4	90	72	15	22	5	21	72	14	80	29	23	447
11:15 AM	4	74	71	13	21	4	22	82	9	84	17	17	418
11:30 AM	6	83	98	11	32	3	24	84	10	77	25	17	470
11:45 AM	1	91	82	15	38	5	22	91	9	85	32	15	486
Total	15	338	323	54	113	17	89	329	42	326	103	72	1821
12:00 PM	4	61	73	12	27	3	28	93	17	84	48	22	472
12:15 PM	2	71	70	3	35	3	22	76	5	57	37	13	394
12:30 PM	1	65	69	4	30	4	16	59	10	74	37	19	388
12:45 PM	5	60	92	8	28	3	9	60	11	72	29	17	394
Total	12	257	304	27	120	13	75	288	43	287	151	71	1648
01:00 PM	5	65	74	15	21	5	15	66	14	71	28	12	391
01:15 PM	5	61	76	8	18	1	16	64	10	80	30	22	391
01:30 PM	4	65	72	7	30	4	19	47	15	66	32	19	380
01:45 PM	2	62	65	6	22	5	8	60	13	82	33	15	373
Total	16	253	287	36	91	15	58	237	52	299	123	68	1535
Grand Total	43	848	914	117	324	45	222	854	137	912	377	211	5004
Apprch %	2.4	47	50.6	24.1	66.7	9.3	18.3	70.4	11.3	60.8	25.1	14.1	
Total %	0.9	16.9	18.3	2.3	6.5	0.9	4.4	17.1	2.7	18.2	7.5	4.2	

Start Time	Route 202 From North				Yarmouth Rd From East				Portland Rd From South				Rte 4/202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:15 AM																	
11:15 AM	4	74	71	149	13	21	4	38	22	82	9	113	84	17	17	118	418
11:30 AM	6	83	98	187	11	32	3	46	24	84	10	118	77	25	17	119	470
11:45 AM	1	91	82	174	15	38	5	58	22	91	9	122	85	32	15	132	486
12:00 PM	4	61	73	138	12	27	3	42	28	93	17	138	84	48	22	154	472
Total Volume	15	309	324	648	51	118	15	184	96	350	45	491	330	122	71	523	1846
% App. Total	2.3	47.7	50		27.7	64.1	8.2		19.6	71.3	9.2		63.1	23.3	13.6		
PHF	.625	.849	.827	.866	.850	.776	.750	.793	.857	.941	.662	.889	.971	.635	.807	.849	.950

Accurate Counts
978-664-2565

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 3

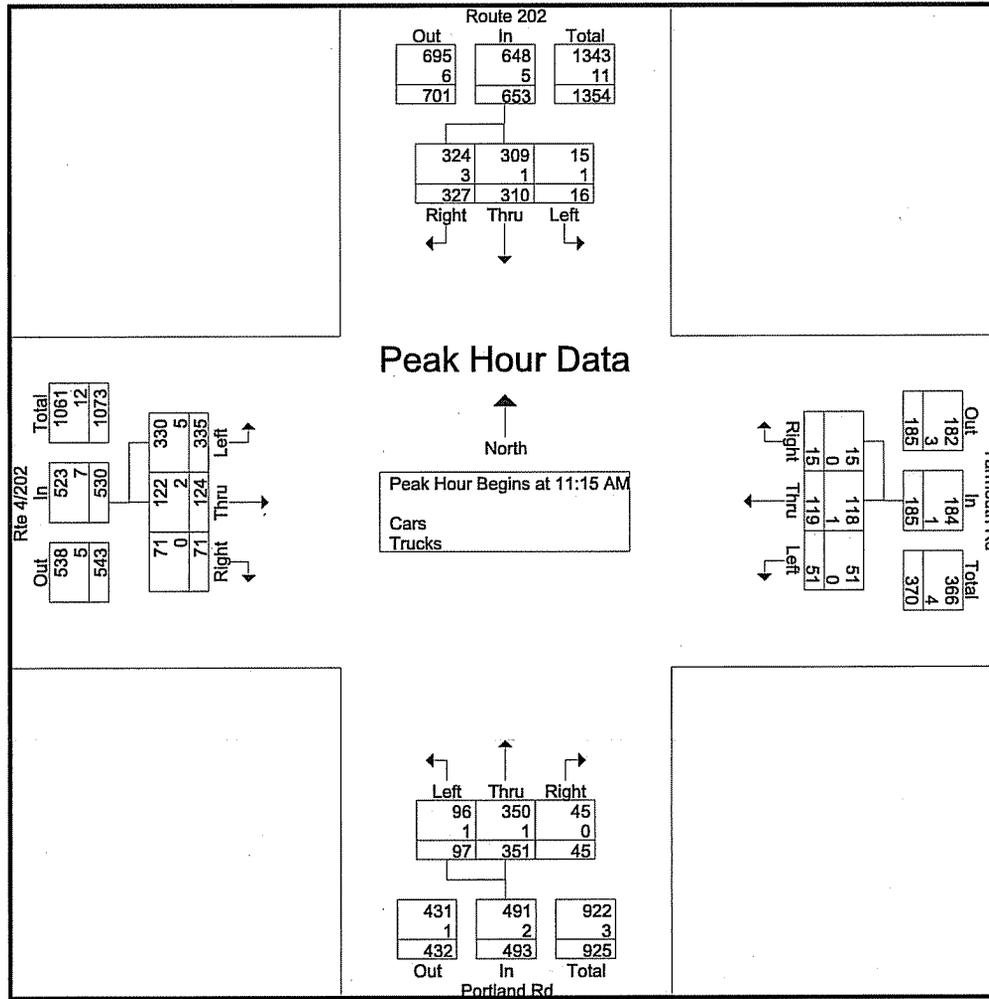
N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy



Accurate Counts
978-664-2565

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 2



Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:00 AM				11:30 AM				11:15 AM				11:45 AM			
+0 mins.	4	90	72	166	11	32	3	46	23	83	9	115	88	33	15	136
+15 mins.	4	74	71	149	15	38	5	58	24	84	10	118	85	49	22	156
+30 mins.	6	84	99	189	12	28	3	43	22	91	9	122	59	37	13	109
+45 mins.	1	91	84	176	3	35	3	41	28	93	17	138	75	37	19	131
Total Volume	15	339	326	680	41	133	14	188	97	351	45	493	307	156	69	532
% App. Total	2.2	49.9	47.9		21.8	70.7	7.4		19.7	71.2	9.1		57.7	29.3	13	
PHF	.625	.931	.823	.899	.683	.875	.700	.810	.866	.944	.662	.893	.872	.796	.784	.853
Cars	15	338	323	676	41	132	14	187	96	350	45	491	300	154	69	523
% Cars	100	99.7	99.1	99.4	100	99.2	100	99.5	99	99.7	100	99.6	97.7	98.7	100	98.3
Trucks	0	1	3	4	0	1	0	1	1	1	0	2	7	2	0	9
% Trucks	0	0.3	0.9	0.6	0	0.8	0	0.5	1	0.3	0	0.4	2.3	1.3	0	1.7

Accurate Counts
978-664-2565

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 1

Groups Printed- Cars - Trucks

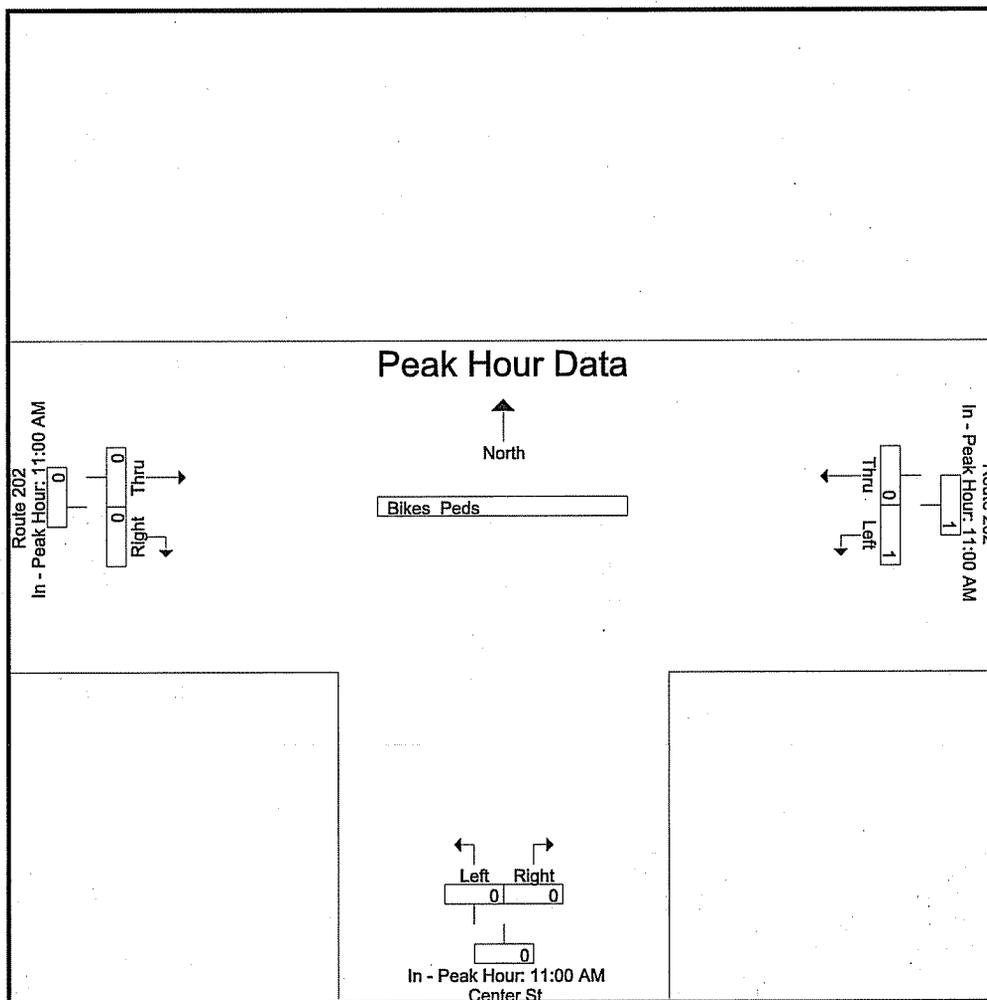
Start Time	Route 202 From North			Yarmouth Rd From East			Portland Rd From South			Rte 4/202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11:00 AM	4	90	72	15	23	5	23	74	14	82	29	24	455
11:15 AM	4	74	71	13	21	4	23	83	9	84	17	17	420
11:30 AM	6	84	99	11	32	3	24	84	10	78	25	17	473
11:45 AM	1	91	84	15	38	5	22	91	9	88	33	15	492
Total	15	339	326	54	114	17	92	332	42	332	104	73	1840
12:00 PM	5	61	73	12	28	3	28	93	17	85	49	22	476
12:15 PM	2	71	72	3	35	3	22	76	5	59	37	13	398
12:30 PM	1	65	69	4	30	4	16	60	10	75	37	19	390
12:45 PM	5	61	94	8	28	3	9	60	11	73	29	17	398
Total	13	258	308	27	121	13	75	289	43	292	152	71	1662
01:00 PM	5	65	74	15	21	5	15	68	14	71	28	12	393
01:15 PM	5	62	76	8	18	1	16	65	10	84	30	22	397
01:30 PM	4	66	72	8	30	4	19	47	15	66	32	19	382
01:45 PM	2	62	65	6	22	5	8	60	13	85	33	15	376
Total	16	255	287	37	91	15	58	240	52	306	123	68	1548
Grand Total	44	852	921	118	326	45	225	861	137	930	379	212	5050
Apprch %	2.4	46.9	50.7	24.1	66.7	9.2	18.4	70.4	11.2	61.1	24.9	13.9	
Total %	0.9	16.9	18.2	2.3	6.5	0.9	4.5	17	2.7	18.4	7.5	4.2	
Cars	43	848	914	117	324	45	222	854	137	912	377	211	5004
% Cars	97.7	99.5	99.2	99.2	99.4	100	98.7	99.2	100	98.1	99.5	99.5	99.1
Trucks	1	4	7	1	2	0	3	7	0	18	2	1	46
% Trucks	2.3	0.5	0.8	0.8	0.6	0	1.3	0.8	0	1.9	0.5	0.5	0.9

Start Time	Route 202 From North				Yarmouth Rd From East				Portland Rd From South				Rte 4/202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:15 AM																	
11:15 AM	4	74	71	149	13	21	4	38	23	83	9	115	84	17	17	118	420
11:30 AM	6	84	99	189	11	32	3	46	24	84	10	118	78	25	17	120	473
11:45 AM	1	91	84	176	15	38	5	58	22	91	9	122	88	33	15	136	492
12:00 PM	5	61	73	139	12	28	3	43	28	93	17	138	85	49	22	156	476
Total Volume	16	310	327	653	51	119	15	185	97	351	45	493	335	124	71	530	1861
% App. Total	2.5	47.5	50.1		27.6	64.3	8.1		19.7	71.2	9.1		63.2	23.4	13.4		
PHF	.667	.852	.826	.864	.850	.783	.750	.797	.866	.944	.662	.893	.952	.633	.807	.849	.946
Cars	15	309	324	648	51	118	15	184	96	350	45	491	330	122	71	523	1846
% Cars	93.8	99.7	99.1	99.2	100	99.2	100	99.5	99.0	99.7	100	99.6	98.5	98.4	100	98.7	99.2
Trucks	1	1	3	5	0	1	0	1	1	1	0	2	5	2	0	7	15
% Trucks	6.3	0.3	0.9	0.8	0	0.8	0	0.5	1.0	0.3	0	0.4	1.5	1.6	0	1.3	0.8

Accurate Counts
978-664-2565

N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

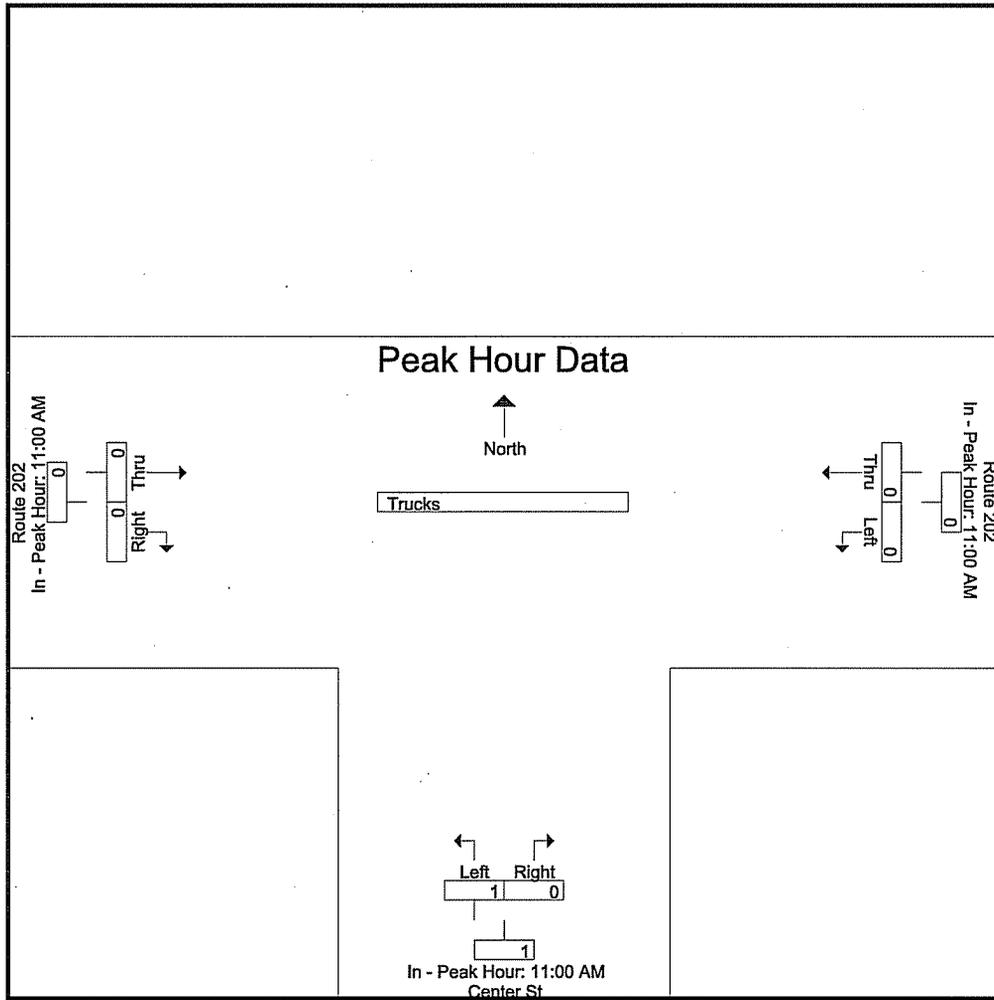
File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 3



Accurate Counts
978-664-2565

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 3

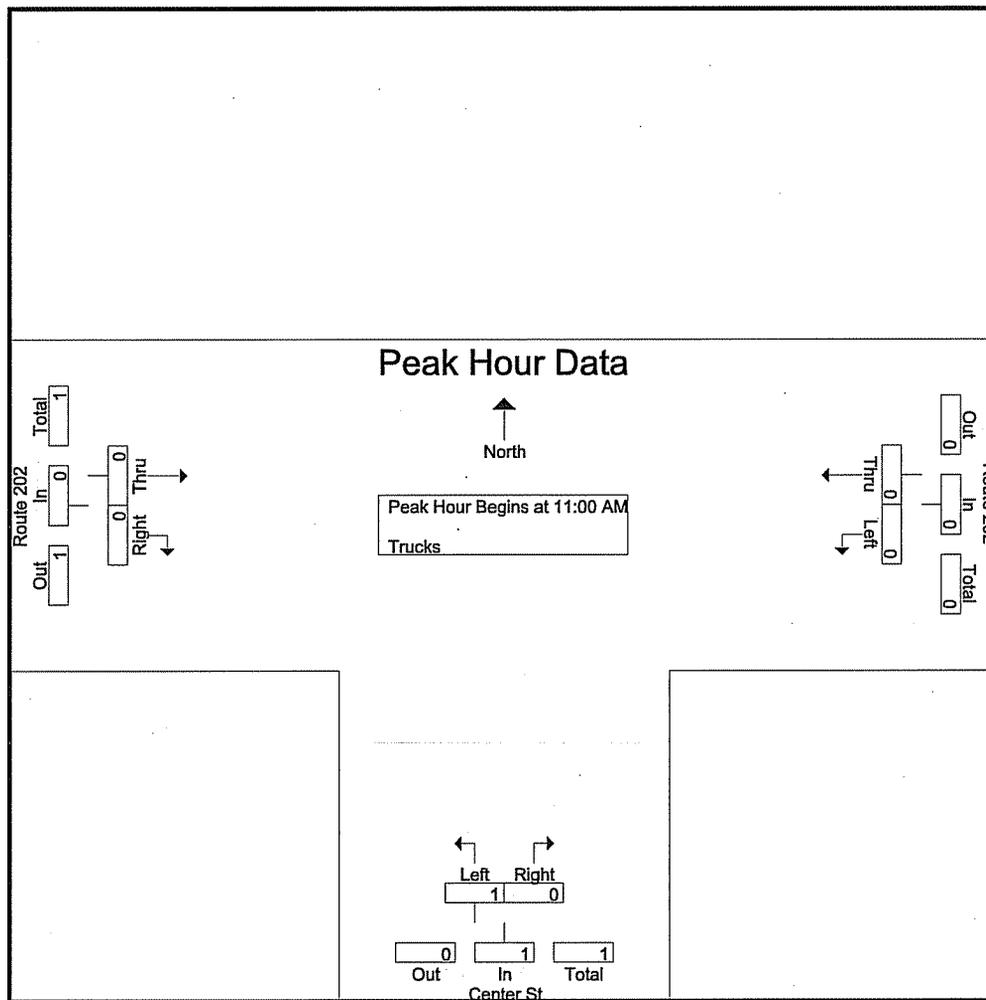
N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy



Accurate Counts
978-664-2565

N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 2



Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:00 AM			11:00 AM			11:00 AM		
+0 mins.	0	0	0	1	0	1	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	1	0	1	0	0	0
% App. Total	0	0	0	100	0	0	0	0	0
PHF	.000	.000	.000	.250	.000	.250	.000	.000	.000

Accurate Counts
978-664-2565

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 1

N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

Groups Printed- Trucks

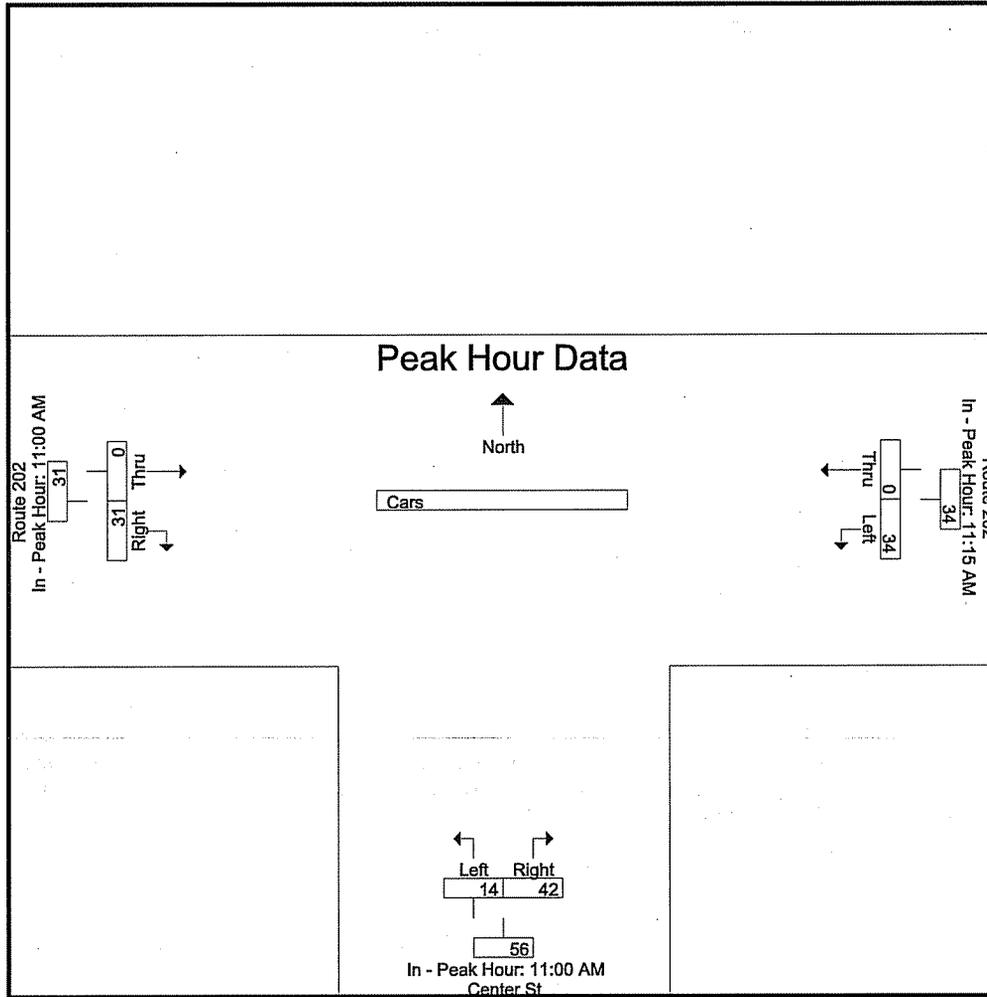
Start Time	Route 202 From East		Center St From South		Route 202 From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
11:00 AM	0	0	1	0	0	0	1
11:15 AM	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0
Total	0	0	1	0	0	0	1
12:00 PM	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0
01:45 PM	0	0	0	1	0	0	1
Total	0	0	0	1	0	0	1
Grand Total	0	0	1	1	0	0	2
Apprch %	0	0	50	50	0	0	
Total %	0	0	50	50	0	0	

Start Time	Route 202 From East			Center St From South			Route 202 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 11:00 AM										
11:00 AM	0	0	0	1	0	1	0	0	0	1
11:15 AM	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	1	0	1	0	0	0	1
% App. Total	0	0		100	0		0	0		
PHF	.000	.000	.000	.250	.000	.250	.000	.000	.000	.250

Accurate Counts
978-664-2565

N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

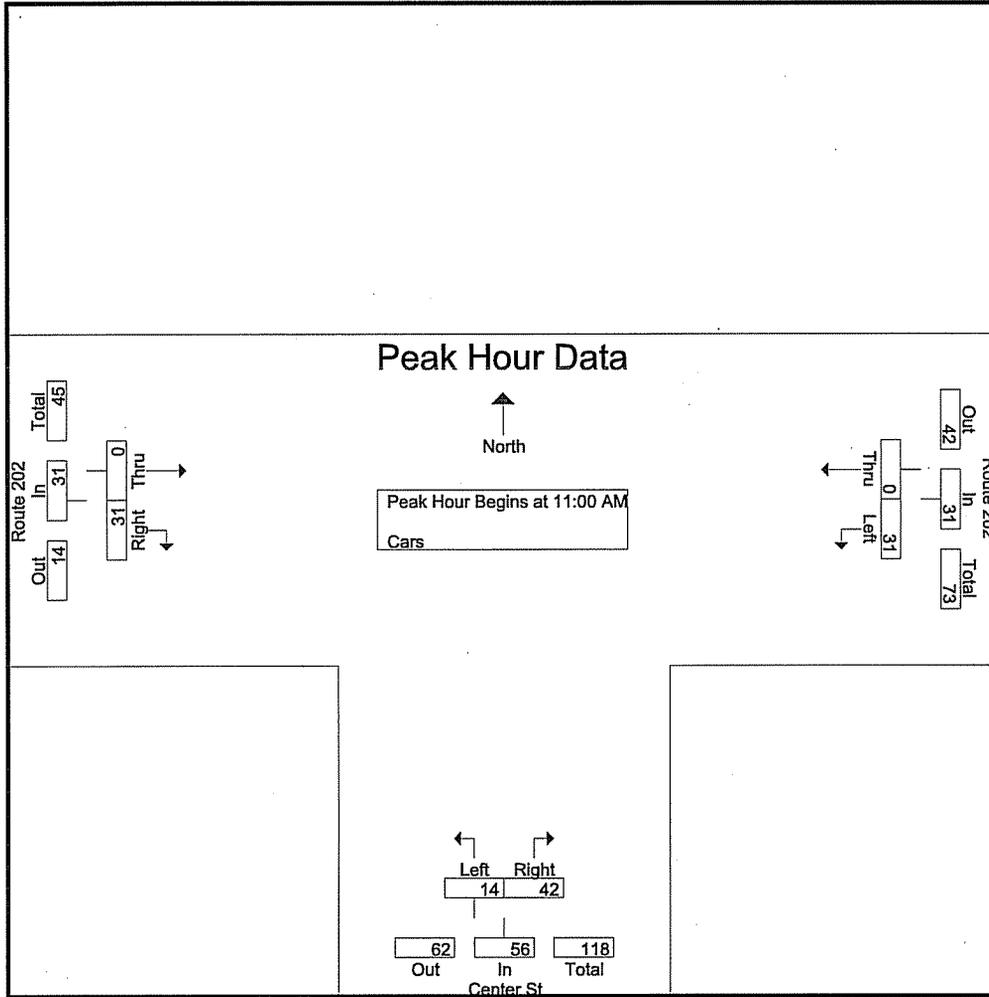
File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 3



Accurate Counts
978-664-2565

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 2

N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy



Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:15 AM			11:00 AM			11:00 AM		
+0 mins.	4	0	4	4	11	15	0	11	11
+15 mins.	11	0	11	5	15	20	0	6	6
+30 mins.	12	0	12	3	11	14	0	8	8
+45 mins.	7	0	7	2	5	7	0	6	6
Total Volume	34	0	34	14	42	56	0	31	31
% App. Total	100	0		25	75		0	100	
PHF	.708	.000	.708	.700	.700	.700	.000	.705	.705

Accurate Counts
978-664-2565

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 1

N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

Groups Printed- Cars

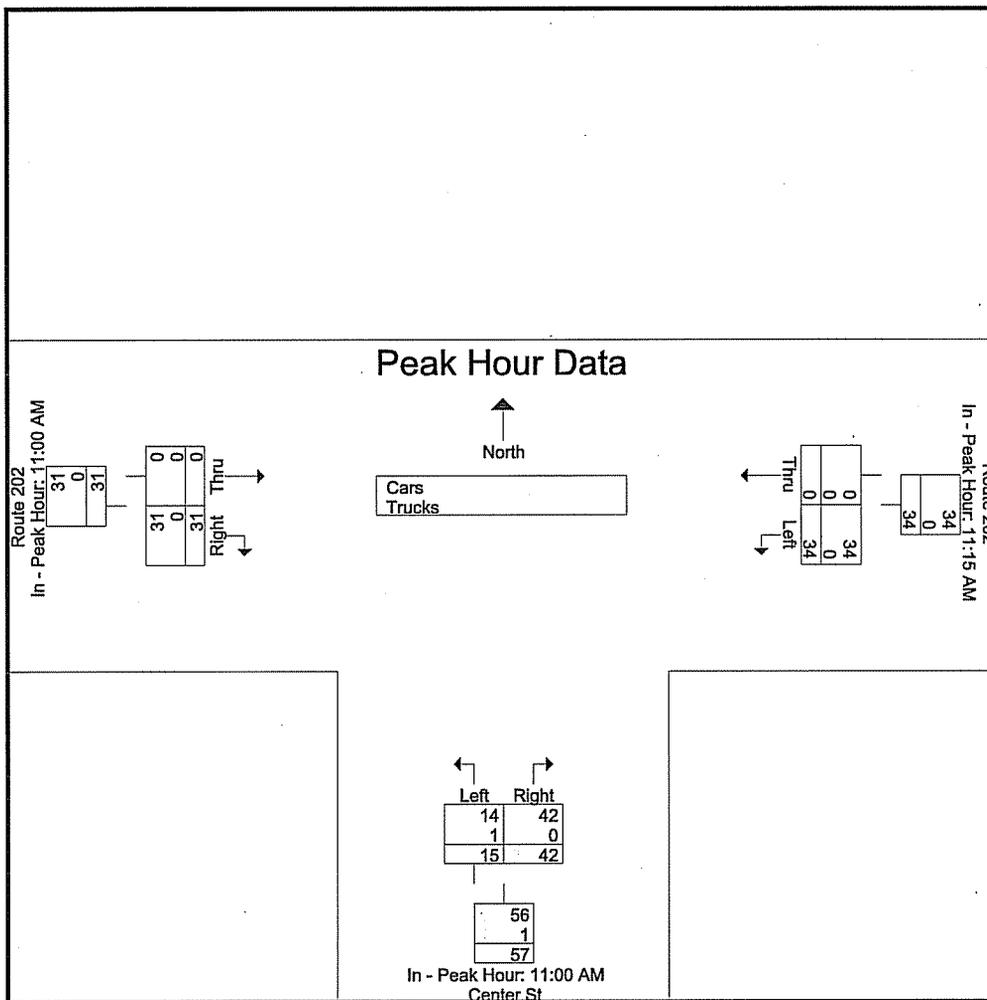
Start Time	Route 202 From East		Center St From South		Route 202 From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
11:00 AM	4	0	4	11	0	11	30
11:15 AM	4	0	5	15	0	6	30
11:30 AM	11	0	3	11	0	8	33
11:45 AM	12	0	2	5	0	6	25
Total	31	0	14	42	0	31	118
12:00 PM	7	0	5	7	0	4	23
12:15 PM	3	0	3	6	0	7	19
12:30 PM	6	0	3	12	0	7	28
12:45 PM	11	0	3	8	0	5	27
Total	27	0	14	33	0	23	97
01:00 PM	3	0	1	7	0	7	18
01:15 PM	2	0	6	8	0	4	20
01:30 PM	7	0	3	8	0	5	23
01:45 PM	7	0	1	11	0	9	28
Total	19	0	11	34	0	25	89
Grand Total	77	0	39	109	0	79	304
Apprch %	100	0	26.4	73.6	0	100	
Total %	25.3	0	12.8	35.9	0	26	

Start Time	Route 202 From East			Center St From South			Route 202 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 11:00 AM										
11:00 AM	4	0	4	4	11	15	0	11	11	30
11:15 AM	4	0	4	5	15	20	0	6	6	30
11:30 AM	11	0	11	3	11	14	0	8	8	33
11:45 AM	12	0	12	2	5	7	0	6	6	25
Total Volume	31	0	31	14	42	56	0	31	31	118
% App. Total	100	0	100	25	75	100	0	100	100	100
PHF	.646	.000	.646	.700	.700	.700	.000	.705	.705	.894

Accurate Counts
978-664-2565

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 3

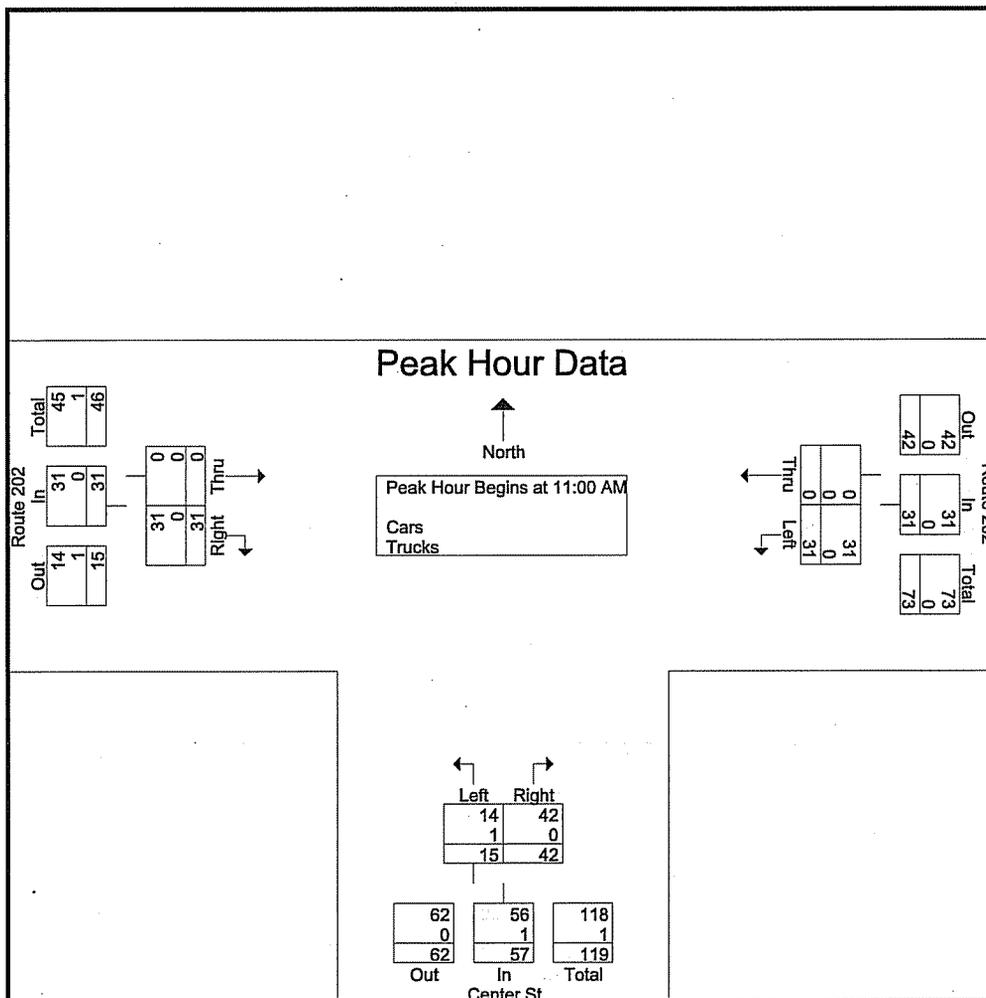
N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy



Accurate Counts
978-664-2565

N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 2



Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:15 AM			11:00 AM			11:00 AM		
+0 mins.	4	0	4	5	11	16	0	11	11
+15 mins.	11	0	11	5	15	20	0	6	6
+30 mins.	12	0	12	3	11	14	0	8	8
+45 mins.	7	0	7	2	5	7	0	6	6
Total Volume	34	0	34	15	42	57	0	31	31
% App. Total	100	0		26.3	73.7		0	100	
PHF	.708	.000	.708	.750	.700	.713	.000	.705	.705
Cars	34	0	34	14	42	56	0	31	31
% Cars	100	0	100	93.3	100	98.2	0	100	100
Trucks	0	0	0	1	0	1	0	0	0
% Trucks	0	0	0	6.7	0	1.8	0	0	0

Accurate Counts
978-664-2565

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 1

N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

Groups Printed- Cars - Trucks

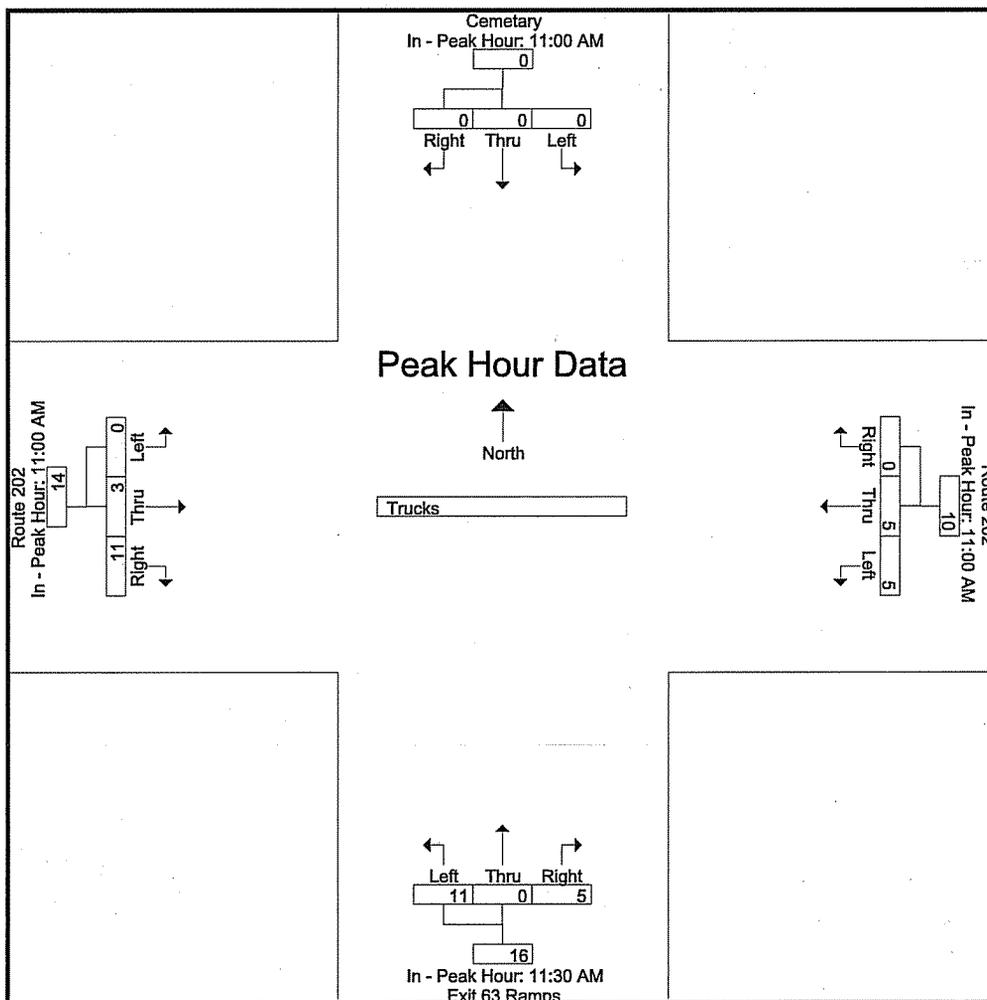
Start Time	Route 202 From East		Center St From South		Route 202 From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
11:00 AM	4	0	5	11	0	11	31
11:15 AM	4	0	5	15	0	6	30
11:30 AM	11	0	3	11	0	8	33
11:45 AM	12	0	2	5	0	6	25
Total	31	0	15	42	0	31	119
12:00 PM	7	0	5	7	0	4	23
12:15 PM	3	0	3	6	0	7	19
12:30 PM	6	0	3	12	0	7	28
12:45 PM	11	0	3	8	0	5	27
Total	27	0	14	33	0	23	97
01:00 PM	3	0	1	7	0	7	18
01:15 PM	2	0	6	8	0	4	20
01:30 PM	7	0	3	8	0	5	23
01:45 PM	7	0	1	12	0	9	29
Total	19	0	11	35	0	25	90
Grand Total	77	0	40	110	0	79	306
Apprch %	100	0	26.7	73.3	0	100	
Total %	25.2	0	13.1	35.9	0	25.8	
Cars	77	0	39	109	0	79	304
% Cars	100	0	97.5	99.1	0	100	99.3
Trucks	0	0	1	1	0	0	2
% Trucks	0	0	2.5	0.9	0	0	0.7

Start Time	Route 202 From East			Center St From South			Route 202 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 11:00 AM										
11:00 AM	4	0	4	5	11	16	0	11	11	31
11:15 AM	4	0	4	5	15	20	0	6	6	30
11:30 AM	11	0	11	3	11	14	0	8	8	33
11:45 AM	12	0	12	2	5	7	0	6	6	25
Total Volume	31	0	31	15	42	57	0	31	31	119
% App. Total	100	0	100	26.3	73.7	98.2	0	100	100	99.2
PHF	.646	.000	.646	.750	.700	.713	.000	.705	.705	.902
Cars	31	0	31	14	42	56	0	31	31	118
% Cars	100	0	100	93.3	100	98.2	0	100	100	99.2
Trucks	0	0	0	1	0	1	0	0	0	1
% Trucks	0	0	0	6.7	0	1.8	0	0	0	0.8

Accurate Counts
978-664-2565

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy

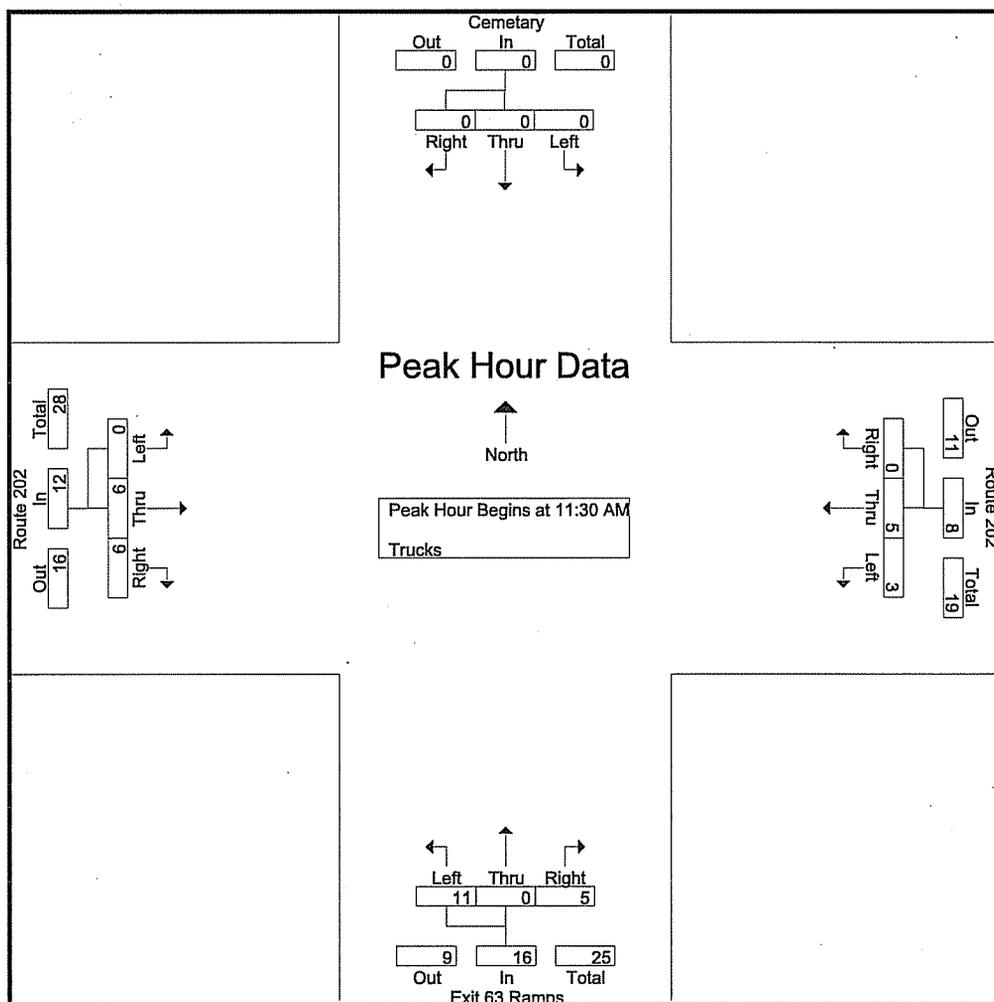
File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 2



Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	11:00 AM				11:00 AM				11:30 AM				11:00 AM			
+0 mins.	0	0	0	0	3	2	0	5	0	0	1	1	0	1	4	5
+15 mins.	0	0	0	0	0	0	0	0	2	0	0	2	0	0	4	4
+30 mins.	0	0	0	0	0	2	0	2	4	0	3	7	0	1	1	2
+45 mins.	0	0	0	0	2	1	0	3	5	0	1	6	0	1	2	3
Total Volume	0	0	0	0	5	5	0	10	11	0	5	16	0	3	11	14
% App. Total	0	0	0	0	50	50	0	50	68.8	0	31.2	68.8	0	21.4	78.6	68.8
PHF	.000	.000	.000	.000	.417	.625	.000	.500	.550	.000	.417	.571	.000	.750	.688	.700

Accurate Counts
978-664-2565

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 1

Groups Printed- Trucks

Start Time	Cemetary From North			Route 202 From East			Exit 63 Ramps From South			Route 202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11:00 AM	0	0	0	3	2	0	4	0	2	0	1	4	16
11:15 AM	0	0	0	0	0	0	1	0	1	0	0	4	6
11:30 AM	0	0	0	0	2	0	0	0	1	0	1	1	5
11:45 AM	0	0	0	2	1	0	2	0	0	0	1	2	8
Total	0	0	0	5	5	0	7	0	4	0	3	11	35
12:00 PM	0	0	0	1	1	0	4	0	3	0	3	2	14
12:15 PM	0	0	0	0	1	0	5	0	1	0	1	1	9
12:30 PM	0	0	0	2	0	0	0	0	0	0	2	1	5
12:45 PM	0	0	0	1	1	0	1	0	0	0	0	1	4
Total	0	0	0	4	3	0	10	0	4	0	6	5	32
01:00 PM	0	0	0	0	0	0	2	0	1	0	1	2	6
01:15 PM	0	0	0	0	0	0	2	1	0	0	3	1	7
01:30 PM	0	0	0	0	0	0	3	0	1	0	1	0	5
01:45 PM	0	0	0	0	0	0	2	0	2	0	0	1	5
Total	0	0	0	0	0	0	9	1	4	0	5	4	23
Grand Total	0	0	0	9	8	0	26	1	12	0	14	20	90
Apprch %	0	0	0	52.9	47.1	0	66.7	2.6	30.8	0	41.2	58.8	
Total %	0	0	0	10	8.9	0	28.9	1.1	13.3	0	15.6	22.2	

Start Time	Cemetary From North				Route 202 From East				Exit 63 Ramps From South				Route 202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:30 AM																	
11:30 AM	0	0	0	0	0	2	0	2	0	0	1	1	0	1	1	2	5
11:45 AM	0	0	0	0	2	1	0	3	2	0	0	2	0	1	2	3	8
12:00 PM	0	0	0	0	1	1	0	2	4	0	3	7	0	3	2	5	14
12:15 PM	0	0	0	0	0	1	0	1	5	0	1	6	0	1	1	2	9
Total Volume	0	0	0	0	3	5	0	8	11	0	5	16	0	6	6	12	36
% App. Total	0	0	0	0	37.5	62.5	0	0	68.8	0	31.2	0	0	50	50	0	0
PHF	.000	.000	.000	.000	.375	.625	.000	.667	.550	.000	.417	.571	.000	.500	.750	.600	.643

Accurate Counts

978-664-2565

N/S Street : Exit 63 Ramps / Cemetary Dr

E/W Street: Route 202

City/State : Gray, ME

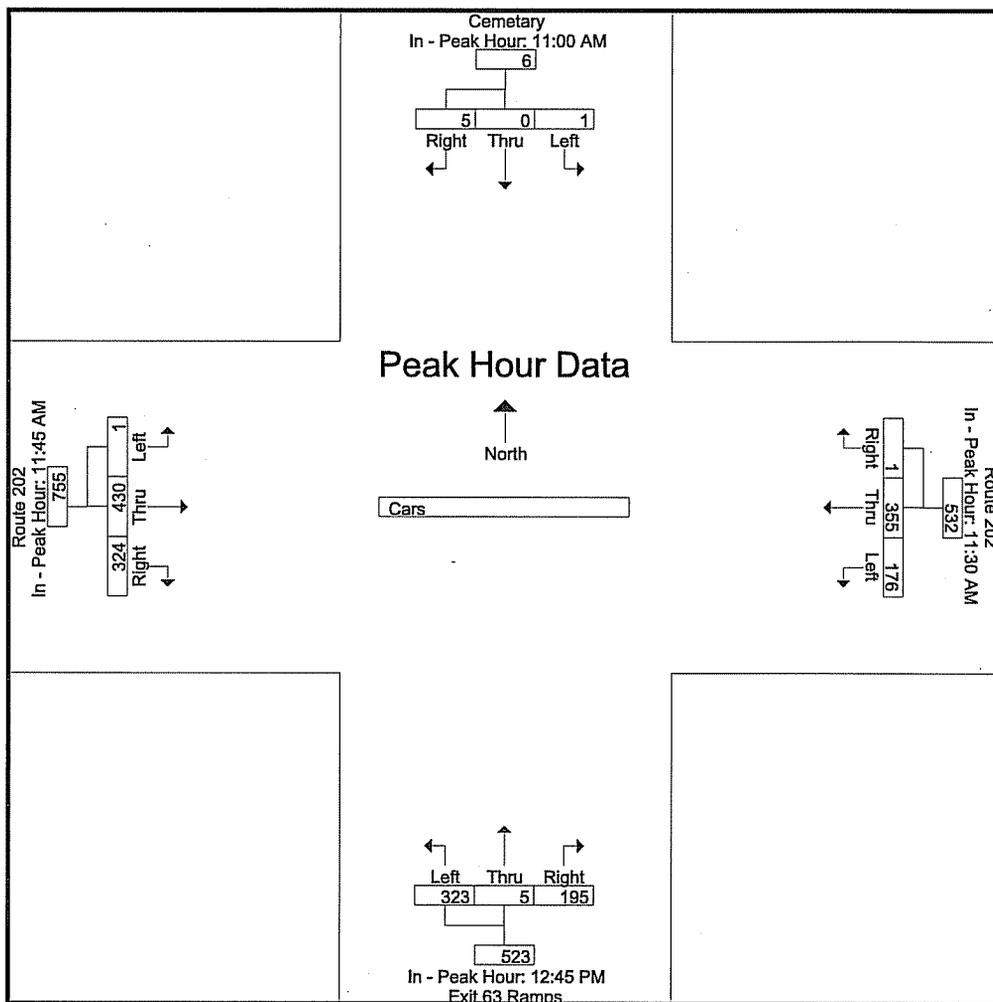
Weather : Cloudy

File Name : 522280S

Site Code : 5222800

Start Date : 9/8/2012

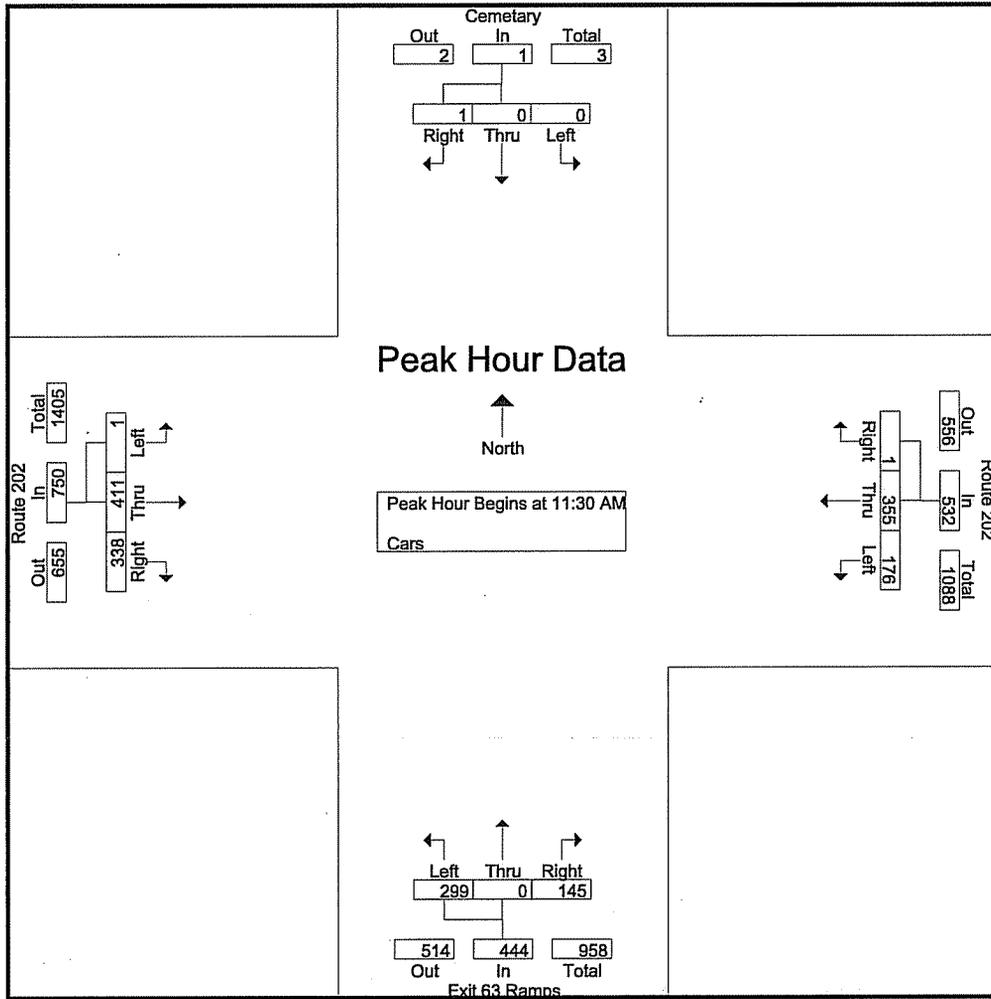
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 2



Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:00 AM				11:30 AM				12:45 PM				11:45 AM			
+0 mins.	1	0	3	4	46	105	0	151	82	0	39	121	0	101	82	183
+15 mins.	0	0	1	1	48	80	1	129	69	0	38	107	1	120	74	195
+30 mins.	0	0	0	0	36	78	0	114	90	2	42	134	0	104	96	200
+45 mins.	0	0	1	1	46	92	0	138	82	3	76	161	0	105	72	177
Total Volume	1	0	5	6	176	355	1	532	323	5	195	523	1	430	324	755
% App. Total	16.7	0	83.3		33.1	66.7	0.2		61.8	1	37.3		0.1	57	42.9	
PHF	.250	.000	.417	.375	.917	.845	.250	.881	.897	.417	.641	.812	.250	.896	.844	.944

Accurate Counts
978-664-2565

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 1

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy

Groups Printed- Cars

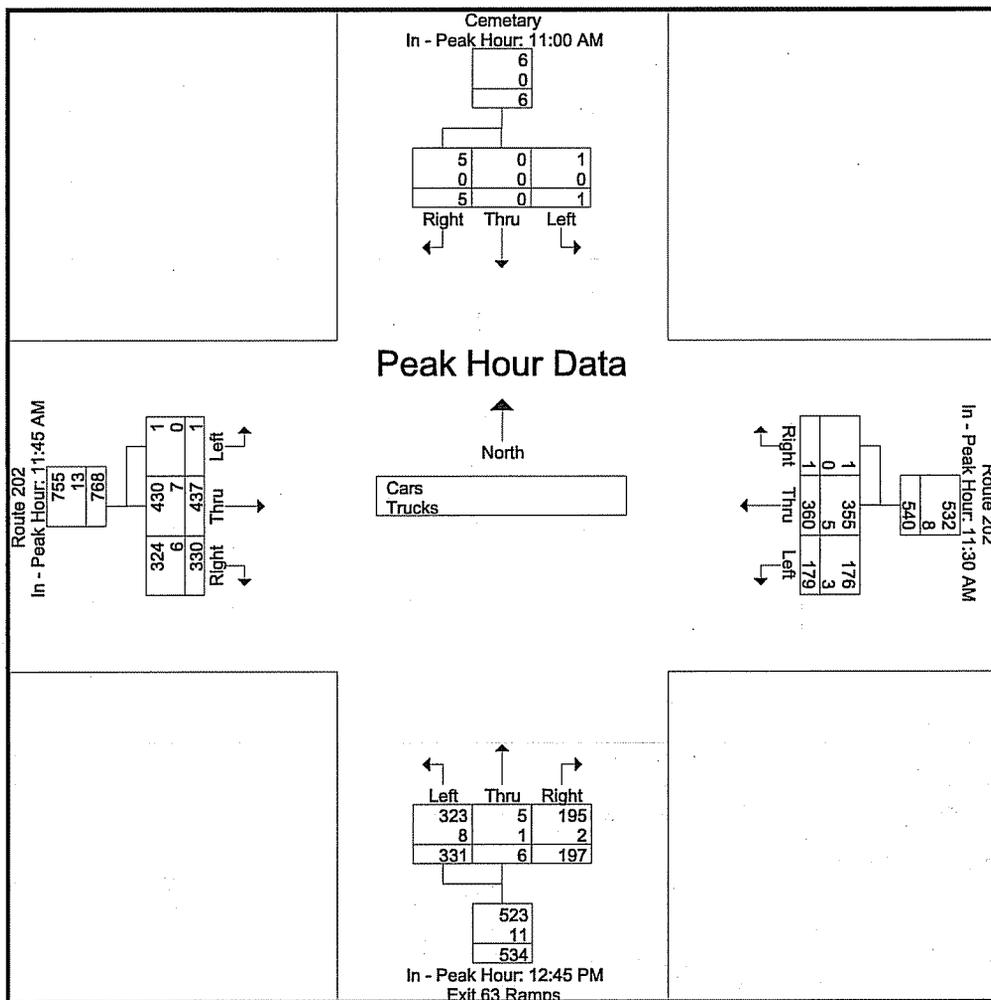
Start Time	Cemetary From North			Route 202 From East			Exit 63 Ramps From South			Route 202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11:00 AM	1	0	3	37	59	0	61	0	49	0	85	96	391
11:15 AM	0	0	1	25	89	0	89	0	24	0	103	75	406
11:30 AM	0	0	0	46	105	0	72	0	30	0	86	86	425
11:45 AM	0	0	1	48	80	1	73	0	37	0	101	82	423
Total	1	0	5	156	333	1	295	0	140	0	375	339	1645
12:00 PM	0	0	0	36	78	0	82	0	39	1	120	74	430
12:15 PM	0	0	0	46	92	0	72	0	39	0	104	96	449
12:30 PM	1	0	0	43	75	0	90	0	34	0	105	72	420
12:45 PM	0	0	1	45	69	0	82	0	39	2	93	77	408
Total	1	0	1	170	314	0	326	0	151	3	422	319	1707
01:00 PM	0	0	0	21	71	0	69	0	38	0	102	73	374
01:15 PM	0	0	0	38	79	1	90	2	42	0	108	81	441
01:30 PM	0	0	2	41	114	1	82	3	76	0	84	91	494
01:45 PM	0	0	0	33	77	0	76	0	38	0	88	80	392
Total	0	0	2	133	341	2	317	5	194	0	382	325	1701
Grand Total	2	0	8	459	988	3	938	5	485	3	1179	983	5053
Apprch %	20	0	80	31.7	68.1	0.2	65.7	0.4	34	0.1	54.5	45.4	
Total %	0	0	0.2	9.1	19.6	0.1	18.6	0.1	9.6	0.1	23.3	19.5	

Start Time	Cemetary From North				Route 202 From East				Exit 63 Ramps From South				Route 202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:30 AM																	
11:30 AM	0	0	0	0	46	105	0	151	72	0	30	102	0	86	86	172	425
11:45 AM	0	0	1	1	48	80	1	129	73	0	37	110	0	101	82	183	423
12:00 PM	0	0	0	0	36	78	0	114	82	0	39	121	1	120	74	195	430
12:15 PM	0	0	0	0	46	92	0	138	72	0	39	111	0	104	96	200	449
Total Volume	0	0	1	1	176	355	1	532	299	0	145	444	1	411	338	750	1727
% App. Total	0	0	100		33.1	66.7	0.2		67.3	0	32.7		0.1	54.8	45.1		
PHF	.000	.000	.250	.250	.917	.845	.250	.881	.912	.000	.929	.917	.250	.856	.880	.938	.962

Accurate Counts
978-664-2565

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy

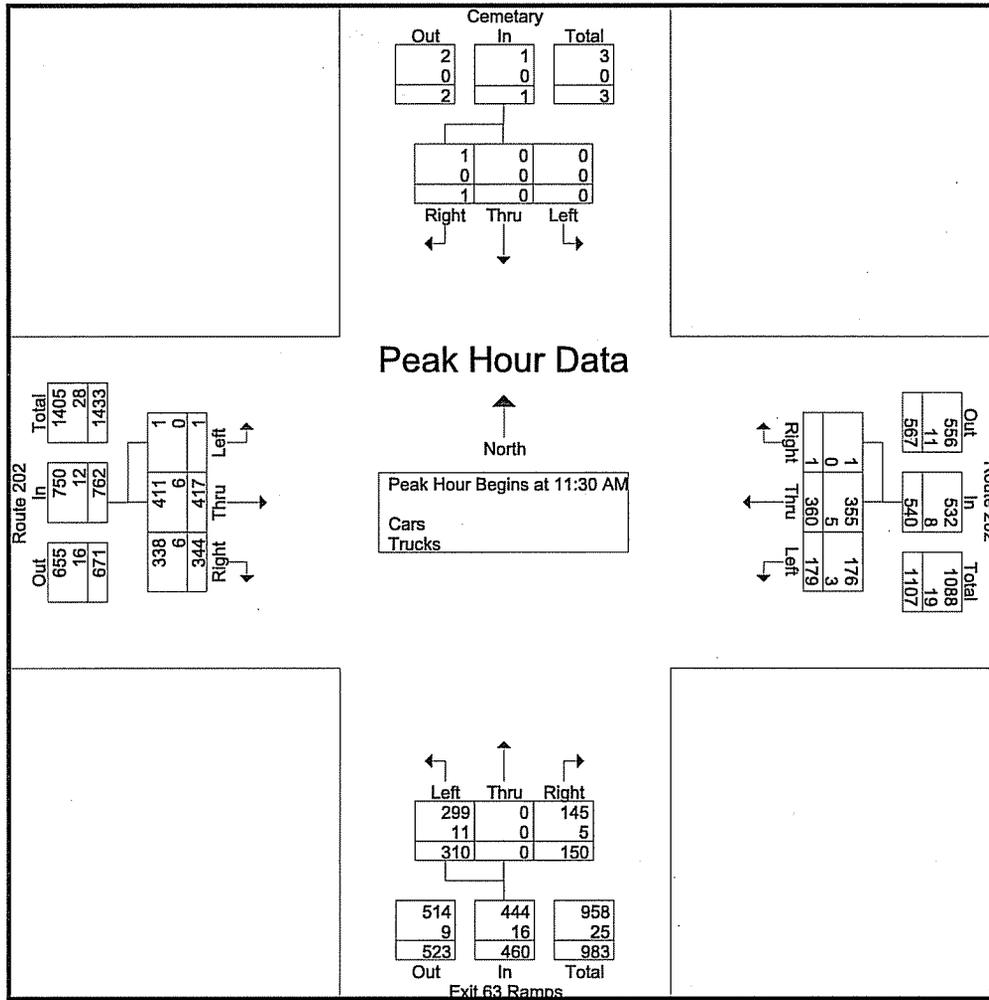
File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 3



Accurate Counts
978-664-2565

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 2

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy



Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:00 AM				11:30 AM				12:45 PM				11:45 AM			
+0 mins.	1	0	3	4	46	107	0	153	83	0	39	122	0	102	84	186
+15 mins.	0	0	1	1	50	81	1	132	71	0	39	110	1	123	76	200
+30 mins.	0	0	0	0	37	79	0	116	92	3	42	137	0	105	97	202
+45 mins.	0	0	1	1	46	93	0	139	85	3	77	165	0	107	73	180
Total Volume	1	0	5	6	179	360	1	540	331	6	197	534	1	437	330	768
% App. Total	16.7	0	83.3		33.1	66.7	0.2		62	1.1	36.9		0.1	56.9	43	
PHF	.250	.000	.417	.375	.895	.841	.250	.882	.899	.500	.640	.809	.250	.888	.851	.950
Cars	1	0	5	6	176	355	1	532	323	5	195	523	1	430	324	755
% Cars	100	0	100	100	98.3	98.6	100	98.5	97.6	83.3	99	97.9	100	98.4	98.2	98.3
Trucks	0	0	0	0	3	5	0	8	8	1	2	11	0	7	6	13
% Trucks	0	0	0	0	1.7	1.4	0	1.5	2.4	16.7	1	2.1	0	1.6	1.8	1.7

Accurate Counts
978-664-2565

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 1

Groups Printed- Cars - Trucks

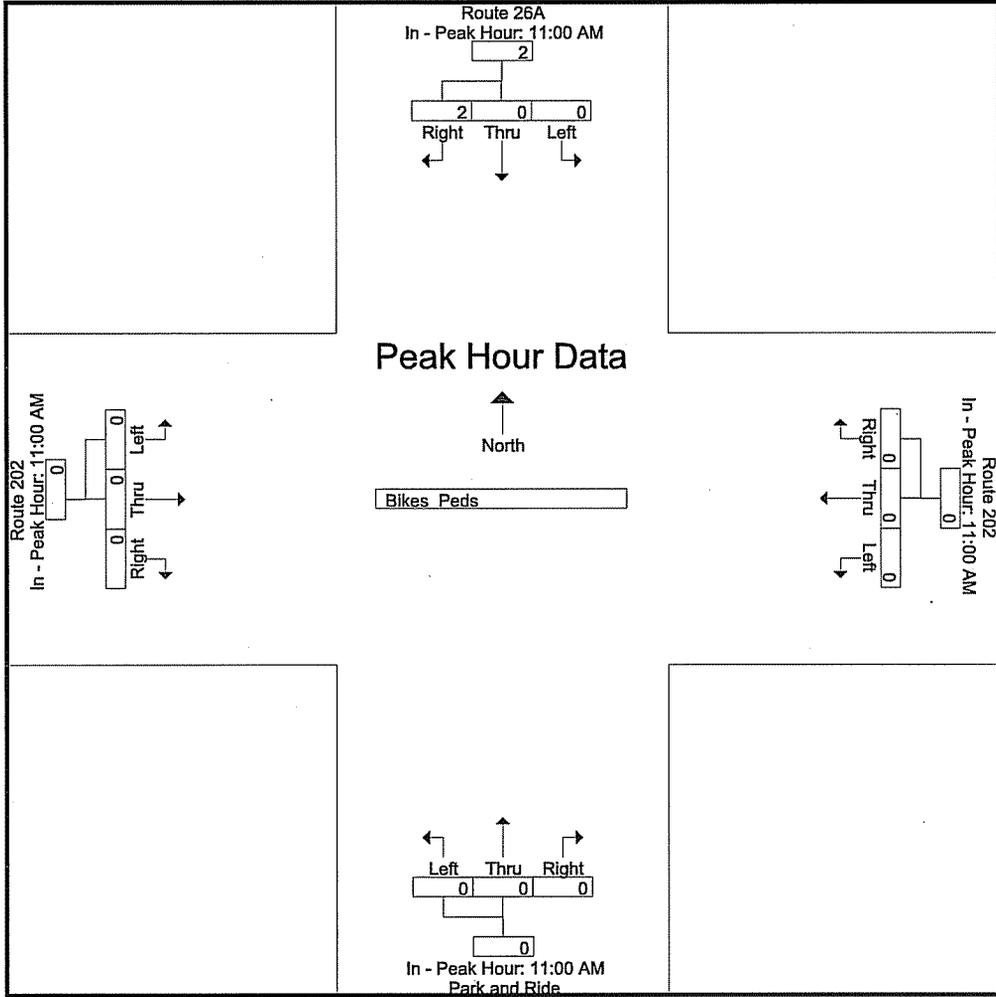
Start Time	Cemetary From North			Route 202 From East			Exit 63 Ramps From South			Route 202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11:00 AM	1	0	3	40	61	0	65	0	51	0	86	100	407
11:15 AM	0	0	1	25	89	0	90	0	25	0	103	79	412
11:30 AM	0	0	0	46	107	0	72	0	31	0	87	87	430
11:45 AM	0	0	1	50	81	1	75	0	37	0	102	84	431
Total	1	0	5	161	338	1	302	0	144	0	378	350	1680
12:00 PM	0	0	0	37	79	0	86	0	42	1	123	76	444
12:15 PM	0	0	0	46	93	0	77	0	40	0	105	97	458
12:30 PM	1	0	0	45	75	0	90	0	34	0	107	73	425
12:45 PM	0	0	1	46	70	0	83	0	39	2	93	78	412
Total	1	0	1	174	317	0	336	0	155	3	428	324	1739
01:00 PM	0	0	0	21	71	0	71	0	39	0	103	75	380
01:15 PM	0	0	0	38	79	1	92	3	42	0	111	82	448
01:30 PM	0	0	2	41	114	1	85	3	77	0	85	91	499
01:45 PM	0	0	0	33	77	0	78	0	40	0	88	81	397
Total	0	0	2	133	341	2	326	6	198	0	387	329	1724
Grand Total	2	0	8	468	996	3	964	6	497	3	1193	1003	5143
Apprch %	20	0	80	31.9	67.9	0.2	65.7	0.4	33.9	0.1	54.3	45.6	
Total %	0	0	0.2	9.1	19.4	0.1	18.7	0.1	9.7	0.1	23.2	19.5	
Cars	2	0	8	459	988	3	938	5	485	3	1179	983	5053
% Cars	100	0	100	98.1	99.2	100	97.3	83.3	97.6	100	98.8	98	98.3
Trucks	0	0	0	9	8	0	26	1	12	0	14	20	90
% Trucks	0	0	0	1.9	0.8	0	2.7	16.7	2.4	0	1.2	2	1.7

Start Time	Cemetary From North				Route 202 From East				Exit 63 Ramps From South				Route 202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:30 AM																	
11:30 AM	0	0	0	0	46	107	0	153	72	0	31	103	0	87	87	174	430
11:45 AM	0	0	1	1	50	81	1	132	75	0	37	112	0	102	84	186	431
12:00 PM	0	0	0	0	37	79	0	116	86	0	42	128	1	123	76	200	444
12:15 PM	0	0	0	0	46	93	0	139	77	0	40	117	0	105	97	202	458
Total Volume	0	0	1	1	179	360	1	540	310	0	150	460	1	417	344	762	1763
% App. Total	0	0	100	100	33.1	66.7	0.2	33.1	67.4	0	32.6	67.4	0.1	54.7	45.1	94.3	96.2
PHF	.000	.000	.250	.250	.895	.841	.250	.882	.901	.000	.893	.898	.250	.848	.887	.943	.962
Cars	0	0	1	1	176	355	1	532	299	0	145	444	1	411	338	750	1727
% Cars	0	0	100	100	98.3	98.6	100	98.5	96.5	0	96.7	96.5	100	98.6	98.3	98.4	98.0
Trucks	0	0	0	0	3	5	0	8	11	0	5	16	0	6	6	12	36
% Trucks	0	0	0	0	1.7	1.4	0	1.5	3.5	0	3.3	3.5	0	1.4	1.7	1.6	2.0

Accurate Counts
978-664-2565

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 3

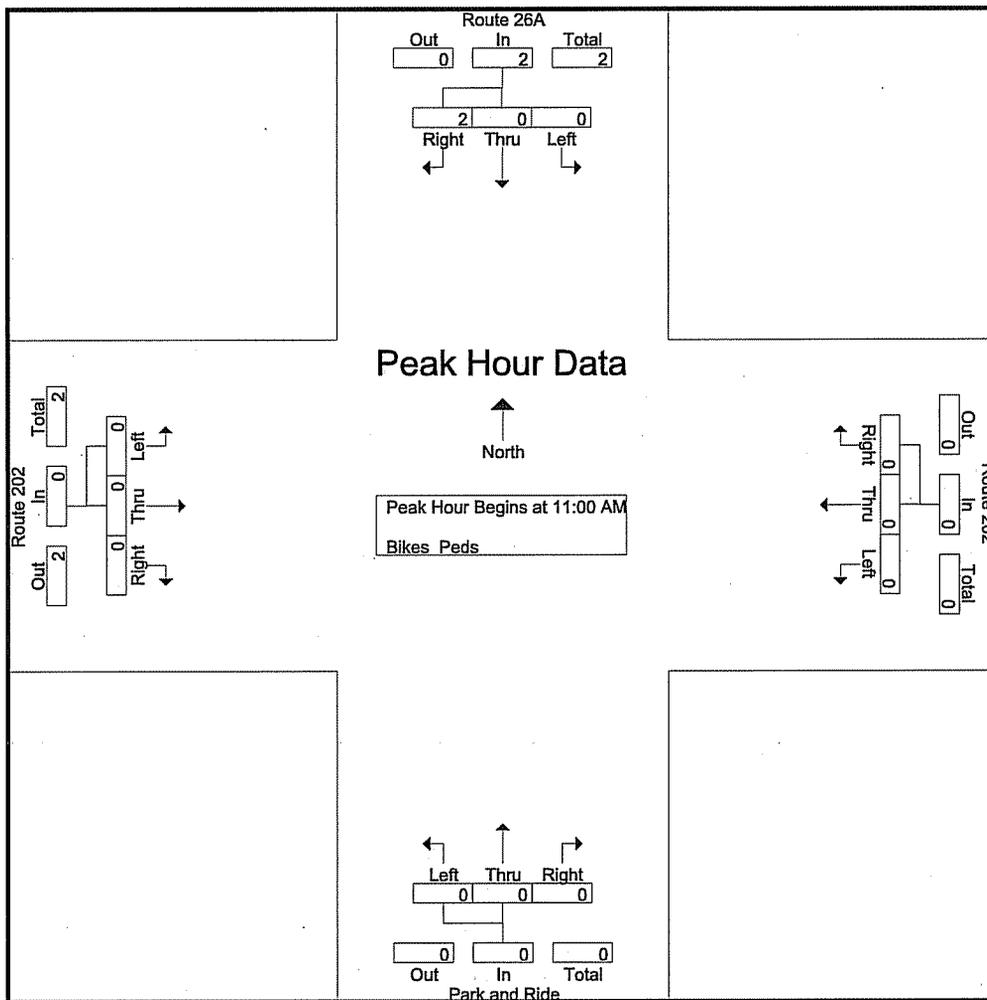
N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy



Accurate Counts
978-664-2565

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 2



Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:00 AM				11:00 AM				11:00 AM				11:00 AM			
+0 mins.	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	100	100	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 1

Groups Printed- Bikes Peds

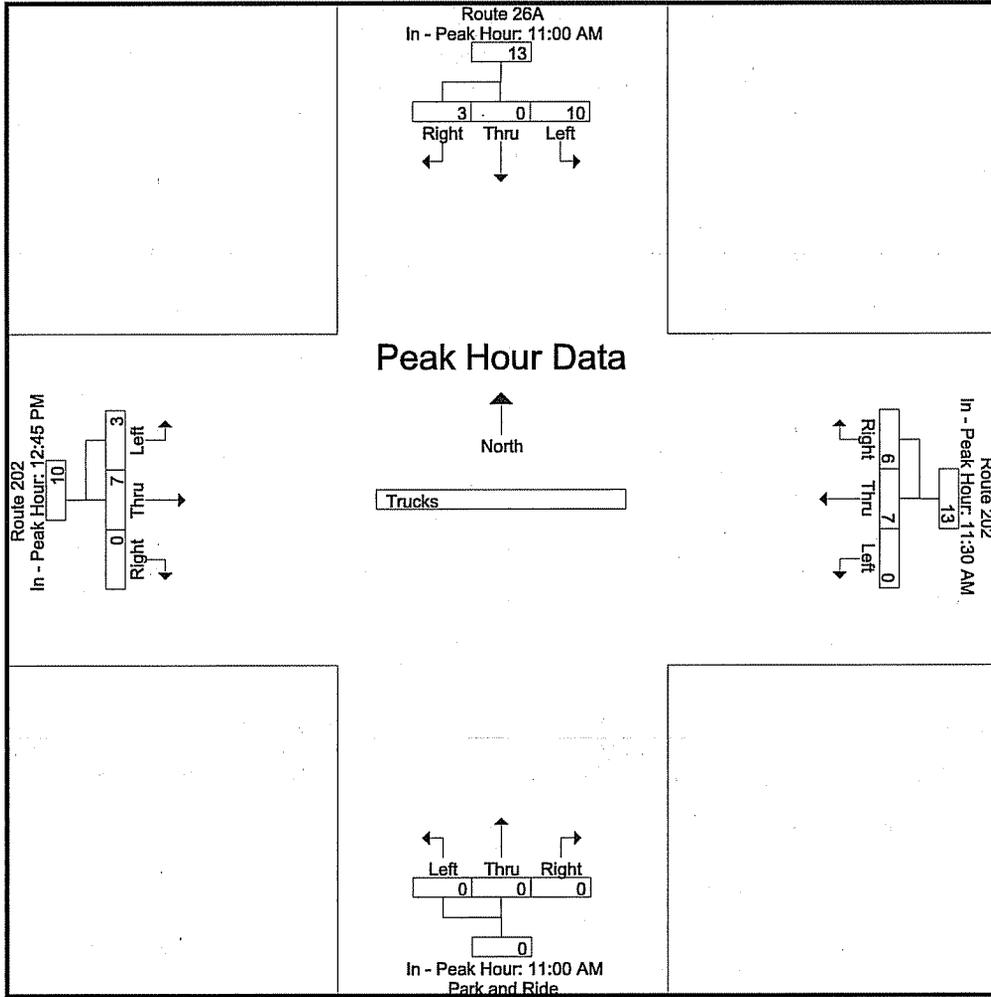
Start Time	Route 26A From North				Route 202 From East				Park and Ride From South				Route 202 From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
11:00 AM	0	0	2	1	0	0	0	0	0	0	0	1	0	0	0	0	2	2	4
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	2	1	0	0	0	0	0	0	0	1	0	0	0	0	2	2	4
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
Grand Total	0	0	2	1	0	0	0	0	0	0	0	1	0	0	0	1	3	2	5
Apprch %	0	0	100		0	0	0		0	0	0		0	0	0				
Total %	0	0	100		0	0	0		0	0	0		0	0	0		60	40	

Start Time	Route 26A From North				Route 202 From East				Park and Ride From South				Route 202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:00 AM																	
11:00 AM	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2
% App. Total	0	0	100		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

Accurate Counts
978-664-2565

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

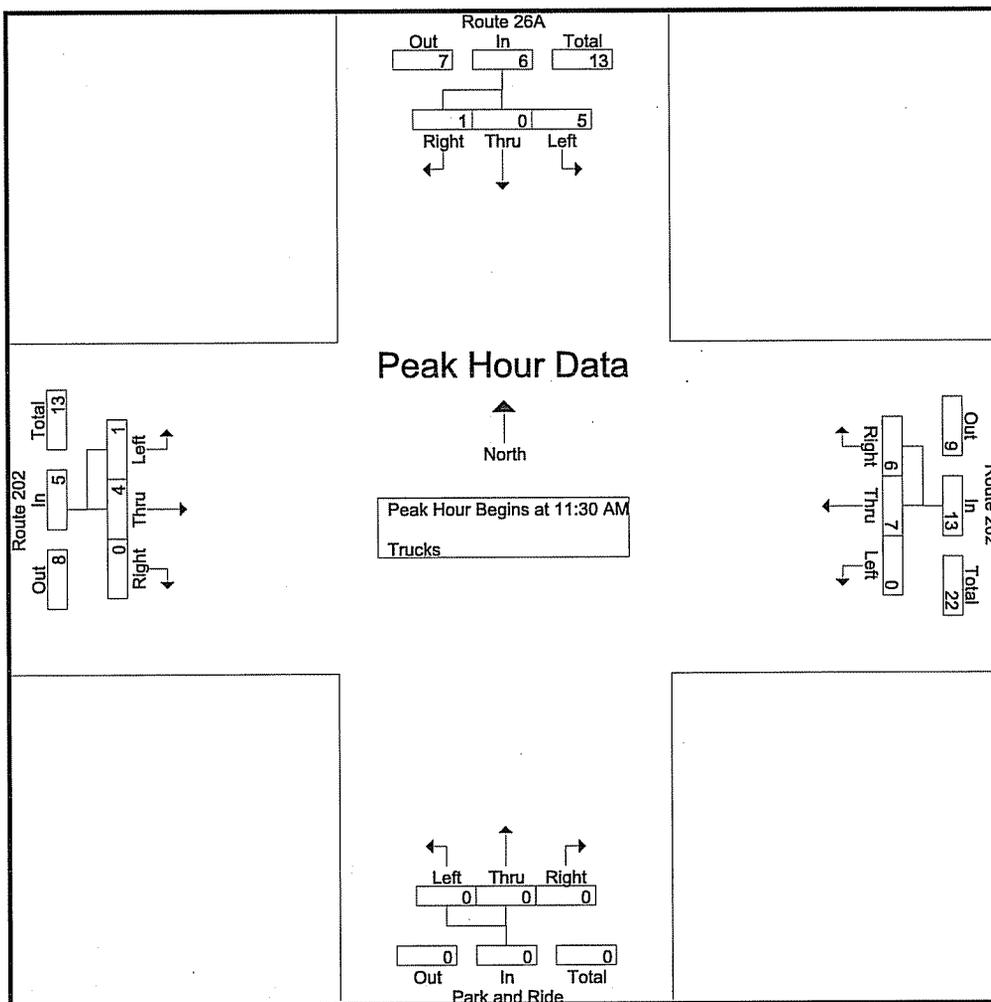
File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 3



Accurate Counts
978-664-2565

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 2

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy



Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:00 AM				11:30 AM				11:00 AM				12:45 PM			
+0 mins.	4	0	1	5	0	1	0	1	0	0	0	0	1	0	0	1
+15 mins.	3	0	1	4	0	1	1	2	0	0	0	0	1	2	0	3
+30 mins.	2	0	1	3	0	3	2	5	0	0	0	0	0	4	0	4
+45 mins.	1	0	0	1	0	2	3	5	0	0	0	0	1	1	0	2
Total Volume	10	0	3	13	0	7	6	13	0	0	0	0	3	7	0	10
% App. Total	76.9	0	23.1		0	53.8	46.2		0	0	0		30	70	0	
PHF	.625	.000	.750	.650	.000	.583	.500	.650	.000	.000	.000	.000	.750	.438	.000	.625

Accurate Counts
978-664-2565

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 1

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

Groups Printed- Trucks

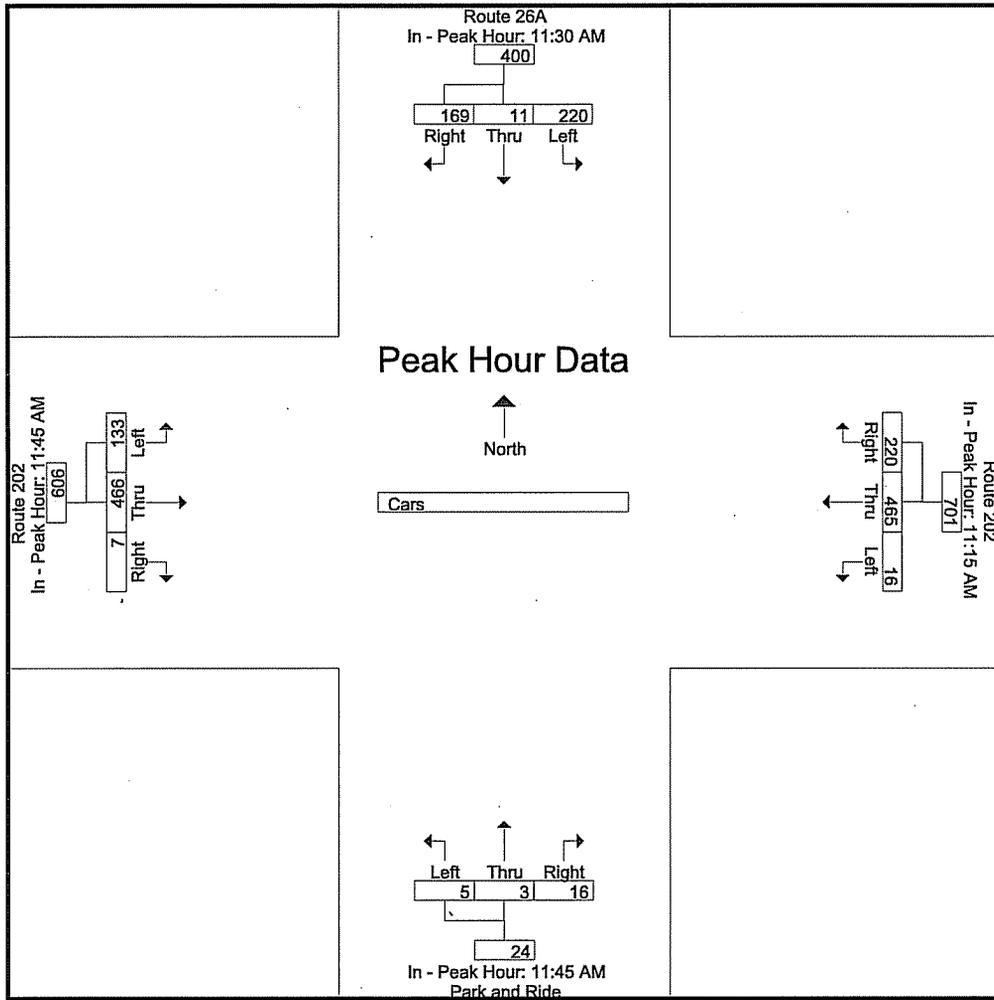
Start Time	Route 26A From North			Route 202 From East			Park and Ride From South			Route 202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11:00 AM	4	0	1	0	1	2	0	0	0	0	0	0	8
11:15 AM	3	0	1	0	0	1	0	0	0	0	1	0	6
11:30 AM	2	0	1	0	1	0	0	0	0	0	0	0	4
11:45 AM	1	0	0	0	1	1	0	0	0	0	1	0	4
Total	10	0	3	0	3	4	0	0	0	0	2	0	22
12:00 PM	1	0	0	0	3	2	0	0	0	0	2	0	8
12:15 PM	1	0	0	0	2	3	0	0	0	1	1	0	8
12:30 PM	1	0	0	0	0	0	0	0	0	0	1	0	2
12:45 PM	1	0	1	0	1	1	0	0	0	1	0	0	5
Total	4	0	1	0	6	6	0	0	0	2	4	0	23
01:00 PM	0	0	1	0	1	1	0	0	0	1	2	0	6
01:15 PM	0	0	1	0	0	1	0	0	0	0	4	0	6
01:30 PM	0	0	1	0	0	4	0	0	0	1	1	0	7
01:45 PM	1	0	0	0	0	2	0	0	0	0	0	0	3
Total	1	0	3	0	1	8	0	0	0	2	7	0	22
Grand Total	15	0	7	0	10	18	0	0	0	4	13	0	67
Apprch %	68.2	0	31.8	0	35.7	64.3	0	0	0	23.5	76.5	0	
Total %	22.4	0	10.4	0	14.9	26.9	0	0	0	6	19.4	0	

Start Time	Route 26A From North				Route 202 From East				Park and Ride From South				Route 202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:30 AM																	
11:30 AM	2	0	1	3	0	1	0	1	0	0	0	0	0	0	0	0	4
11:45 AM	1	0	0	1	0	1	1	2	0	0	0	0	0	1	0	1	4
12:00 PM	1	0	0	1	0	3	2	5	0	0	0	0	0	2	0	2	8
12:15 PM	1	0	0	1	0	2	3	5	0	0	0	0	1	1	0	2	8
Total Volume	5	0	1	6	0	7	6	13	0	0	0	0	1	4	0	5	24
% App. Total	83.3	0	16.7	0	53.8	46.2	0	0	0	0	0	0	20	80	0	0	
PHF	.625	.000	.250	.500	.000	.583	.500	.650	.000	.000	.000	.000	.250	.500	.000	.625	.750

Accurate Counts
978-664-2565

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 3

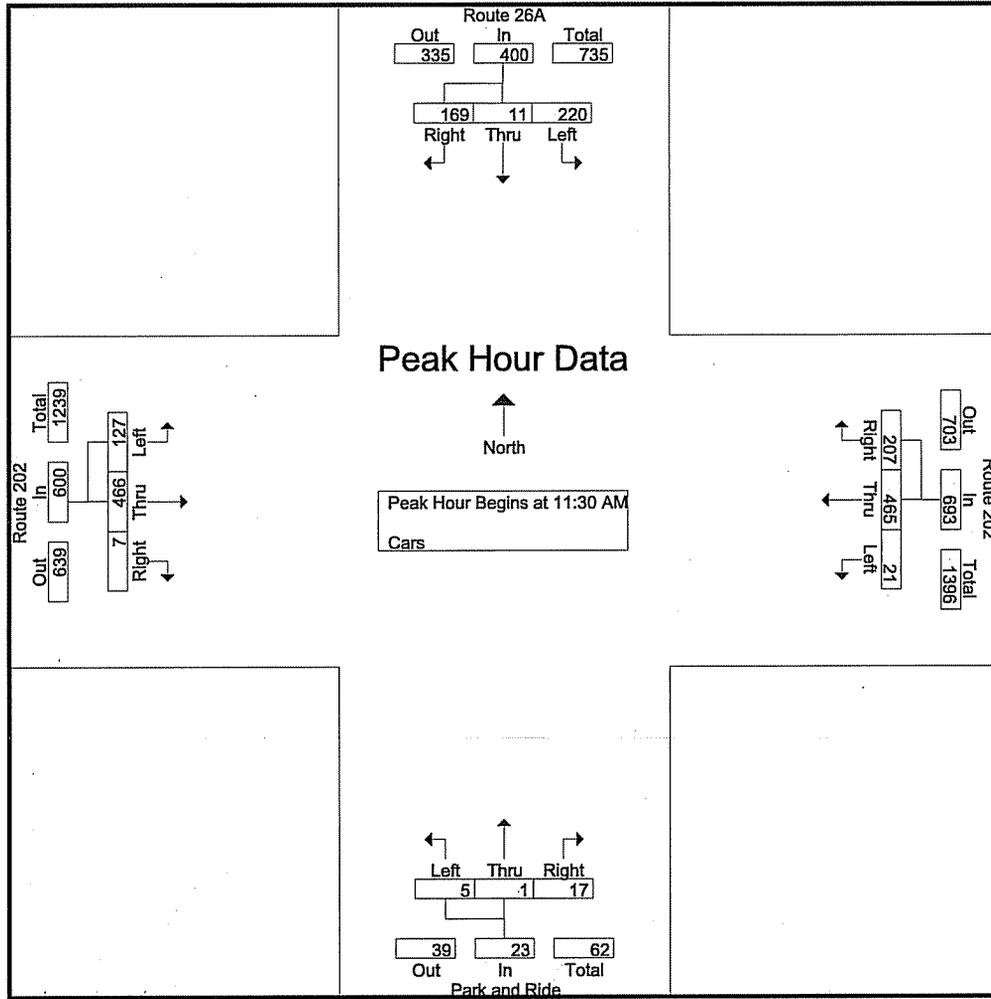
N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy



Accurate Counts
978-664-2565

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 2



Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:30 AM				11:15 AM				11:45 AM				11:45 AM			
+0 mins.	54	6	39	99	2	113	61	176	0	0	4	4	34	104	1	139
+15 mins.	61	2	42	105	5	119	53	177	1	0	5	6	36	124	4	164
+30 mins.	44	1	49	94	1	103	59	163	2	1	4	7	30	130	1	161
+45 mins.	61	2	39	102	8	130	47	185	2	2	3	7	33	108	1	142
Total Volume	220	11	169	400	16	465	220	701	5	3	16	24	133	466	7	606
% App. Total	55	2.8	42.2		2.3	66.3	31.4		20.8	12.5	66.7		21.9	76.9	1.2	
PHF	.902	.458	.862	.952	.500	.894	.902	.947	.625	.375	.800	.857	.924	.896	.438	.924

Accurate Counts
978-664-2565

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 1

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

Groups Printed- Cars

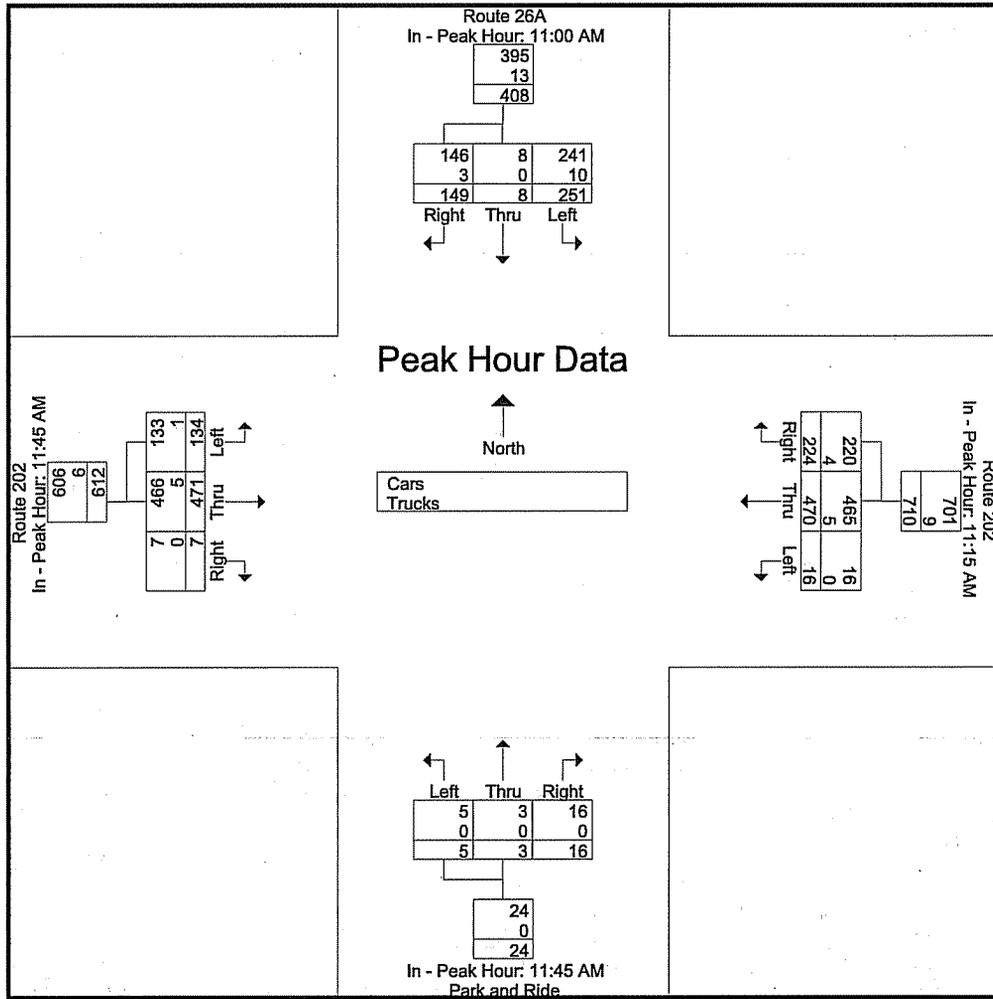
Start Time	Route 26A From North			Route 202 From East			Park and Ride From South			Route 202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11:00 AM	76	0	28	4	84	45	1	0	3	39	108	2	390
11:15 AM	50	0	37	2	113	61	1	3	2	46	115	2	432
11:30 AM	54	6	39	5	119	53	2	0	4	27	108	1	418
11:45 AM	61	2	42	1	103	59	0	0	4	34	104	1	411
Total	241	8	146	12	419	218	4	3	13	146	435	6	1651
12:00 PM	44	1	49	8	130	47	1	0	5	36	124	4	449
12:15 PM	61	2	39	7	113	48	2	1	4	30	130	1	438
12:30 PM	57	0	42	1	106	56	2	2	3	33	108	1	411
12:45 PM	55	1	36	2	87	55	0	0	3	33	94	1	367
Total	217	4	166	18	436	206	5	3	15	132	456	7	1665
01:00 PM	49	2	27	2	119	49	1	0	1	38	106	1	395
01:15 PM	54	0	28	4	97	55	0	1	3	28	103	1	374
01:30 PM	62	0	45	3	116	46	1	0	1	33	100	1	408
01:45 PM	56	2	30	1	92	47	2	3	5	38	82	3	361
Total	221	4	130	10	424	197	4	4	10	137	391	6	1538
Grand Total	679	16	442	40	1279	621	13	10	38	415	1282	19	4854
Apprch %	59.7	1.4	38.9	2.1	65.9	32	21.3	16.4	62.3	24.2	74.7	1.1	
Total %	14	0.3	9.1	0.8	26.3	12.8	0.3	0.2	0.8	8.5	26.4	0.4	

Start Time	Route 26A From North				Route 202 From East				Park and Ride From South				Route 202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:30 AM																	
11:30 AM	54	6	39	99	5	119	53	177	2	0	4	6	27	108	1	136	418
11:45 AM	61	2	42	105	1	103	59	163	0	0	4	4	34	104	1	139	411
12:00 PM	44	1	49	94	8	130	47	185	1	0	5	6	36	124	4	164	449
12:15 PM	61	2	39	102	7	113	48	168	2	1	4	7	30	130	1	161	438
Total Volume	220	11	169	400	21	465	207	693	5	1	17	23	127	466	7	600	1716
% App. Total	55	2.8	42.2		3	67.1	29.9		21.7	4.3	73.9		21.2	77.7	1.2		
PHF	.902	.458	.862	.952	.656	.894	.877	.936	.625	.250	.850	.821	.882	.896	.438	.915	.955

Accurate Counts
978-664-2565

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

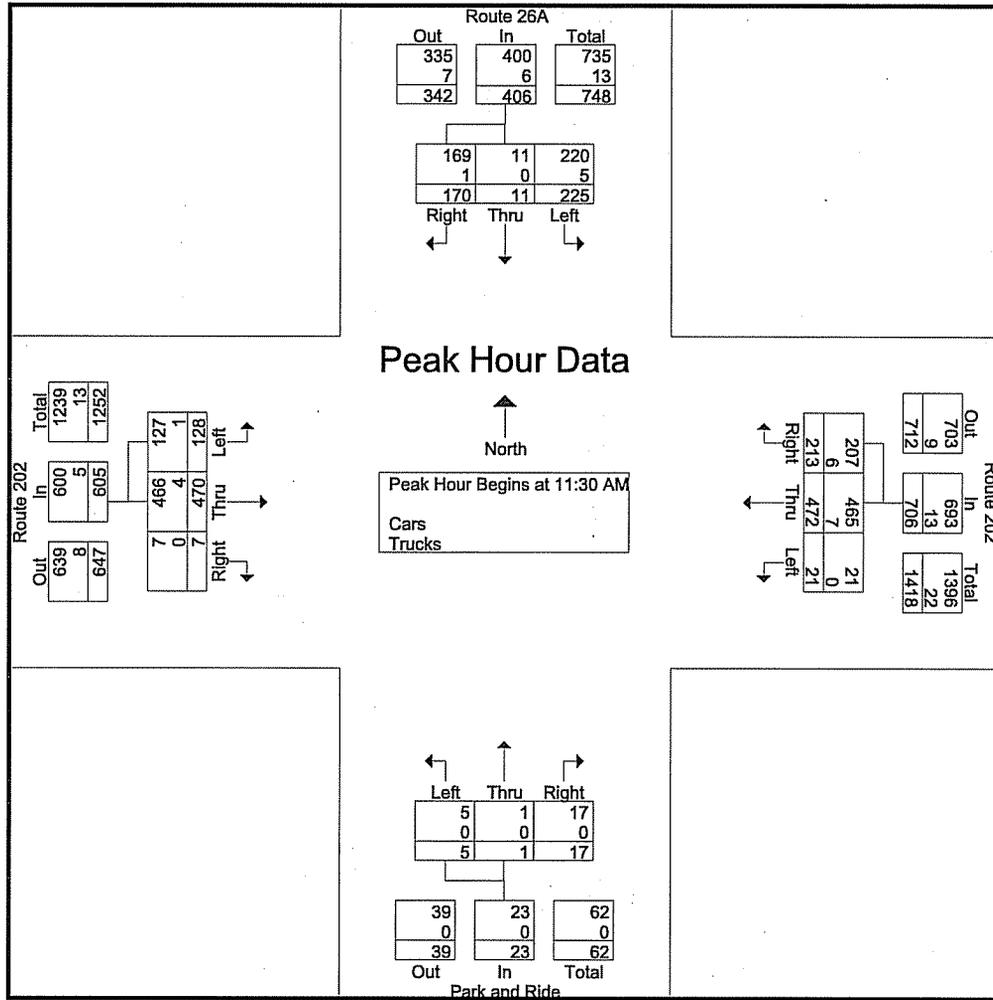
File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 2



Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:00 AM				11:15 AM				11:45 AM				11:45 AM			
+0 mins.	80	0	29	109	2	113	62	177	0	0	4	4	34	105	1	140
+15 mins.	53	0	38	91	5	120	53	178	1	0	5	6	36	126	4	166
+30 mins.	56	6	40	102	1	104	60	165	2	1	4	7	31	131	1	163
+45 mins.	62	2	42	106	8	133	49	190	2	2	3	7	33	109	1	143
Total Volume	251	8	149	408	16	470	224	710	5	3	16	24	134	471	7	612
% App. Total	61.5	2	36.5		2.3	66.2	31.5		20.8	12.5	66.7		21.9	77	1.1	
PHF	.784	.333	.887	.936	.500	.883	.903	.934	.625	.375	.800	.857	.931	.899	.438	.922
Cars	241	8	146	395	16	465	220	701	5	3	16	24	133	466	7	606
% Cars	96	100	98	96.8	100	98.9	98.2	98.7	100	100	100	100	99.3	98.9	100	99
Trucks	10	0	3	13	0	5	4	9	0	0	0	0	1	5	0	6
% Trucks	4	0	2	3.2	0	1.1	1.8	1.3	0	0	0	0	0.7	1.1	0	1

Accurate Counts
978-664-2565

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 522280S
Site Code : 5222800
Start Date : 9/8/2012
Page No : 1

Groups Printed- Cars - Trucks

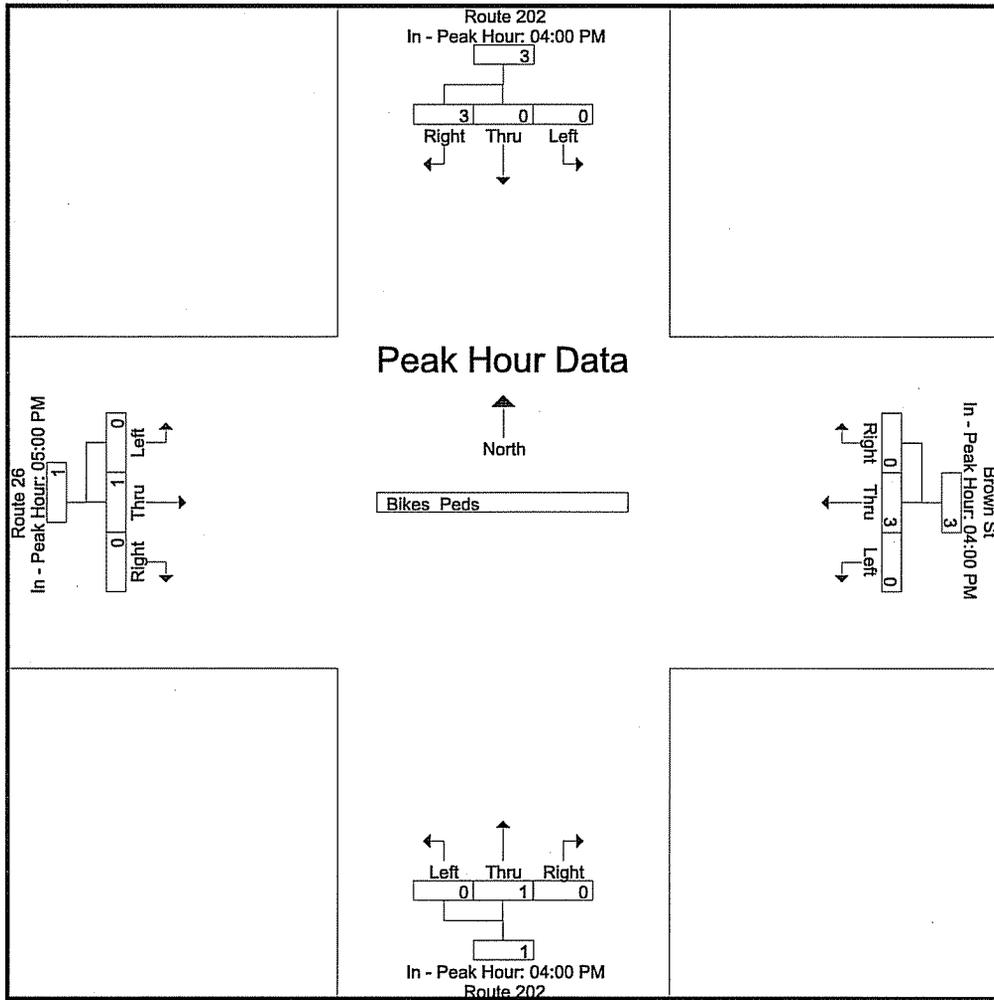
Start Time	Route 26A From North			Route 202 From East			Park and Ride From South			Route 202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11:00 AM	80	0	29	4	85	47	1	0	3	39	108	2	398
11:15 AM	53	0	38	2	113	62	1	3	2	46	116	2	438
11:30 AM	56	6	40	5	120	53	2	0	4	27	108	1	422
11:45 AM	62	2	42	1	104	60	0	0	4	34	105	1	415
Total	251	8	149	12	422	222	4	3	13	146	437	6	1673
12:00 PM	45	1	49	8	133	49	1	0	5	36	126	4	457
12:15 PM	62	2	39	7	115	51	2	1	4	31	131	1	446
12:30 PM	58	0	42	1	106	56	2	2	3	33	109	1	413
12:45 PM	56	1	37	2	88	56	0	0	3	34	94	1	372
Total	221	4	167	18	442	212	5	3	15	134	460	7	1688
01:00 PM	49	2	28	2	120	50	1	0	1	39	108	1	401
01:15 PM	54	0	29	4	97	56	0	1	3	28	107	1	380
01:30 PM	62	0	46	3	116	50	1	0	1	34	101	1	415
01:45 PM	57	2	30	1	92	49	2	3	5	38	82	3	364
Total	222	4	133	10	425	205	4	4	10	139	398	6	1560
Grand Total	694	16	449	40	1289	639	13	10	38	419	1295	19	4921
Apprch %	59.9	1.4	38.7	2	65.5	32.5	21.3	16.4	62.3	24.2	74.7	1.1	
Total %	14.1	0.3	9.1	0.8	26.2	13	0.3	0.2	0.8	8.5	26.3	0.4	
Cars	679	16	442	40	1279	621	13	10	38	415	1282	19	4854
% Cars	97.8	100	98.4	100	99.2	97.2	100	100	100	99	99	100	98.6
Trucks	15	0	7	0	10	18	0	0	0	4	13	0	67
% Trucks	2.2	0	1.6	0	0.8	2.8	0	0	0	1	1	0	1.4

Start Time	Route 26A From North				Route 202 From East				Park and Ride From South				Route 202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:30 AM																	
11:30 AM	56	6	40	102	5	120	53	178	2	0	4	6	27	108	1	136	422
11:45 AM	62	2	42	106	1	104	60	165	0	0	4	4	34	105	1	140	415
12:00 PM	45	1	49	95	8	133	49	190	1	0	5	6	36	126	4	166	457
12:15 PM	62	2	39	103	7	115	51	173	2	1	4	7	31	131	1	163	446
Total Volume	225	11	170	406	21	472	213	706	5	1	17	23	128	470	7	605	1740
% App. Total	55.4	2.7	41.9		3	66.9	30.2		21.7	4.3	73.9		21.2	77.7	1.2		
PHF	.907	.458	.867	.958	.656	.887	.888	.929	.625	.250	.850	.821	.889	.897	.438	.911	.952
Cars	220	11	169	400	21	465	207	693	5	1	17	23	127	466	7	600	1716
% Cars	97.8	100	99.4	98.5	100	98.5	97.2	98.2	100	100	100	100	99.2	99.1	100	99.2	98.6
Trucks	5	0	1	6	0	7	6	13	0	0	0	0	1	4	0	5	24
% Trucks	2.2	0	0.6	1.5	0	1.5	2.8	1.8	0	0	0	0	0.8	0.9	0	0.8	1.4

Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3

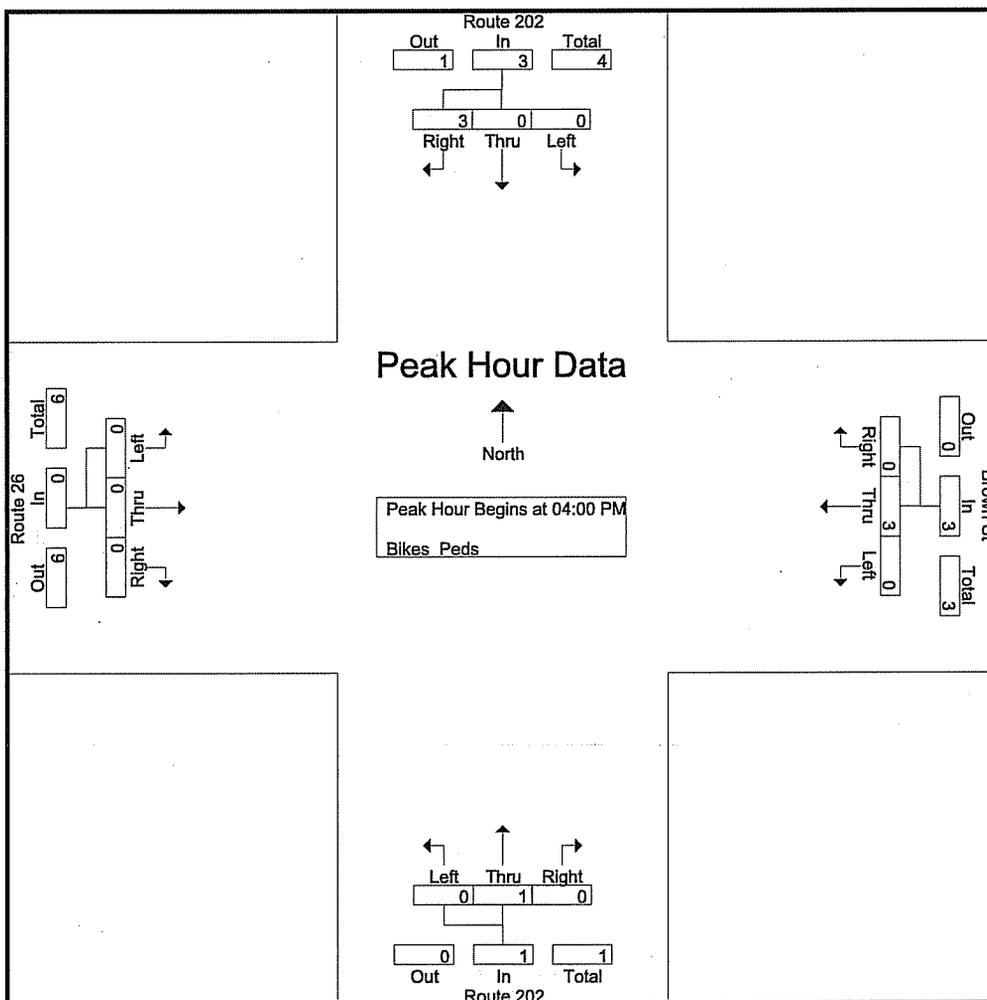
N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy



Accurate Counts
978-664-2565

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				05:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	1	0	1	0	1	0	1	0	0	0	0
+45 mins.	0	0	3	3	0	2	0	2	0	0	0	0	0	1	0	1
Total Volume	0	0	3	3	0	3	0	3	0	1	0	1	0	1	0	1
% App. Total	0	0	100		0	100	0		0	100	0		0	100	0	
PHF	.000	.000	.250	.250	.000	.375	.000	.375	.000	.250	.000	.250	.000	.250	.000	.250

Accurate Counts

978-664-2565

N/S Street : Route 202
 E/W Street : Brown Street / Route 26
 City/State : Gray, ME
 Weather : Cloudy

File Name : 5222800
 Site Code : 5222800
 Start Date : 9/6/2012
 Page No : 1

Groups Printed- Bikes Peds

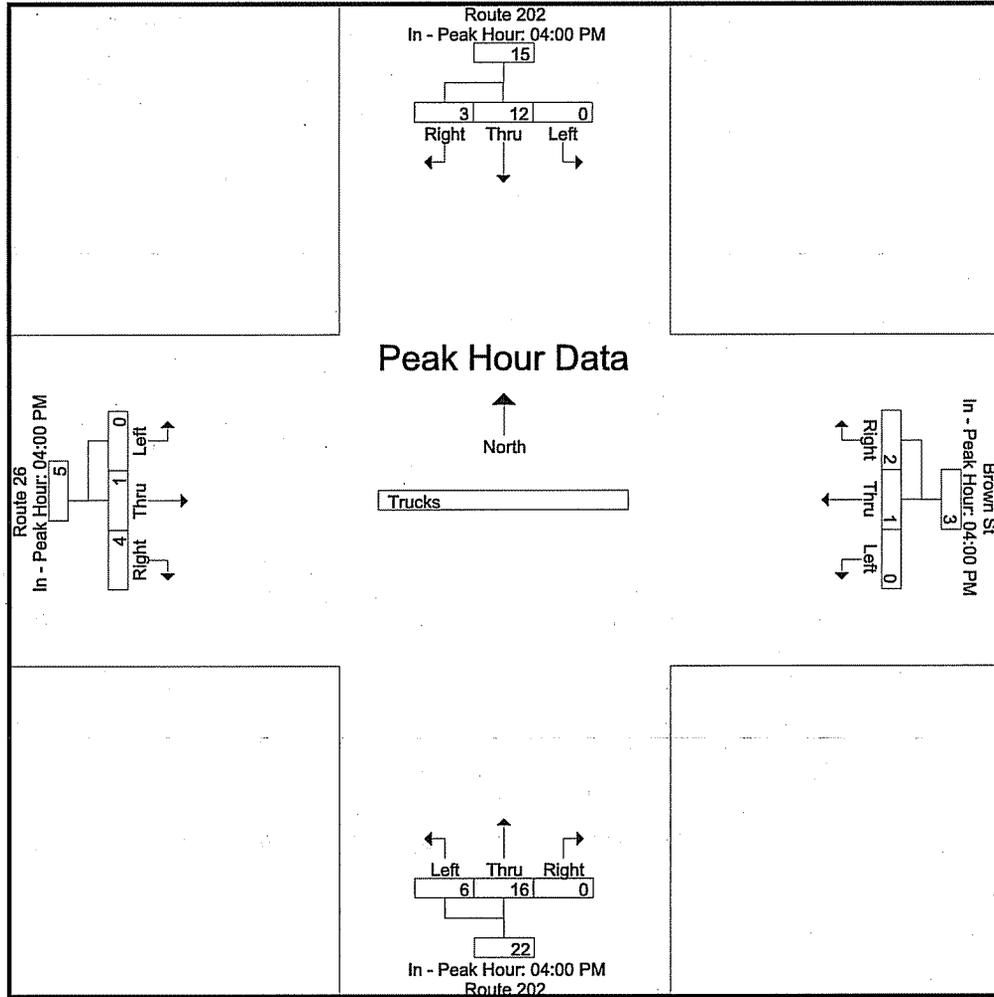
Start Time	Route 202 From North				Brown St From East				Route 202 From South				Route 26 From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2	2
04:45 PM	0	0	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0	5	5
Total	0	0	3	0	0	3	0	0	0	1	0	0	0	0	0	0	0	7	7
05:00 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	2
Total	0	0	0	3	0	0	0	0	0	0	0	0	0	1	0	1	4	1	5
Grand Total	0	0	3	3	0	3	0	0	0	1	0	0	0	1	0	1	4	8	12
Apprch %	0	0	100		0	100	0		0	100	0		0	100	0				
Total %	0	0	37.5		0	37.5	0		0	12.5	0		0	12.5	0		33.3	66.7	

Start Time	Route 202 From North				Brown St From East				Route 202 From South				Route 26 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	1	0	1	0	1	0	1	0	0	0	0	2
04:45 PM	0	0	3	3	0	2	0	2	0	0	0	0	0	0	0	0	5
Total Volume	0	0	3	3	0	3	0	3	0	1	0	1	0	0	0	0	7
% App. Total	0	0	100		0	100	0		0	100	0		0	0	0		
PHF	.000	.000	.250	.250	.000	.375	.000	.375	.000	.250	.000	.250	.000	.000	.000	.000	.350

Accurate Counts
978-664-2565

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy

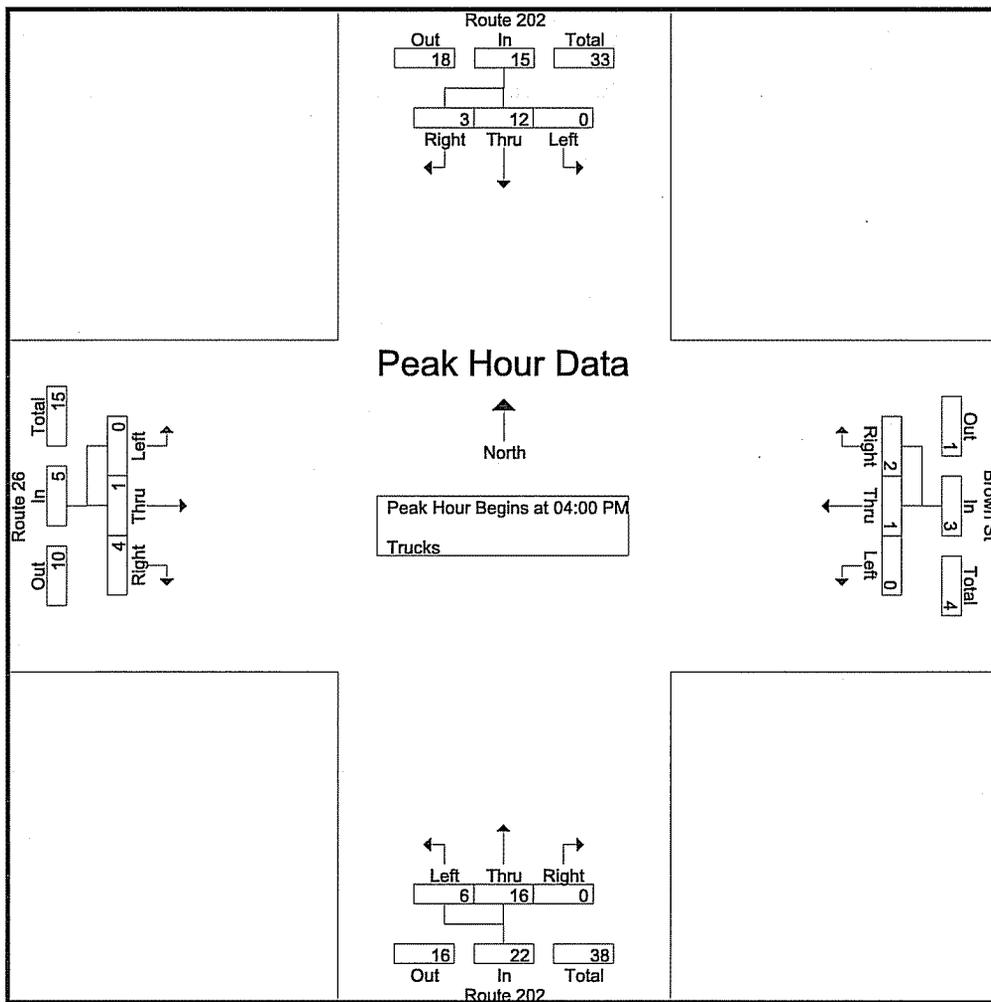
File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	4	1	5	0	0	1	1	2	3	0	5	0	0	1	1
+15 mins.	0	3	0	3	0	0	1	1	2	4	0	6	0	0	2	2
+30 mins.	0	3	2	5	0	1	0	1	1	8	0	9	0	1	1	2
+45 mins.	0	2	0	2	0	0	0	0	1	1	0	2	0	0	0	0
Total Volume	0	12	3	15	0	1	2	3	6	16	0	22	0	1	4	5
% App. Total	0	80	20		0	33.3	66.7		27.3	72.7	0		0	20	80	
PHF	.000	.750	.375	.750	.000	.250	.500	.750	.750	.500	.000	.611	.000	.250	.500	.625

Accurate Counts
978-664-2565

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

Groups Printed- Trucks

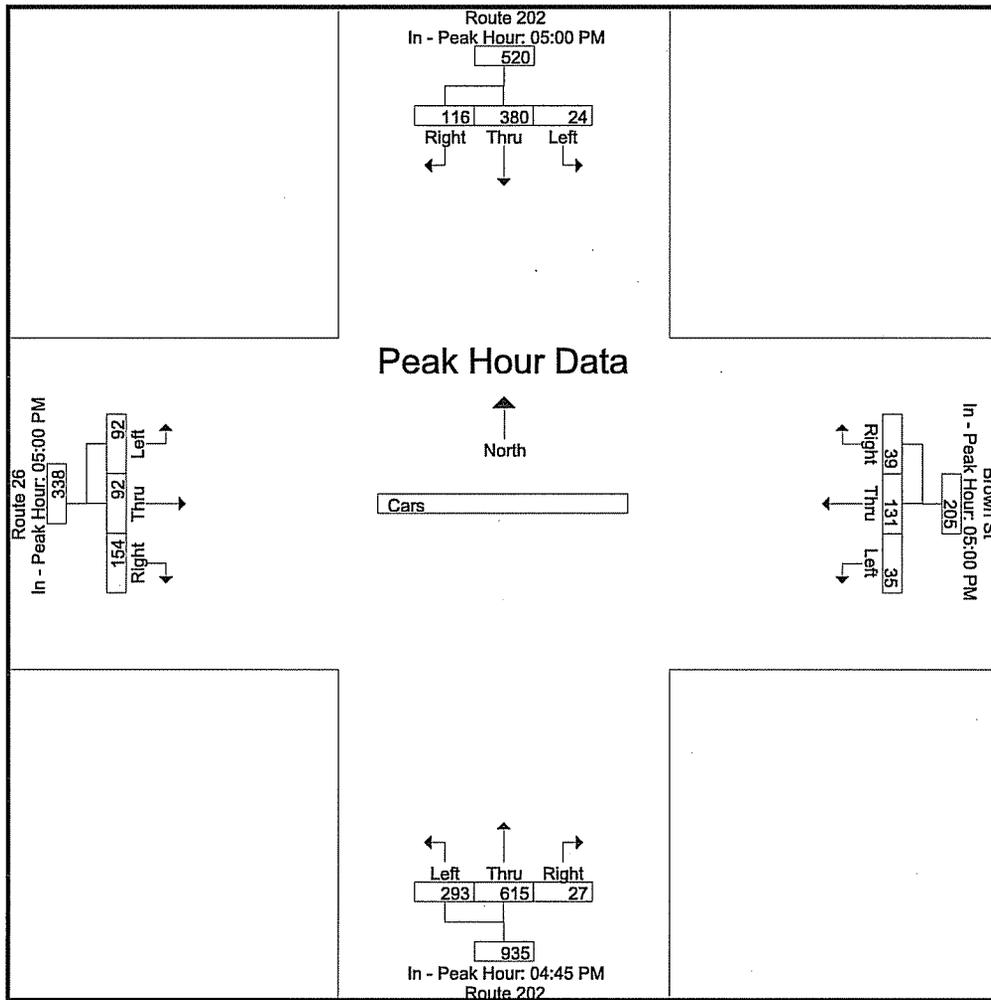
Start Time	Route 202 From North			Brown St From East			Route 202 From South			Route 26 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:00 PM	0	4	1	0	0	1	2	3	0	0	0	1	12
04:15 PM	0	3	0	0	0	1	2	4	0	0	0	2	12
04:30 PM	0	3	2	0	1	0	1	8	0	0	1	1	17
04:45 PM	0	2	0	0	0	0	1	1	0	0	0	0	4
Total	0	12	3	0	1	2	6	16	0	0	1	4	45
05:00 PM	0	3	0	0	0	0	1	1	0	0	0	0	5
05:15 PM	0	4	1	0	0	0	1	5	0	0	0	0	11
05:30 PM	0	2	0	0	1	0	1	4	0	1	0	1	10
05:45 PM	0	0	0	0	0	0	0	7	0	0	0	0	7
Total	0	9	1	0	1	0	3	17	0	1	0	1	33
Grand Total	0	21	4	0	2	2	9	33	0	1	1	5	78
Apprch %	0	84	16	0	50	50	21.4	78.6	0	14.3	14.3	71.4	
Total %	0	26.9	5.1	0	2.6	2.6	11.5	42.3	0	1.3	1.3	6.4	

Start Time	Route 202 From North				Brown St From East				Route 202 From South				Route 26 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	4	1	5	0	0	1	1	2	3	0	5	0	0	1	1	12
04:15 PM	0	3	0	3	0	0	1	1	2	4	0	6	0	0	2	2	12
04:30 PM	0	3	2	5	0	1	0	1	1	8	0	9	0	1	1	2	17
04:45 PM	0	2	0	2	0	0	0	0	1	1	0	2	0	0	0	0	4
Total Volume	0	12	3	15	0	1	2	3	6	16	0	22	0	1	4	5	45
% App. Total	0	80	20		0	33.3	66.7		27.3	72.7	0		0	20	80		
PHF	.000	.750	.375	.750	.000	.250	.500	.750	.750	.500	.000	.611	.000	.250	.500	.625	.662

Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
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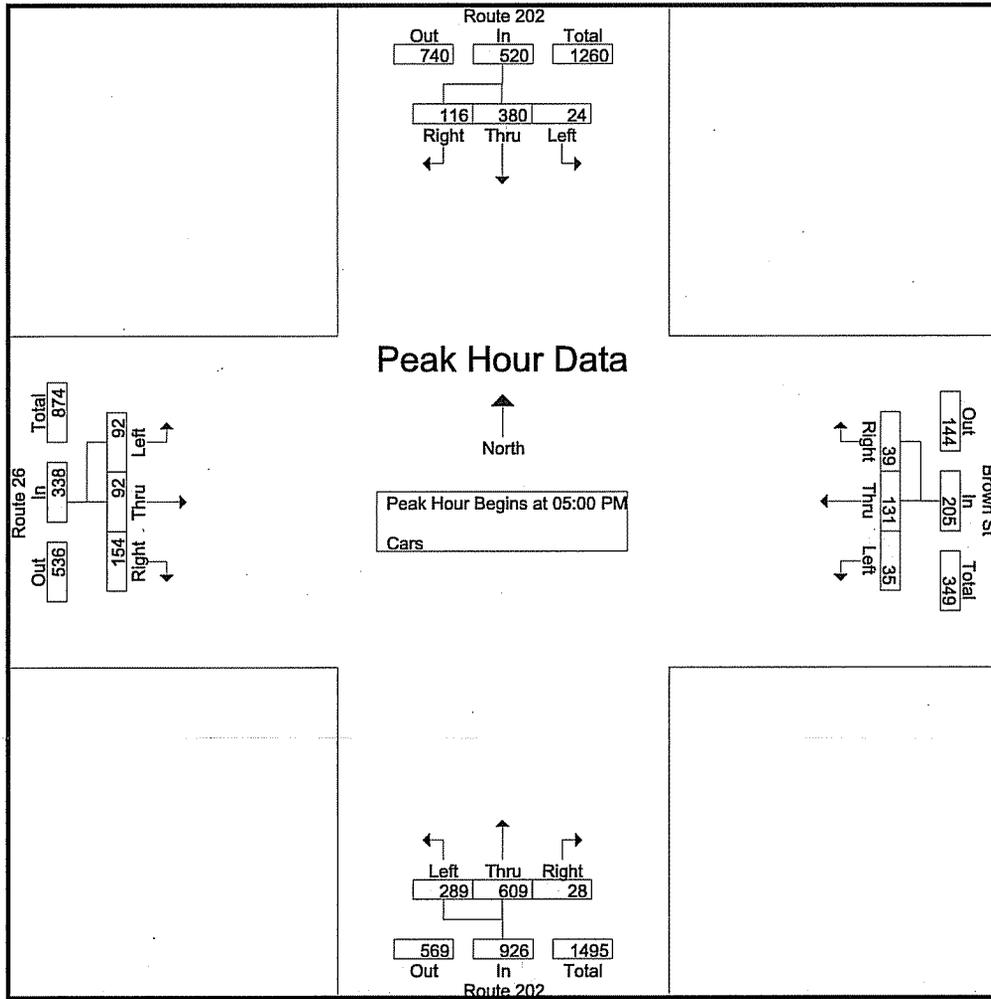
N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy



Accurate Counts
978-664-2565

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				04:45 PM				05:00 PM			
+0 mins.	8	102	26	136	8	32	8	48	76	154	7	237	22	23	46	91
+15 mins.	4	77	26	107	8	39	9	56	65	149	9	223	13	23	30	66
+30 mins.	5	102	26	133	9	29	12	50	75	170	4	249	30	25	42	97
+45 mins.	7	99	38	144	10	31	10	51	77	142	7	226	27	21	36	84
Total Volume	24	380	116	520	35	131	39	205	293	615	27	935	92	92	154	338
% App. Total	4.6	73.1	22.3		17.1	63.9	19		31.3	65.8	2.9		27.2	27.2	45.6	
PHF	.750	.931	.763	.903	.875	.840	.813	.915	.951	.904	.750	.939	.767	.920	.837	.871

Accurate Counts
978-664-2565

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

Groups Printed- Cars

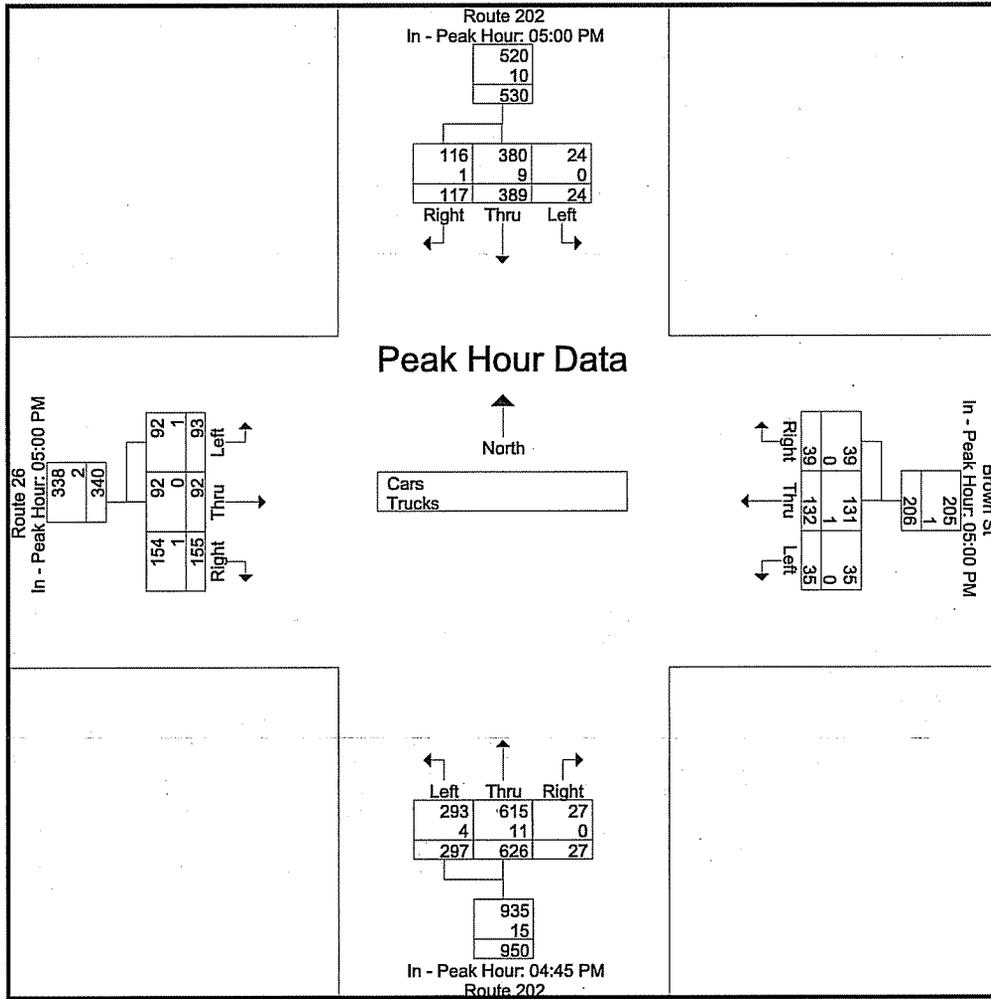
Start Time	Route 202 From North			Brown St From East			Route 202 From South			Route 26 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:00 PM	10	107	23	7	31	8	66	150	4	19	21	41	487
04:15 PM	2	60	22	7	29	11	58	119	4	13	14	41	380
04:30 PM	5	89	14	14	25	9	59	128	5	22	19	33	422
04:45 PM	7	78	23	9	28	5	76	154	7	11	15	36	449
Total	24	334	82	37	113	33	259	551	20	65	69	151	1738
05:00 PM	8	102	26	8	32	8	65	149	9	22	23	46	498
05:15 PM	4	77	26	8	39	9	75	170	4	13	23	30	478
05:30 PM	5	102	26	9	29	12	77	142	7	30	25	42	506
05:45 PM	7	99	38	10	31	10	72	148	8	27	21	36	507
Total	24	380	116	35	131	39	289	609	28	92	92	154	1989
Grand Total	48	714	198	72	244	72	548	1160	48	157	161	305	3727
Apprch %	5	74.4	20.6	18.6	62.9	18.6	31.2	66.1	2.7	25.2	25.8	49	
Total %	1.3	19.2	5.3	1.9	6.5	1.9	14.7	31.1	1.3	4.2	4.3	8.2	

Start Time	Route 202 From North				Brown St From East				Route 202 From South				Route 26 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	8	102	26	136	8	32	8	48	65	149	9	223	22	23	46	91	498
05:15 PM	4	77	26	107	8	39	9	56	75	170	4	249	13	23	30	66	478
05:30 PM	5	102	26	133	9	29	12	50	77	142	7	226	30	25	42	97	506
05:45 PM	7	99	38	144	10	31	10	51	72	148	8	228	27	21	36	84	507
Total Volume	24	380	116	520	35	131	39	205	289	609	28	926	92	92	154	338	1989
% App. Total	4.6	73.1	22.3		17.1	63.9	19		31.2	65.8	3		27.2	27.2	45.6		
PHF	.750	.931	.763	.903	.875	.840	.813	.915	.938	.896	.778	.930	.767	.920	.837	.871	.981

Accurate Counts
978-664-2565

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy

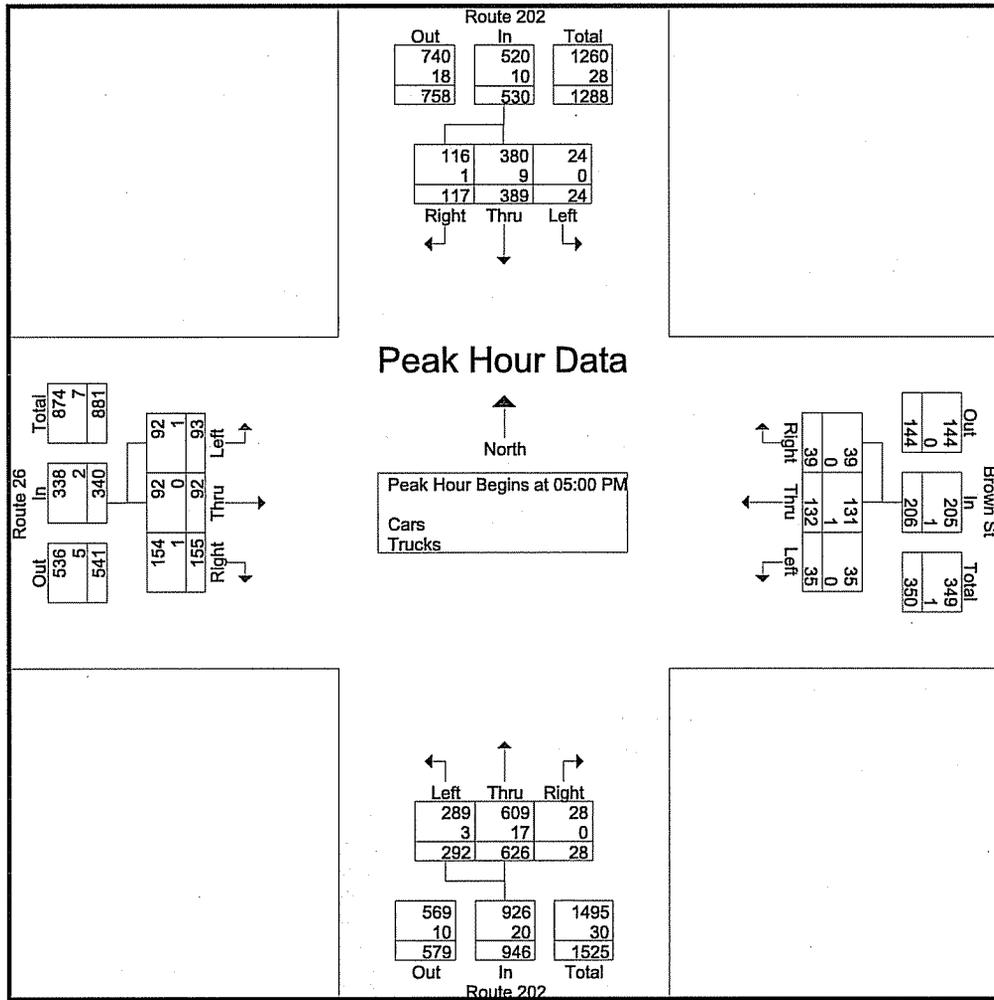
File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
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Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				04:45 PM				05:00 PM			
+0 mins.	8	105	26	139	8	32	8	48	77	155	7	239	22	23	46	91
+15 mins.	4	81	27	112	8	39	9	56	66	150	9	225	13	23	30	66
+30 mins.	5	104	26	135	9	30	12	51	76	175	4	255	31	25	43	99
+45 mins.	7	99	38	144	10	31	10	51	78	146	7	231	27	21	36	84
Total Volume	24	389	117	530	35	132	39	206	297	626	27	950	93	92	155	340
% App. Total	4.5	73.4	22.1		17	64.1	18.9		31.3	65.9	2.8		27.4	27.1	45.6	
PHF	.750	.926	.770	.920	.875	.846	.813	.920	.952	.894	.750	.931	.750	.920	.842	.859
Cars	24	380	116	520	35	131	39	205	293	615	27	935	92	92	154	338
% Cars	100	97.7	99.1	98.1	100	99.2	100	99.5	98.7	98.2	100	98.4	98.9	100	99.4	99.4
Trucks	0	9	1	10	0	1	0	1	4	11	0	15	1	0	1	2
% Trucks	0	2.3	0.9	1.9	0	0.8	0	0.5	1.3	1.8	0	1.6	1.1	0	0.6	0.6

Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy

Groups Printed- Cars - Trucks

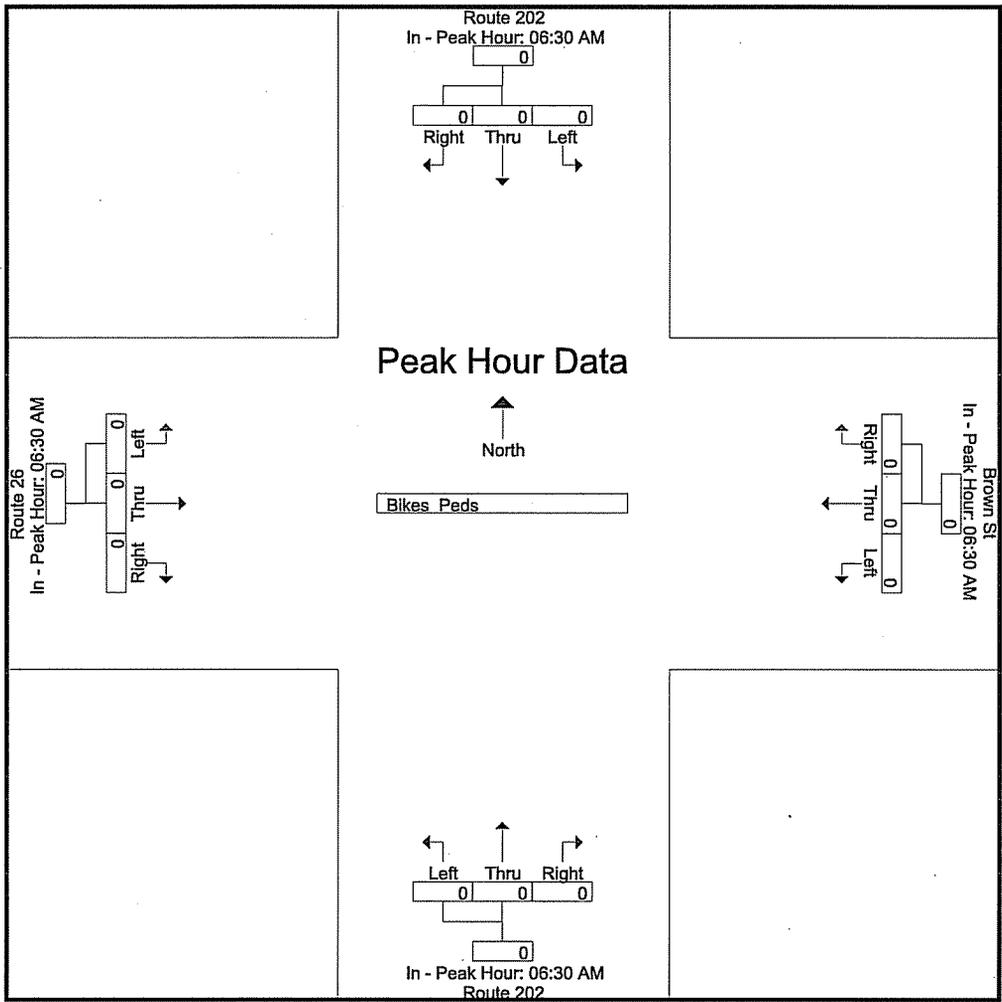
Start Time	Route 202 From North			Brown St From East			Route 202 From South			Route 26 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:00 PM	10	111	24	7	31	9	68	153	4	19	21	42	499
04:15 PM	2	63	22	7	29	12	60	123	4	13	14	43	392
04:30 PM	5	92	16	14	26	9	60	136	5	22	20	34	439
04:45 PM	7	80	23	9	28	5	77	155	7	11	15	36	453
Total	24	346	85	37	114	35	265	567	20	65	70	155	1783
05:00 PM	8	105	26	8	32	8	66	150	9	22	23	46	503
05:15 PM	4	81	27	8	39	9	76	175	4	13	23	30	489
05:30 PM	5	104	26	9	30	12	78	146	7	31	25	43	516
05:45 PM	7	99	38	10	31	10	72	155	8	27	21	36	514
Total	24	389	117	35	132	39	292	626	28	93	92	155	2022
Grand Total	48	735	202	72	246	74	557	1193	48	158	162	310	3805
Apprch %	4.9	74.6	20.5	18.4	62.8	18.9	31	66.4	2.7	25.1	25.7	49.2	
Total %	1.3	19.3	5.3	1.9	6.5	1.9	14.6	31.4	1.3	4.2	4.3	8.1	
Cars	48	714	198	72	244	72	548	1160	48	157	161	305	3727
% Cars	100	97.1	98	100	99.2	97.3	98.4	97.2	100	99.4	99.4	98.4	98
Trucks	0	21	4	0	2	2	9	33	0	1	1	5	78
% Trucks	0	2.9	2	0	0.8	2.7	1.6	2.8	0	0.6	0.6	1.6	2

Start Time	Route 202 From North				Brown St From East				Route 202 From South				Route 26 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	8	105	26	139	8	32	8	48	66	150	9	225	22	23	46	91	503
05:15 PM	4	81	27	112	8	39	9	56	76	175	4	255	13	23	30	66	489
05:30 PM	5	104	26	135	9	30	12	51	78	146	7	231	31	25	43	99	516
05:45 PM	7	99	38	144	10	31	10	51	72	155	8	235	27	21	36	84	514
Total Volume	24	389	117	530	35	132	39	206	292	626	28	946	93	92	155	340	2022
% App. Total	4.5	73.4	22.1		17	64.1	18.9		30.9	66.2	3		27.4	27.1	45.6		
PHF	.750	.926	.770	.920	.875	.846	.813	.920	.936	.894	.778	.927	.750	.920	.842	.859	.980
Cars	24	380	116	520	35	131	39	205	289	609	28	926	92	92	154	338	1989
% Cars	100	97.7	99.1	98.1	100	99.2	100	99.5	99.0	97.3	100	97.9	98.9	100	99.4	99.4	98.4
Trucks	0	9	1	10	0	1	0	1	3	17	0	20	1	0	1	2	33
% Trucks	0	2.3	0.9	1.9	0	0.8	0	0.5	1.0	2.7	0	2.1	1.1	0	0.6	0.6	1.6

Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3

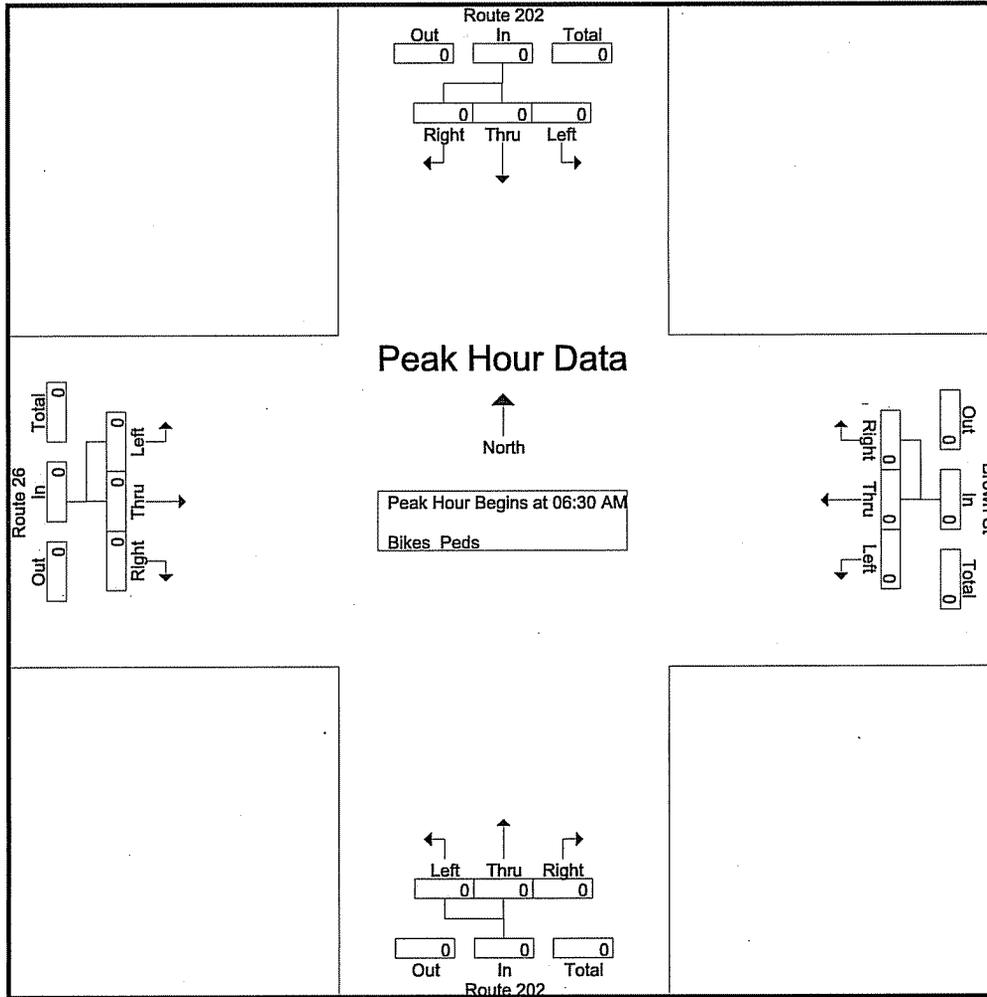
N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy



Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy



Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	06:30 AM				06:30 AM				06:30 AM				06:30 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts

978-664-2565

N/S Street : Route 202
 E/W Street : Brown Street / Route 26
 City/State : Gray, ME
 Weather : Cloudy

File Name : 5222800
 Site Code : 5222800
 Start Date : 9/6/2012
 Page No : 1

Groups Printed- Bikes Peds

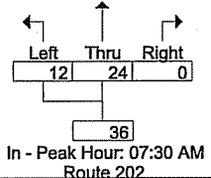
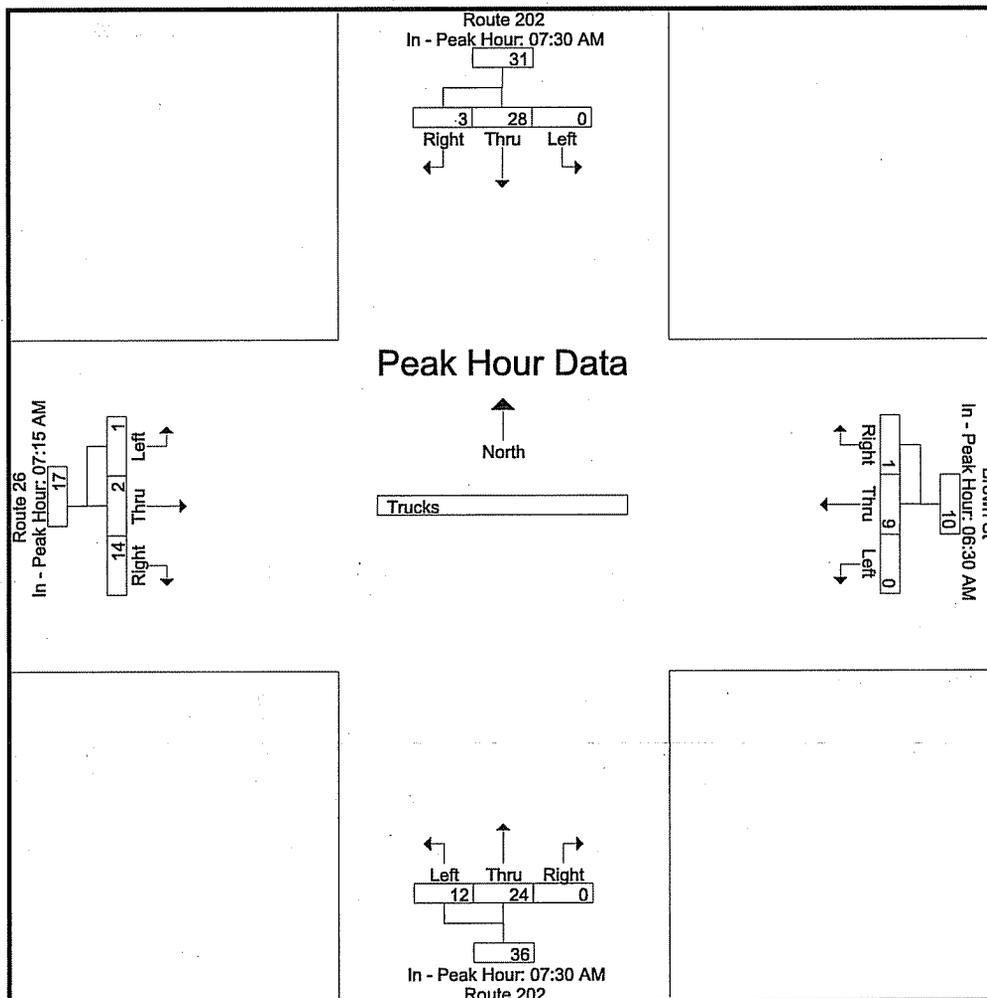
Start Time	Route 202 From North				Brown St From East				Route 202 From South				Route 26 From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
08:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
Grand Total	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	3	0	3
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0				
Total %																	100	0	

Start Time	Route 202 From North				Brown St From East				Route 202 From South				Route 26 From West				Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 06:30 AM																		
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0			
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy

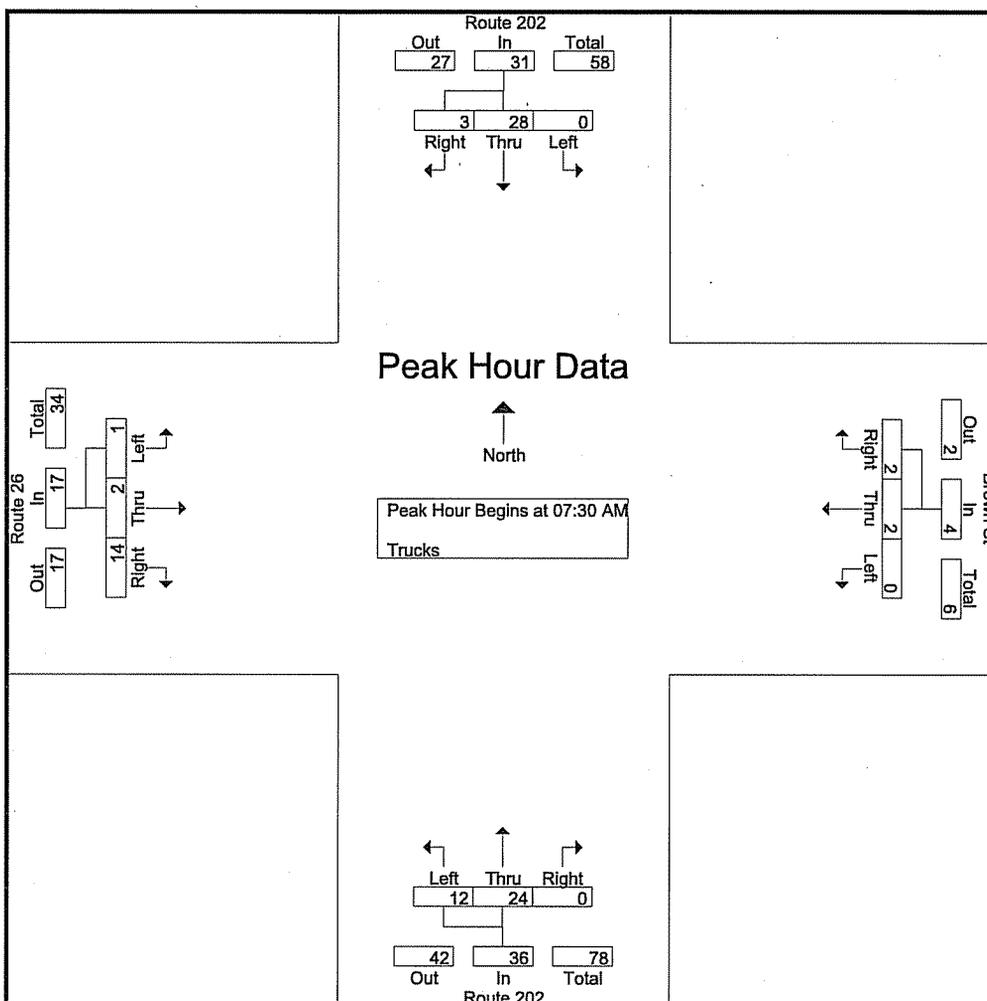
File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3



Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy



Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM				06:30 AM				07:30 AM				07:15 AM			
+0 mins.	0	5	0	5	0	4	0	4	3	6	0	9	0	0	1	1
+15 mins.	0	5	1	6	0	1	0	1	4	7	0	11	0	1	7	8
+30 mins.	0	9	0	9	0	2	1	3	3	3	0	6	1	1	4	6
+45 mins.	0	9	2	11	0	2	0	2	2	8	0	10	0	0	2	2
Total Volume	0	28	3	31	0	9	1	10	12	24	0	36	1	2	14	17
% App. Total	0	90.3	9.7		0	90	10		33.3	66.7	0		5.9	11.8	82.4	
PHF	.000	.778	.375	.705	.000	.563	.250	.625	.750	.750	.000	.818	.250	.500	.500	.531

Accurate Counts
978-664-2565

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

Groups Printed- Trucks

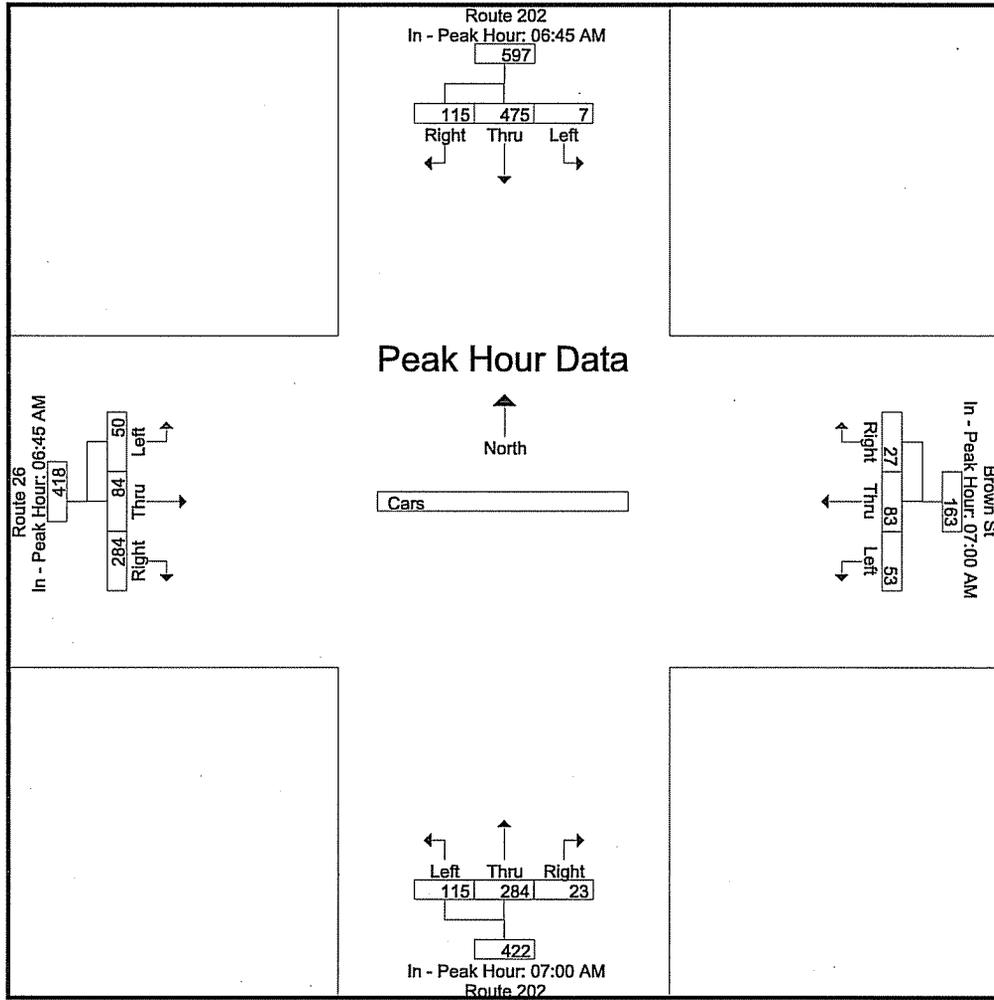
Start Time	Route 202 From North			Brown St From East			Route 202 From South			Route 26 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:30 AM	0	3	0	0	4	0	0	3	0	0	1	1	12
06:45 AM	0	5	0	0	1	0	0	7	0	0	1	5	19
Total	0	8	0	0	5	0	0	10	0	0	2	6	31
07:00 AM	0	4	4	0	2	1	2	6	0	0	0	1	20
07:15 AM	0	5	2	0	2	0	0	7	0	0	0	1	17
07:30 AM	0	5	0	0	0	0	3	6	0	0	1	7	22
07:45 AM	0	5	1	0	0	1	4	7	0	1	1	4	24
Total	0	19	7	0	4	2	9	26	0	1	2	13	83
08:00 AM	0	9	0	0	1	0	3	3	0	0	0	2	18
08:15 AM	0	9	2	0	1	1	2	8	0	0	0	1	24
Grand Total	0	45	9	0	11	3	14	47	0	1	4	22	156
Apprch %	0	83.3	16.7	0	78.6	21.4	23	77	0	3.7	14.8	81.5	
Total %	0	28.8	5.8	0	7.1	1.9	9	30.1	0	0.6	2.6	14.1	

Start Time	Route 202 From North				Brown St From East				Route 202 From South				Route 26 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	5	0	5	0	0	0	0	3	6	0	9	0	1	7	8	22
07:45 AM	0	5	1	6	0	0	1	1	4	7	0	11	1	1	4	6	24
08:00 AM	0	9	0	9	0	1	0	1	3	3	0	6	0	0	2	2	18
08:15 AM	0	9	2	11	0	1	1	2	2	8	0	10	0	0	1	1	24
Total Volume	0	28	3	31	0	2	2	4	12	24	0	36	1	2	14	17	88
% App. Total	0	90.3	9.7		0	50	50		33.3	66.7	0		5.9	11.8	82.4		
PHF	.000	.778	.375	.705	.000	.500	.500	.500	.750	.750	.000	.818	.250	.500	.500	.531	.917

Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3

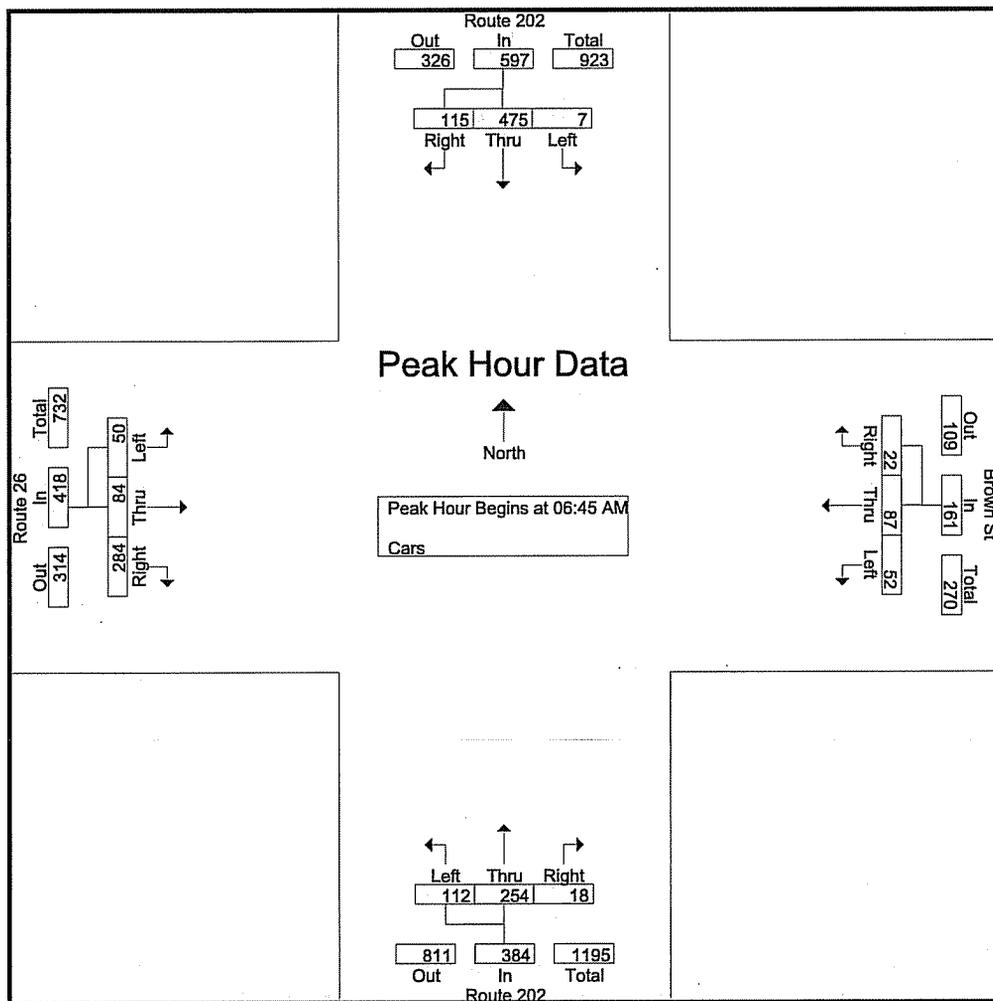
N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy



Accurate Counts
978-664-2565

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2



Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	06:45 AM				07:00 AM				07:00 AM				06:45 AM			
+0 mins.	1	117	29	147	17	27	6	50	36	73	4	113	10	21	57	88
+15 mins.	3	104	50	157	14	20	3	37	25	63	6	94	7	13	65	85
+30 mins.	2	134	22	158	12	20	10	42	21	75	4	100	21	29	72	122
+45 mins.	1	120	14	135	10	16	8	34	33	73	9	115	12	21	90	123
Total Volume	7	475	115	597	53	83	27	163	115	284	23	422	50	84	284	418
% App. Total	1.2	79.6	19.3		32.5	50.9	16.6		27.3	67.3	5.5		12	20.1	67.9	
PHF	.583	.886	.575	.945	.779	.769	.675	.815	.799	.947	.639	.917	.595	.724	.789	.850

Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy

Groups Printed- Cars

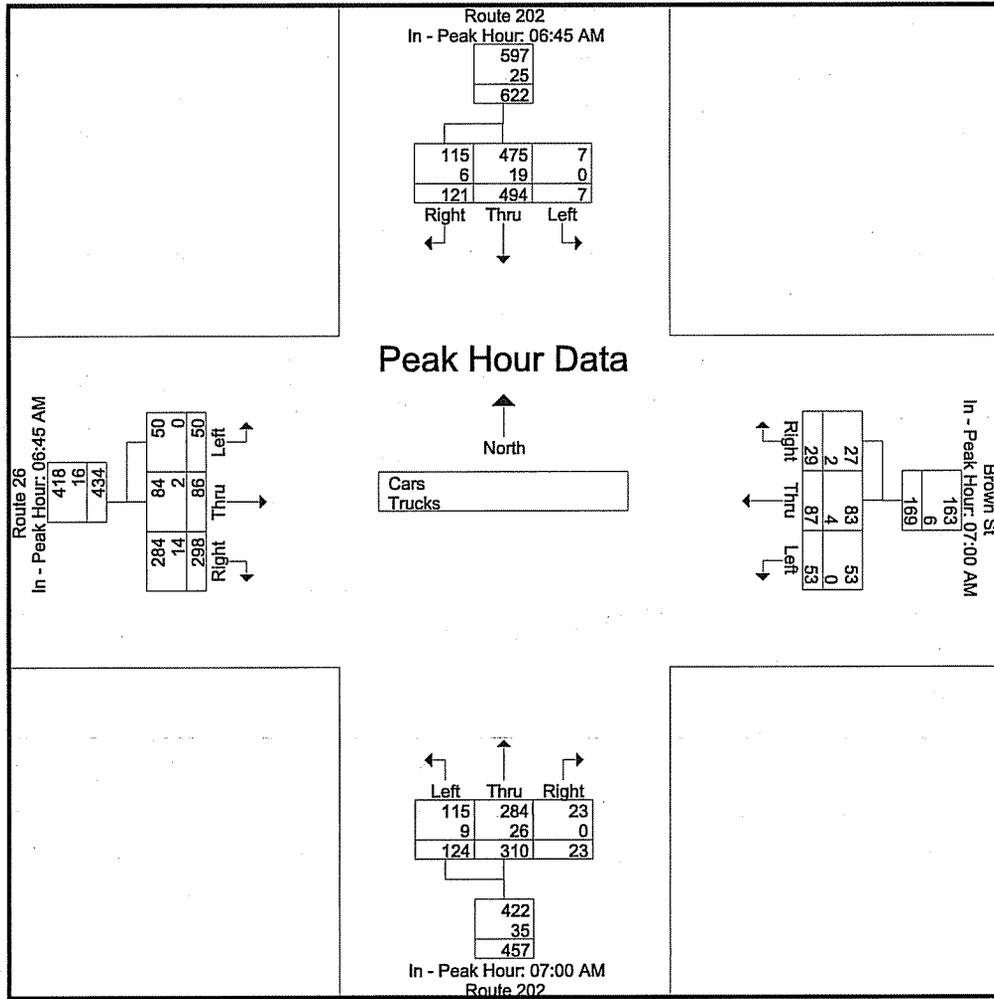
Start Time	Route 202 From North			Brown St From East			Route 202 From South			Route 26 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:30 AM	2	104	4	11	13	5	17	43	3	9	19	66	296
06:45 AM	1	117	29	9	20	3	30	43	4	10	21	57	344
Total	3	221	33	20	33	8	47	86	7	19	40	123	640
07:00 AM	3	104	50	17	27	6	36	73	4	7	13	65	405
07:15 AM	2	134	22	14	20	3	25	63	6	21	29	72	411
07:30 AM	1	120	14	12	20	10	21	75	4	12	21	90	400
07:45 AM	2	98	11	10	16	8	33	73	9	11	16	51	338
Total	8	456	97	53	83	27	115	284	23	51	79	278	1554
08:00 AM	1	72	20	10	14	6	31	56	4	17	25	50	306
08:15 AM	1	72	19	9	24	9	35	51	4	10	11	45	290
Grand Total	13	821	169	92	154	50	228	477	38	97	155	496	2790
Apprch %	1.3	81.9	16.8	31.1	52	16.9	30.7	64.2	5.1	13	20.7	66.3	
Total %	0.5	29.4	6.1	3.3	5.5	1.8	8.2	17.1	1.4	3.5	5.6	17.8	

Start Time	Route 202 From North				Brown St From East				Route 202 From South				Route 26 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:45 AM																	
06:45 AM	1	117	29	147	9	20	3	32	30	43	4	77	10	21	57	88	344
07:00 AM	3	104	50	157	17	27	6	50	36	73	4	113	7	13	65	85	405
07:15 AM	2	134	22	158	14	20	3	37	25	63	6	94	21	29	72	122	411
07:30 AM	1	120	14	135	12	20	10	42	21	75	4	100	12	21	90	123	400
Total Volume	7	475	115	597	52	87	22	161	112	254	18	384	50	84	284	418	1560
% App. Total	1.2	79.6	19.3		32.3	54	13.7		29.2	66.1	4.7		12	20.1	67.9		
PHF	.583	.886	.575	.945	.765	.806	.550	.805	.778	.847	.750	.850	.595	.724	.789	.850	.949

Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3

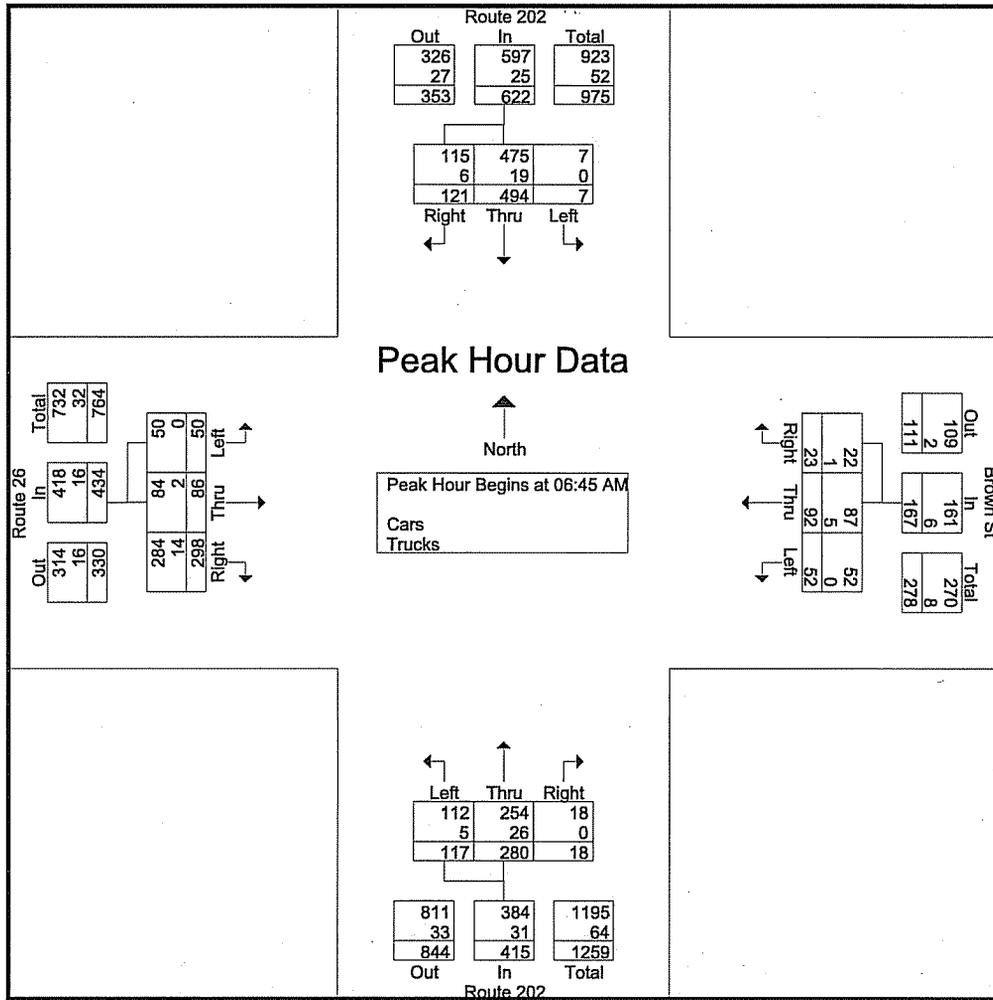
N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy



Accurate Counts
978-664-2565

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2



Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	06:45 AM				07:00 AM				07:00 AM				06:45 AM			
+0 mins.	1	122	29	152	17	29	7	53	38	79	4	121	10	22	62	94
+15 mins.	3	108	54	165	14	22	3	39	25	70	6	101	7	13	66	86
+30 mins.	2	139	24	165	12	20	10	42	24	81	4	109	21	29	73	123
+45 mins.	1	125	14	140	10	16	9	35	37	80	9	126	12	22	97	131
Total Volume	7	494	121	622	53	87	29	169	124	310	23	457	50	86	298	434
% App. Total	1.1	79.4	19.5		31.4	51.5	17.2		27.1	67.8	5		11.5	19.8	68.7	
PHF	.583	.888	.560	.942	.779	.750	.725	.797	.816	.957	.639	.907	.595	.741	.768	.828
Cars	7	475	115	597	53	83	27	163	115	284	23	422	50	84	284	418
% Cars	100	96.2	95	96	100	95.4	93.1	96.4	92.7	91.6	100	92.3	100	97.7	95.3	96.3
Trucks	0	19	6	25	0	4	2	6	9	26	0	35	0	2	14	16
% Trucks	0	3.8	5	4	0	4.6	6.9	3.6	7.3	8.4	0	7.7	0	2.3	4.7	3.7

Accurate Counts
978-664-2565

N/S Street : Route 202
E/W Street : Brown Street / Route 26
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

Groups Printed- Cars - Trucks

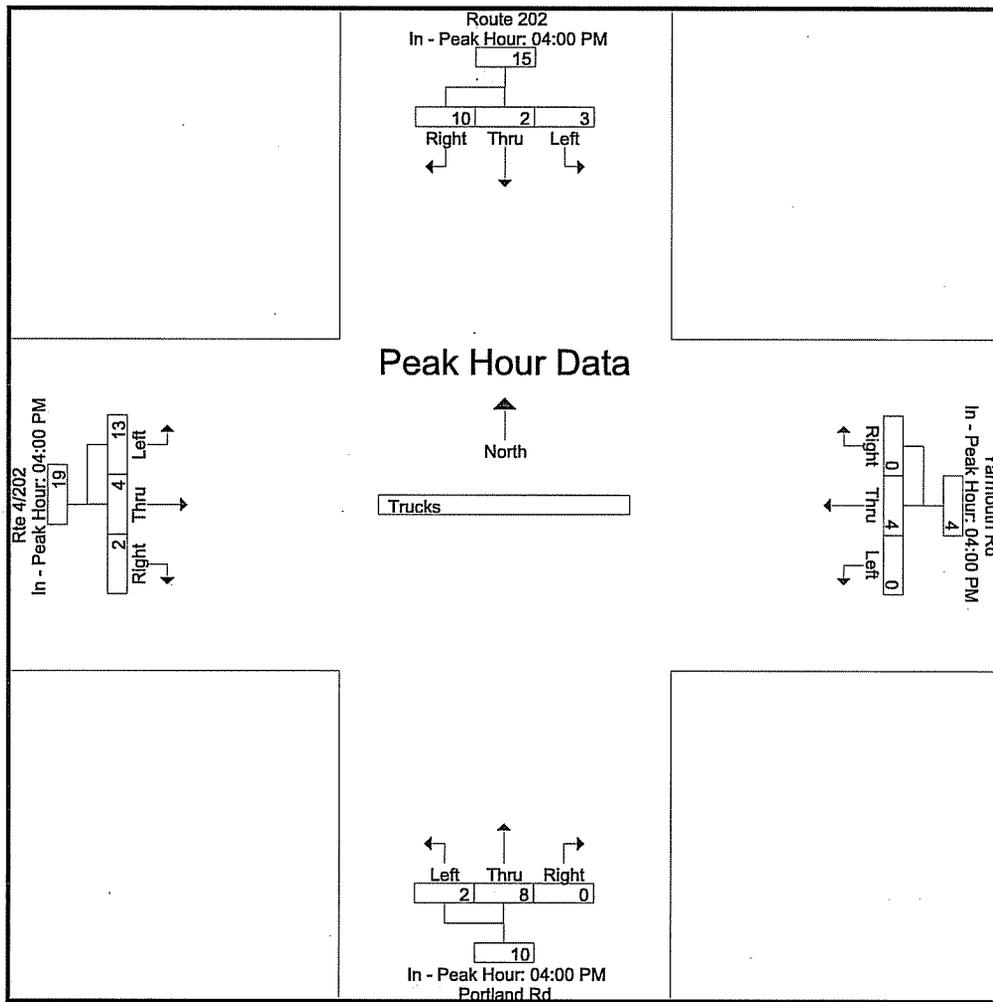
Start Time	Route 202 From North			Brown St From East			Route 202 From South			Route 26 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:30 AM	2	107	4	11	17	5	17	46	3	9	20	67	308
06:45 AM	1	122	29	9	21	3	30	50	4	10	22	62	363
Total	3	229	33	20	38	8	47	96	7	19	42	129	671
07:00 AM	3	108	54	17	29	7	38	79	4	7	13	66	425
07:15 AM	2	139	24	14	22	3	25	70	6	21	29	73	428
07:30 AM	1	125	14	12	20	10	24	81	4	12	22	97	422
07:45 AM	2	103	12	10	16	9	37	80	9	12	17	55	362
Total	8	475	104	53	87	29	124	310	23	52	81	291	1637
08:00 AM	1	81	20	10	15	6	34	59	4	17	25	52	324
08:15 AM	1	81	21	9	25	10	37	59	4	10	11	46	314
Grand Total	13	866	178	92	165	53	242	524	38	98	159	518	2946
Apprch %	1.2	81.9	16.8	29.7	53.2	17.1	30.1	65.2	4.7	12.6	20.5	66.8	
Total %	0.4	29.4	6	3.1	5.6	1.8	8.2	17.8	1.3	3.3	5.4	17.6	
Cars	13	821	169	92	154	50	228	477	38	97	155	496	2790
% Cars	100	94.8	94.9	100	93.3	94.3	94.2	91	100	99	97.5	95.8	94.7
Trucks	0	45	9	0	11	3	14	47	0	1	4	22	156
% Trucks	0	5.2	5.1	0	6.7	5.7	5.8	9	0	1	2.5	4.2	5.3

Start Time	Route 202 From North				Brown St From East				Route 202 From South				Route 26 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:45 AM																	
06:45 AM	1	122	29	152	9	21	3	33	30	50	4	84	10	22	62	94	363
07:00 AM	3	108	54	165	17	29	7	53	38	79	4	121	7	13	66	86	425
07:15 AM	2	139	24	165	14	22	3	39	25	70	6	101	21	29	73	123	428
07:30 AM	1	125	14	140	12	20	10	42	24	81	4	109	12	22	97	131	422
Total Volume	7	494	121	622	52	92	23	167	117	280	18	415	50	86	298	434	1638
% App. Total	1.1	79.4	19.5		31.1	55.1	13.8		28.2	67.5	4.3		11.5	19.8	68.7		
PHF	.583	.888	.560	.942	.765	.793	.575	.788	.770	.864	.750	.857	.595	.741	.768	.828	.957
Cars	7	475	115	597	52	87	22	161	112	254	18	384	50	84	284	418	1560
% Cars	100	96.2	95.0	96.0	100	94.6	95.7	96.4	95.7	90.7	100	92.5	100	97.7	95.3	96.3	95.2
Trucks	0	19	6	25	0	5	1	6	5	26	0	31	0	2	14	16	78
% Trucks	0	3.8	5.0	4.0	0	5.4	4.3	3.6	4.3	9.3	0	7.5	0	2.3	4.7	3.7	4.8

Accurate Counts
978-664-2565

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy

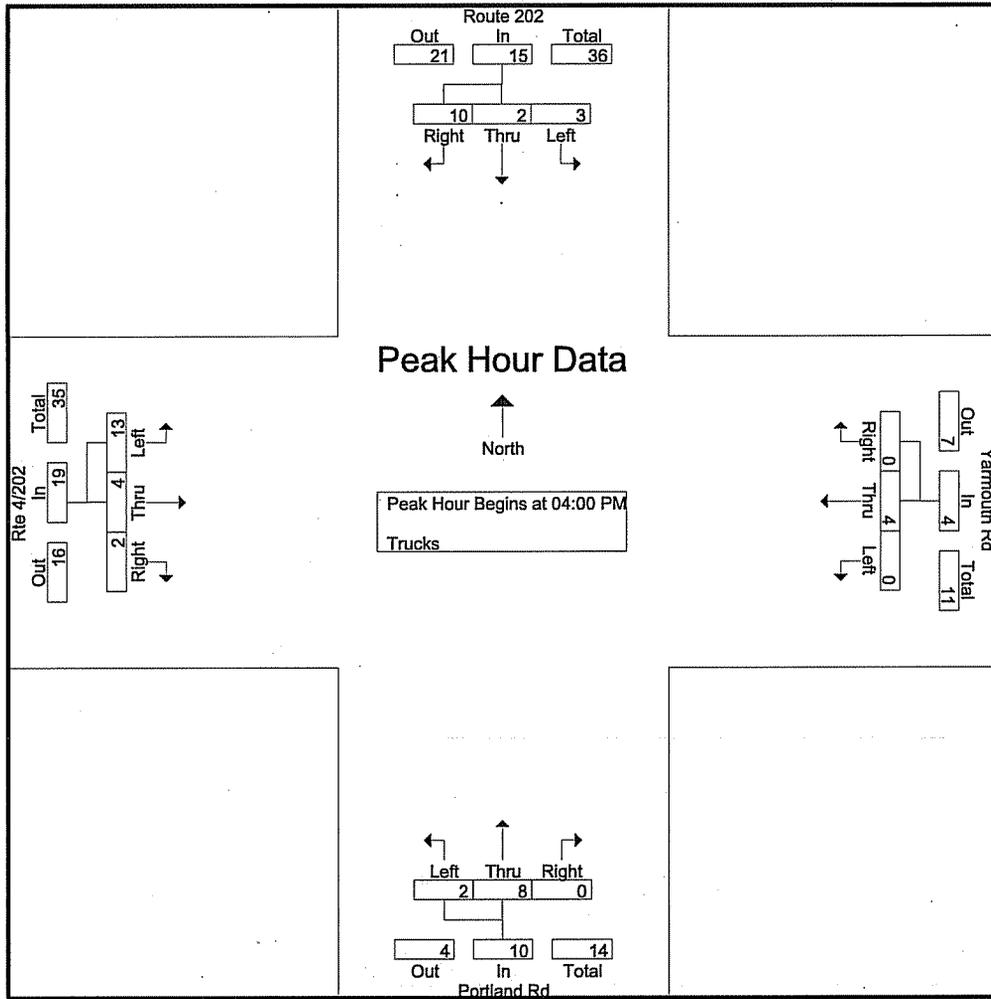
File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	2	0	2	4	0	3	0	3	1	2	0	3	3	2	0	5
+15 mins.	0	1	4	5	0	0	0	0	1	1	0	2	4	1	2	7
+30 mins.	1	1	2	4	0	1	0	1	0	5	0	5	5	1	0	6
+45 mins.	0	0	2	2	0	0	0	0	0	0	0	0	1	0	0	1
Total Volume	3	2	10	15	0	4	0	4	2	8	0	10	13	4	2	19
% App. Total	20	13.3	66.7		0	100	0		20	80	0		68.4	21.1	10.5	
PHF	.375	.500	.625	.750	.000	.333	.000	.333	.500	.400	.000	.500	.650	.500	.250	.679

Accurate Counts

978-664-2565

N/S Street : Route 202 / Portland Rd
 E/W Street : Yarmouth Rd / Route 4/202
 City/State : Gray, ME
 Weather : Cloudy

File Name : 5222800
 Site Code : 5222800
 Start Date : 9/6/2012
 Page No : 1

Groups Printed- Trucks

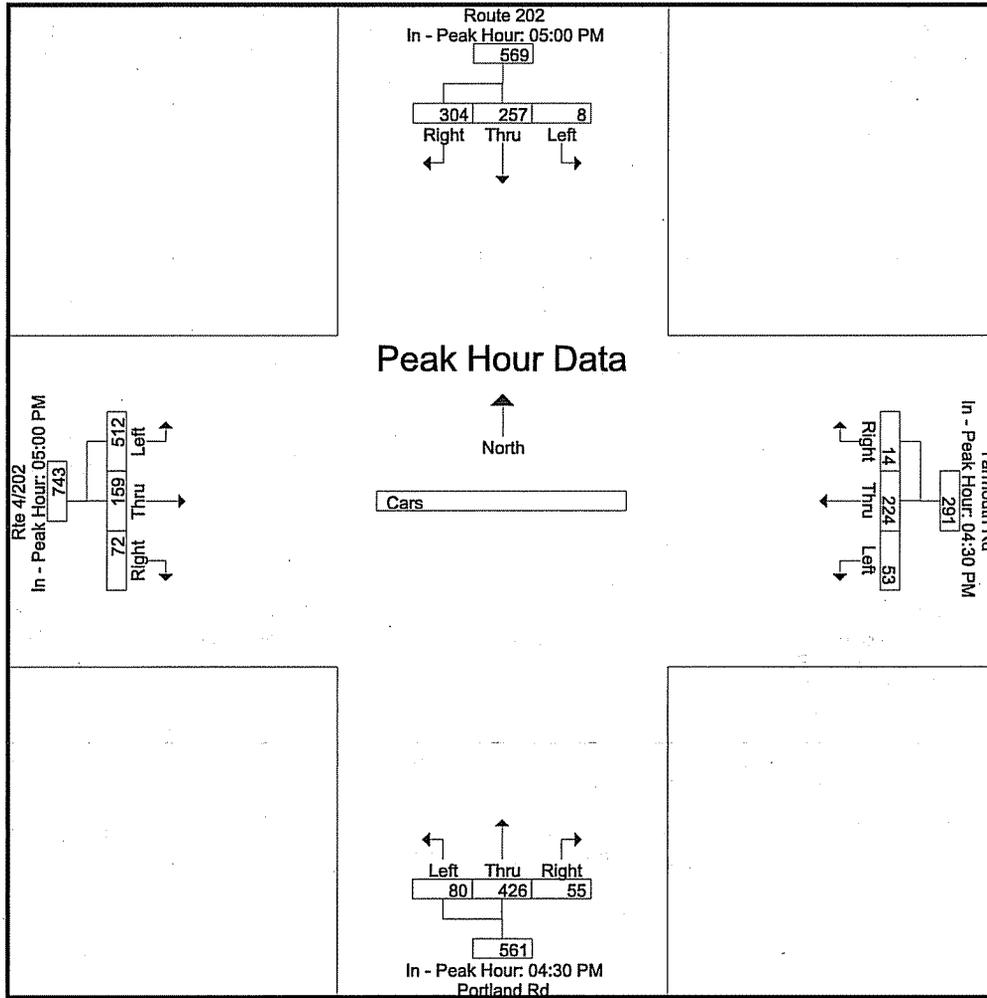
Start Time	Route 202 From North			Yarmouth Rd From East			Portland Rd From South			Rte 4/202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:00 PM	2	0	2	0	3	0	1	2	0	3	2	0	15
04:15 PM	0	1	4	0	0	0	1	1	0	4	1	2	14
04:30 PM	1	1	2	0	1	0	0	5	0	5	1	0	16
04:45 PM	0	0	2	0	0	0	0	0	0	1	0	0	3
Total	3	2	10	0	4	0	2	8	0	13	4	2	48
05:00 PM	0	0	3	1	0	0	1	1	0	1	0	0	7
05:15 PM	0	1	3	0	0	0	1	1	0	3	0	0	9
05:30 PM	0	1	2	0	0	0	0	1	0	3	0	0	7
05:45 PM	0	0	0	0	0	0	0	0	0	8	1	0	9
Total	0	2	8	1	0	0	2	3	0	15	1	0	32
Grand Total	3	4	18	1	4	0	4	11	0	28	5	2	80
Apprch %	12	16	72	20	80	0	26.7	73.3	0	80	14.3	5.7	
Total %	3.8	5	22.5	1.2	5	0	5	13.8	0	35	6.2	2.5	

Start Time	Route 202 From North				Yarmouth Rd From East				Portland Rd From South				Rte 4/202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	2	0	2	4	0	3	0	3	1	2	0	3	3	2	0	5	15
04:15 PM	0	1	4	5	0	0	0	0	1	1	0	2	4	1	2	7	14
04:30 PM	1	1	2	4	0	1	0	1	0	5	0	5	5	1	0	6	16
04:45 PM	0	0	2	2	0	0	0	0	0	0	0	0	1	0	0	1	3
Total Volume	3	2	10	15	0	4	0	4	2	8	0	10	13	4	2	19	48
% App. Total	20	13.3	66.7		0	100	0		20	80	0		68.4	21.1	10.5		
PHF	.375	.500	.625	.750	.000	.333	.000	.333	.500	.400	.000	.500	.650	.500	.250	.679	.750

Accurate Counts
978-664-2565

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy

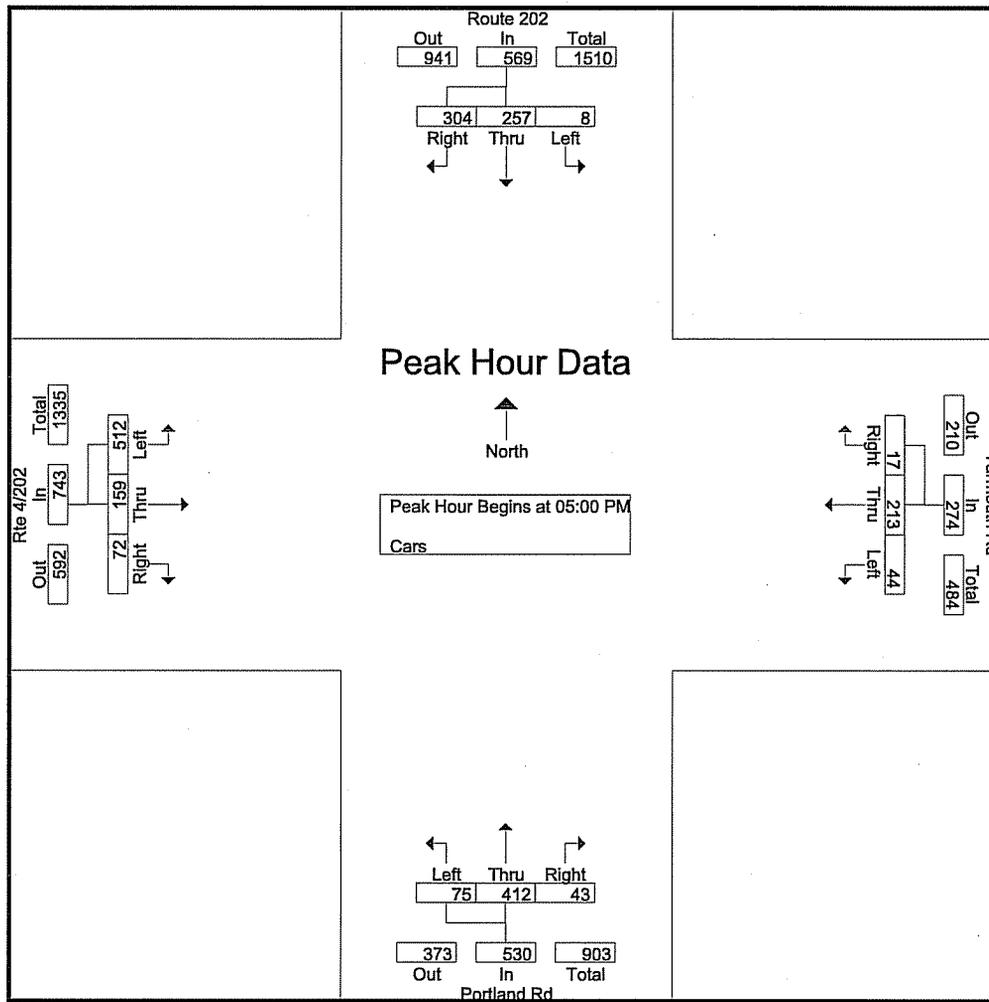
File Name : 5222800-
Site Code : 5222800-
Start Date : 9/6/2012
Page No : 3



Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				04:30 PM				04:30 PM				05:00 PM			
+0 mins.	3	73	80	156	15	59	3	77	16	98	15	129	126	40	17	183
+15 mins.	2	48	57	107	11	51	1	63	27	107	15	149	118	31	18	167
+30 mins.	1	72	87	160	17	68	6	91	19	94	8	121	140	40	18	198
+45 mins.	2	64	80	146	10	46	4	60	18	127	17	162	128	48	19	195
Total Volume	8	257	304	569	53	224	14	291	80	426	55	561	512	159	72	743
% App. Total	1.4	45.2	53.4		18.2	77	4.8		14.3	75.9	9.8		68.9	21.4	9.7	
PHF	.667	.880	.874	.889	.779	.824	.583	.799	.741	.839	.809	.866	.914	.828	.947	.938

Accurate Counts
978-664-2565

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

Groups Printed- Cars

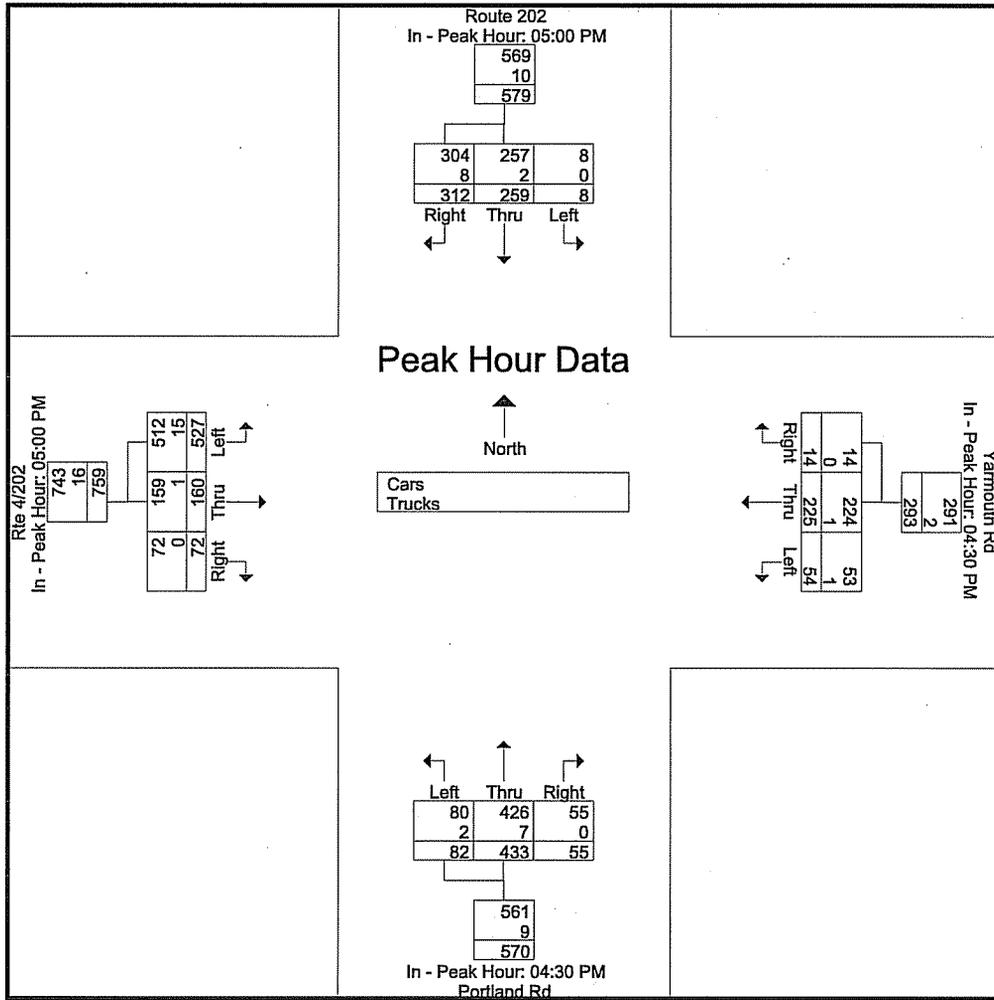
Start Time	Route 202 From North			Yarmouth Rd From East			Portland Rd From South			Rte 4/202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:00 PM	4	58	75	14	37	1	20	92	9	104	26	18	458
04:15 PM	2	60	47	12	31	2	21	85	14	90	21	15	400
04:30 PM	1	45	77	15	59	3	16	98	15	94	35	21	479
04:45 PM	3	61	61	11	51	1	27	107	15	131	39	12	519
Total	10	224	260	52	178	7	84	382	53	419	121	66	1856
05:00 PM	3	73	80	17	68	6	19	94	8	126	40	17	551
05:15 PM	2	48	57	10	46	4	18	127	17	118	31	18	496
05:30 PM	1	72	87	9	48	6	15	90	11	140	40	18	537
05:45 PM	2	64	80	8	51	1	23	101	7	128	48	19	532
Total	8	257	304	44	213	17	75	412	43	512	159	72	2116
Grand Total	18	481	564	96	391	24	159	794	96	931	280	138	3972
Apprch %	1.7	45.2	53.1	18.8	76.5	4.7	15.2	75.7	9.2	69	20.8	10.2	
Total %	0.5	12.1	14.2	2.4	9.8	0.6	4	20	2.4	23.4	7	3.5	

Start Time	Route 202 From North				Yarmouth Rd From East				Portland Rd From South				Rte 4/202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	3	73	80	156	17	68	6	91	19	94	8	121	126	40	17	183	551
05:15 PM	2	48	57	107	10	46	4	60	18	127	17	162	118	31	18	167	496
05:30 PM	1	72	87	160	9	48	6	63	15	90	11	116	140	40	18	198	537
05:45 PM	2	64	80	146	8	51	1	60	23	101	7	131	128	48	19	195	532
Total Volume	8	257	304	569	44	213	17	274	75	412	43	530	512	159	72	743	2116
% App. Total	1.4	45.2	53.4		16.1	77.7	6.2		14.2	77.7	8.1		68.9	21.4	9.7		
PHF	.667	.880	.874	.889	.647	.783	.708	.753	.815	.811	.632	.818	.914	.828	.947	.938	.960

Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3

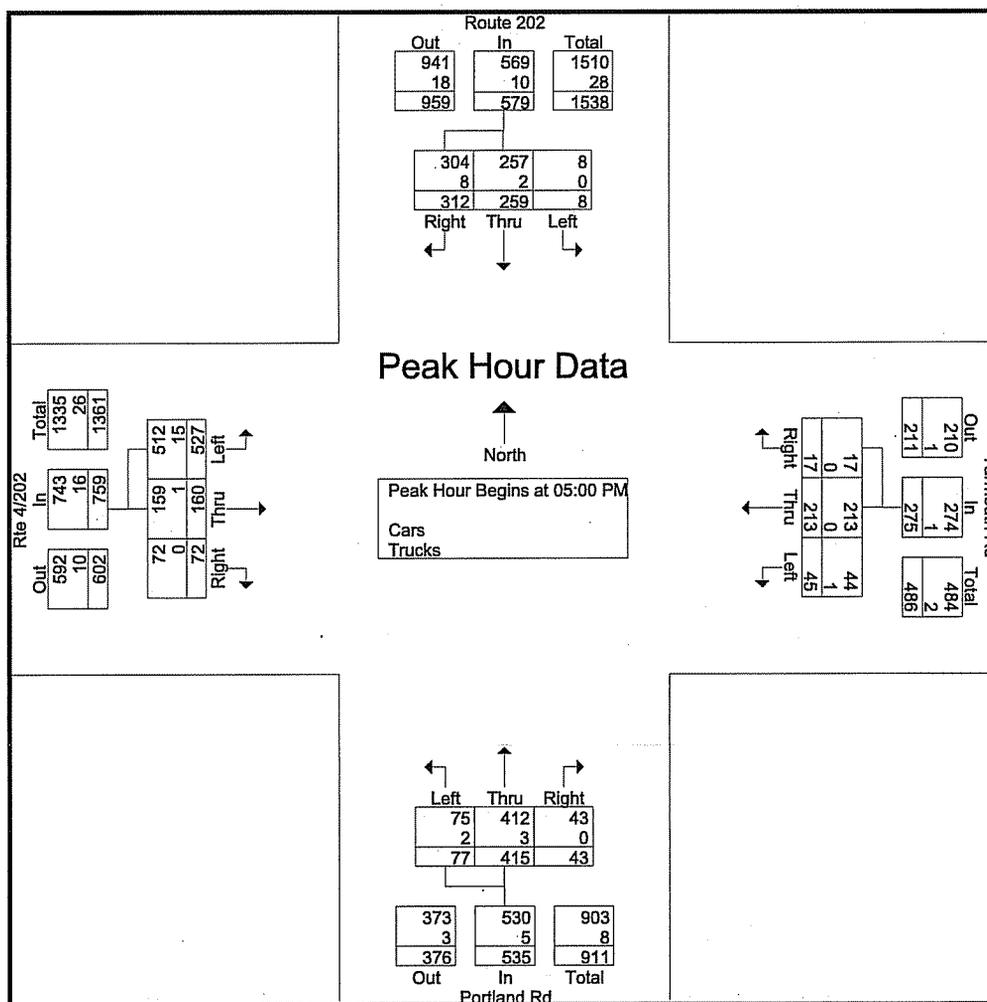
N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy



Accurate Counts
978-664-2565

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				04:30 PM				04:30 PM				05:00 PM			
+0 mins.	3	73	83	159	15	60	3	78	16	103	15	134	127	40	17	184
+15 mins.	2	49	60	111	11	51	1	63	27	107	15	149	121	31	18	170
+30 mins.	1	73	89	163	18	68	6	92	20	95	8	123	143	40	18	201
+45 mins.	2	64	80	146	10	46	4	60	19	128	17	164	136	49	19	204
Total Volume	8	259	312	579	54	225	14	293	82	433	55	570	527	160	72	759
% App. Total	1.4	44.7	53.9		18.4	76.8	4.8		14.4	76	9.6		69.4	21.1	9.5	
PHF	.667	.887	.876	.888	.750	.827	.583	.796	.759	.846	.809	.869	.921	.816	.947	.930
Cars	8	257	304	569	53	224	14	291	80	426	55	561	512	159	72	743
% Cars	100	99.2	97.4	98.3	98.1	99.6	100	99.3	97.6	98.4	100	98.4	97.2	99.4	100	97.9
Trucks	0	2	8	10	1	1	0	2	2	7	0	9	15	1	0	16
% Trucks	0	0.8	2.6	1.7	1.9	0.4	0	0.7	2.4	1.6	0	1.6	2.8	0.6	0	2.1

Accurate Counts

978-664-2565

N/S Street : Route 202 / Portland Rd
 E/W Street : Yarmouth Rd / Route 4/202
 City/State : Gray, ME
 Weather : Cloudy

File Name : 5222800
 Site Code : 5222800
 Start Date : 9/6/2012
 Page No : 1

Groups Printed- Cars - Trucks

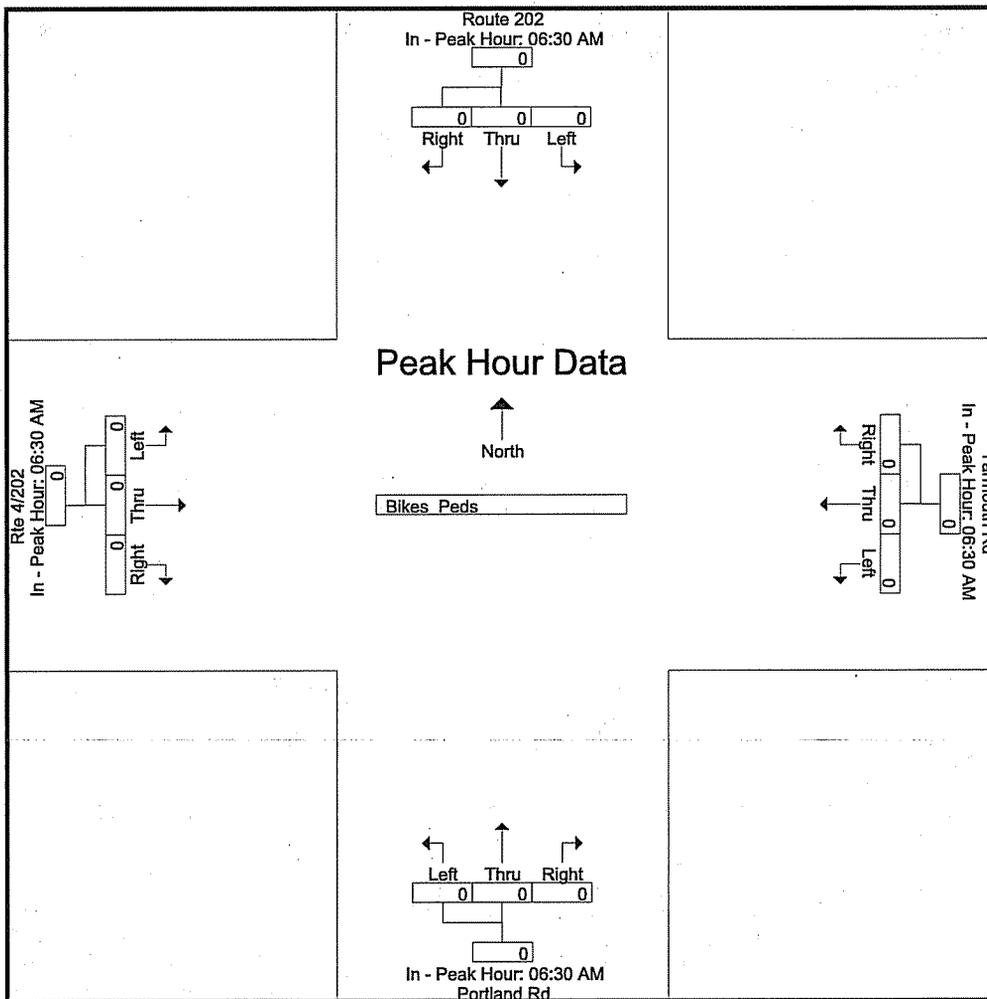
Start Time	Route 202 From North			Yarmouth Rd From East			Portland Rd From South			Rte 4/202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:00 PM	6	58	77	14	40	1	21	94	9	107	28	18	473
04:15 PM	2	61	51	12	31	2	22	86	14	94	22	17	414
04:30 PM	2	46	79	15	60	3	16	103	15	99	36	21	495
04:45 PM	3	61	63	11	51	1	27	107	15	132	39	12	522
Total	13	226	270	52	182	7	86	390	53	432	125	68	1904
05:00 PM	3	73	83	18	68	6	20	95	8	127	40	17	558
05:15 PM	2	49	60	10	46	4	19	128	17	121	31	18	505
05:30 PM	1	73	89	9	48	6	15	91	11	143	40	18	544
05:45 PM	2	64	80	8	51	1	23	101	7	136	49	19	541
Total	8	259	312	45	213	17	77	415	43	527	160	72	2148
Grand Total	21	485	582	97	395	24	163	805	96	959	285	140	4052
Apprch %	1.9	44.6	53.5	18.8	76.6	4.7	15.3	75.7	9	69.3	20.6	10.1	
Total %	0.5	12	14.4	2.4	9.7	0.6	4	19.9	2.4	23.7	7	3.5	
Cars	18	481	564	96	391	24	159	794	96	931	280	138	3972
% Cars	85.7	99.2	96.9	99	99	100	97.5	98.6	100	97.1	98.2	98.6	98
Trucks	3	4	18	1	4	0	4	11	0	28	5	2	80
% Trucks	14.3	0.8	3.1	1	1	0	2.5	1.4	0	2.9	1.8	1.4	2

Start Time	Route 202 From North				Yarmouth Rd From East				Portland Rd From South				Rte 4/202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	3	73	83	159	18	68	6	92	20	95	8	123	127	40	17	184	558
05:15 PM	2	49	60	111	10	46	4	60	19	128	17	164	121	31	18	170	505
05:30 PM	1	73	89	163	9	48	6	63	15	91	11	117	143	40	18	201	544
05:45 PM	2	64	80	146	8	51	1	60	23	101	7	131	136	49	19	204	541
Total Volume	8	259	312	579	45	213	17	275	77	415	43	535	527	160	72	759	2148
% App. Total	1.4	44.7	53.9		16.4	77.5	6.2		14.4	77.6	8		69.4	21.1	9.5		
PHF	.667	.887	.876	.888	.625	.783	.708	.747	.837	.811	.632	.816	.921	.816	.947	.930	.962
Cars	8	257	304	569	44	213	17	274	75	412	43	530	512	159	72	743	2116
% Cars	100	99.2	97.4	98.3	97.8	100	100	99.6	97.4	99.3	100	99.1	97.2	99.4	100	97.9	98.5
Trucks	0	2	8	10	1	0	0	1	2	3	0	5	15	1	0	16	32
% Trucks	0	0.8	2.6	1.7	2.2	0	0	0.4	2.6	0.7	0	0.9	2.8	0.6	0	2.1	1.5

Accurate Counts
978-664-2565

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy

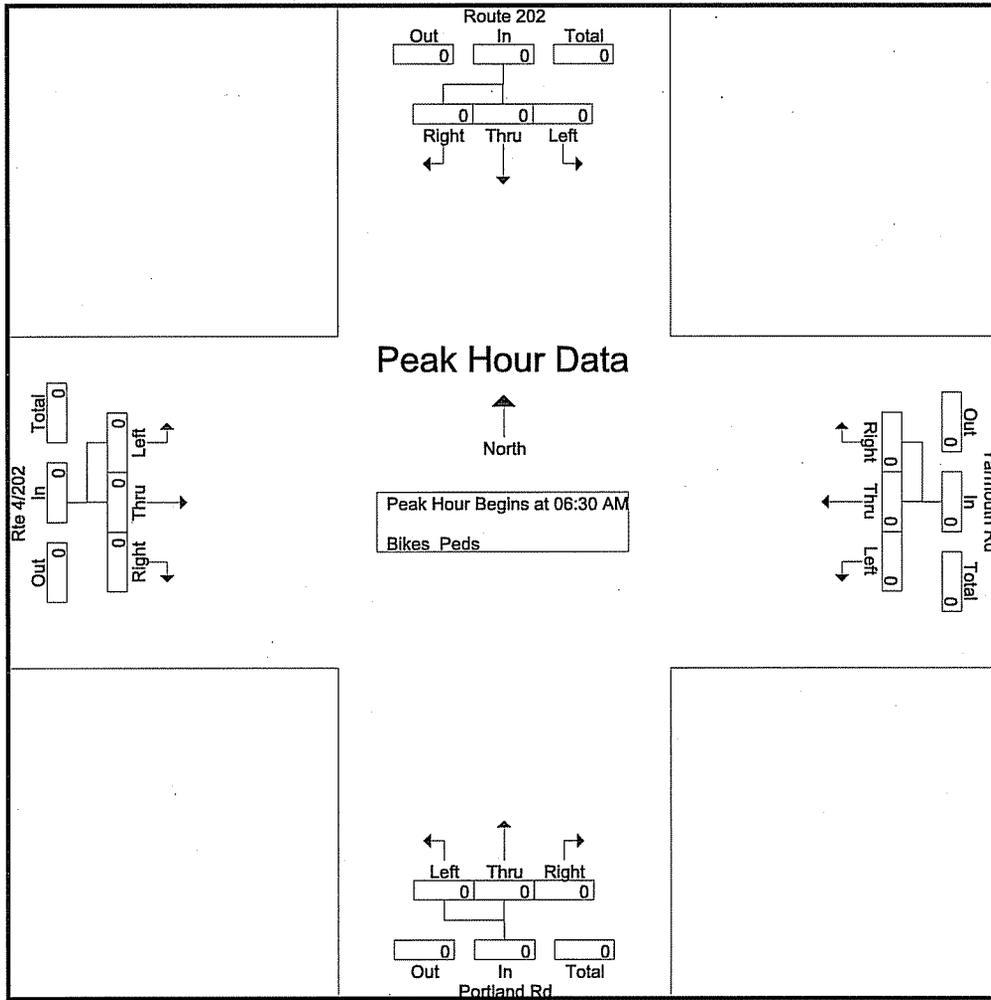
File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2



Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	06:30 AM				06:30 AM				06:30 AM				06:30 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy

Groups Printed- Bikes Peds

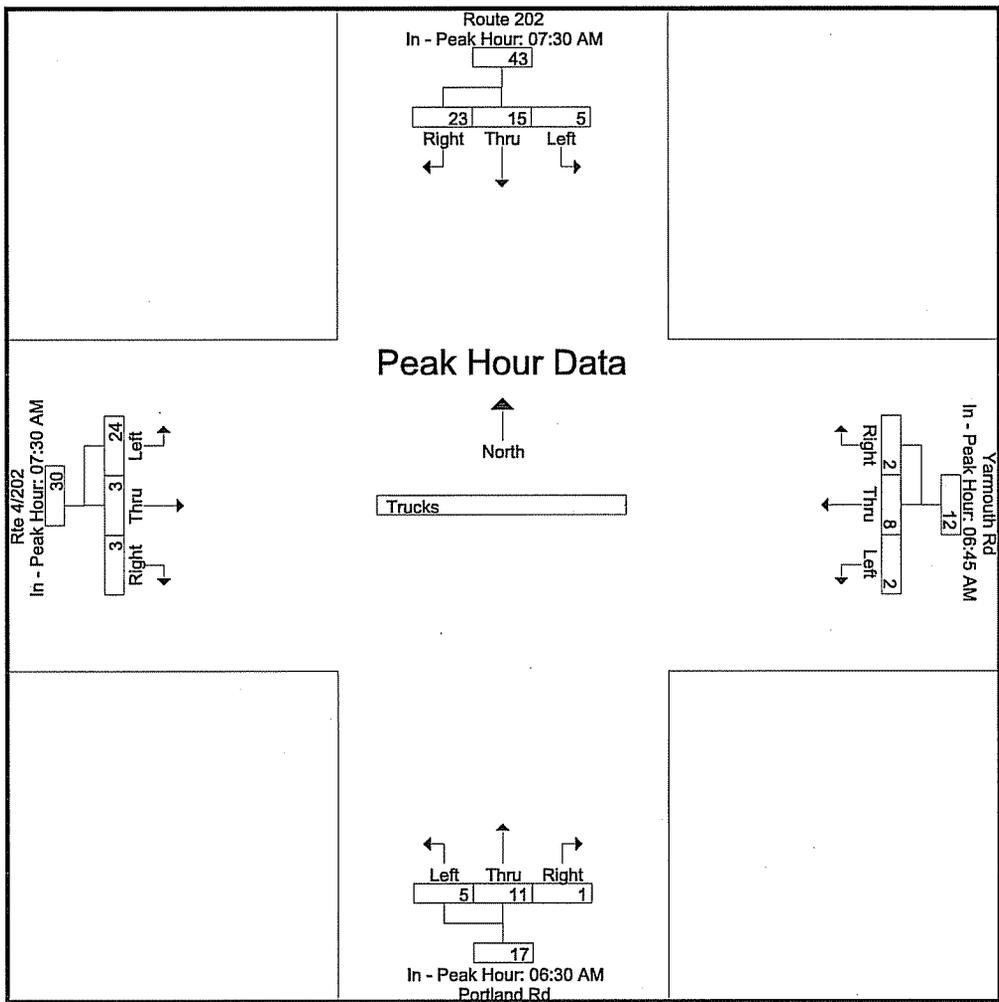
Start Time	Route 202 From North				Yarmouth Rd From East				Portland Rd From South				Rte 4/202 From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
06:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0				
Total %																	100	0	

Start Time	Route 202 From North				Yarmouth Rd From East				Portland Rd From South				Rte 4/202 From West				Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 06:30 AM																		
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0			
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy

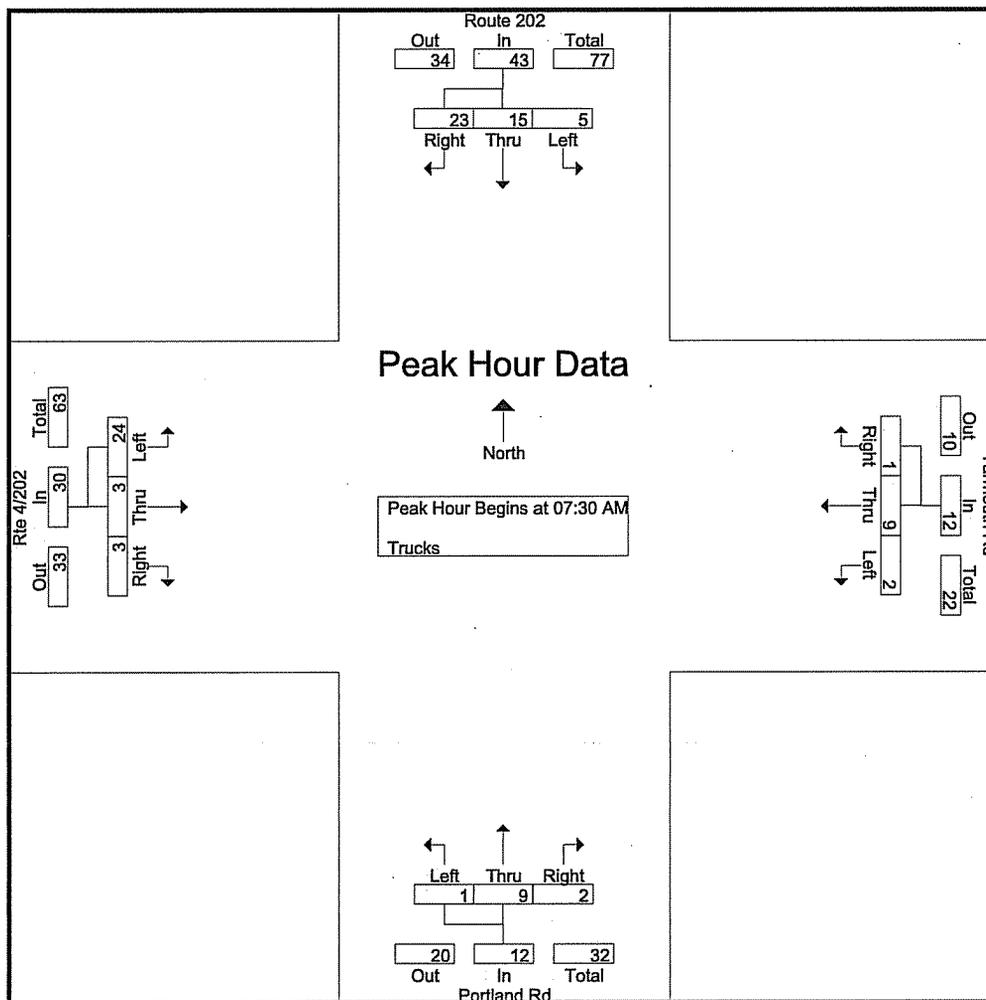
File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2



Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				06:45 AM				06:30 AM				07:30 AM			
+0 mins.	3	5	5	13	1	2	0	3	0	3	0	3	6	0	0	6
+15 mins.	1	4	4	9	0	1	1	2	3	2	0	5	5	0	0	5
+30 mins.	0	4	7	11	1	0	0	1	1	5	1	7	5	2	2	9
+45 mins.	1	2	7	10	0	5	1	6	1	1	0	2	8	1	1	10
Total Volume	5	15	23	43	2	8	2	12	5	11	1	17	24	3	3	30
% App. Total	11.6	34.9	53.5		16.7	66.7	16.7		29.4	64.7	5.9		80	10	10	
PHF	.417	.750	.821	.827	.500	.400	.500	.500	.417	.550	.250	.607	.750	.375	.375	.750

Accurate Counts

978-664-2565

N/S Street : Route 202 / Portland Rd
 E/W Street : Yarmouth Rd / Route 4/202
 City/State : Gray, ME
 Weather : Cloudy

File Name : 5222800
 Site Code : 5222800
 Start Date : 9/6/2012
 Page No : 1

Groups Printed- Trucks

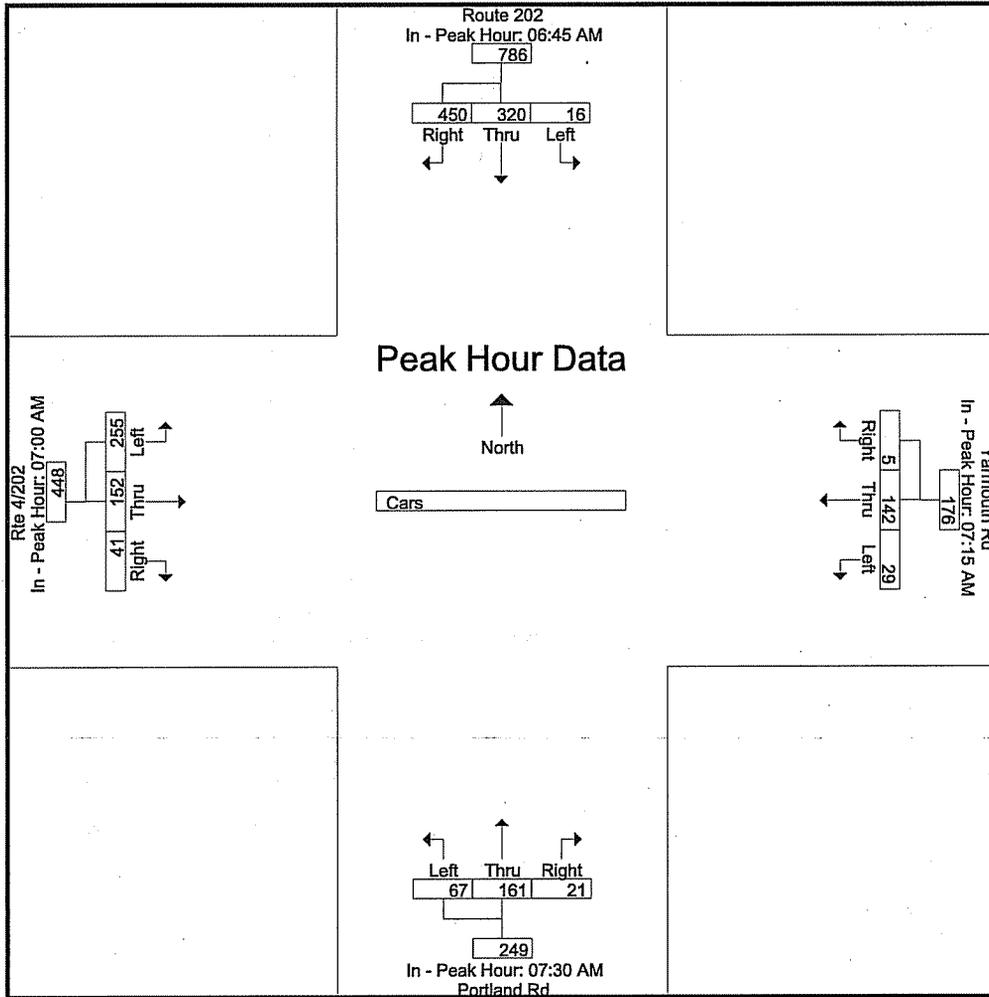
Start Time	Route 202 From North			Yarmouth Rd From East			Portland Rd From South			Rte 4/202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:30 AM	1	1	3	0	0	0	0	3	0	3	1	1	13
06:45 AM	1	5	5	1	2	0	3	2	0	4	0	2	25
Total	2	6	8	1	2	0	3	5	0	7	1	3	38
07:00 AM	0	3	2	0	1	1	1	5	1	4	4	0	22
07:15 AM	0	2	2	1	0	0	1	1	0	7	0	0	14
07:30 AM	3	5	5	0	5	1	0	3	0	6	0	0	28
07:45 AM	1	4	4	1	2	0	1	3	1	5	0	0	22
Total	4	14	13	2	8	2	3	12	2	22	4	0	86
08:00 AM	0	4	7	1	1	0	0	1	0	5	2	2	23
08:15 AM	1	2	7	0	1	0	0	2	1	8	1	1	24
Grand Total	7	26	35	4	12	2	6	20	3	42	8	6	171
Apprch %	10.3	38.2	51.5	22.2	66.7	11.1	20.7	69	10.3	75	14.3	10.7	
Total %	4.1	15.2	20.5	2.3	7	1.2	3.5	11.7	1.8	24.6	4.7	3.5	

Start Time	Route 202 From North				Yarmouth Rd From East				Portland Rd From South				Rte 4/202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	3	5	5	13	0	5	1	6	0	3	0	3	6	0	0	6	28
07:45 AM	1	4	4	9	1	2	0	3	1	3	1	5	5	0	0	5	22
08:00 AM	0	4	7	11	1	1	0	2	0	1	0	1	5	2	2	9	23
08:15 AM	1	2	7	10	0	1	0	1	0	2	1	3	8	1	1	10	24
Total Volume	5	15	23	43	2	9	1	12	1	9	2	12	24	3	3	30	97
% App. Total	11.6	34.9	53.5		16.7	75	8.3		8.3	75	16.7		80	10	10		
PHF	.417	.750	.821	.827	.500	.450	.250	.500	.250	.750	.500	.600	.750	.375	.375	.750	.866

Accurate Counts
978-664-2565

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy

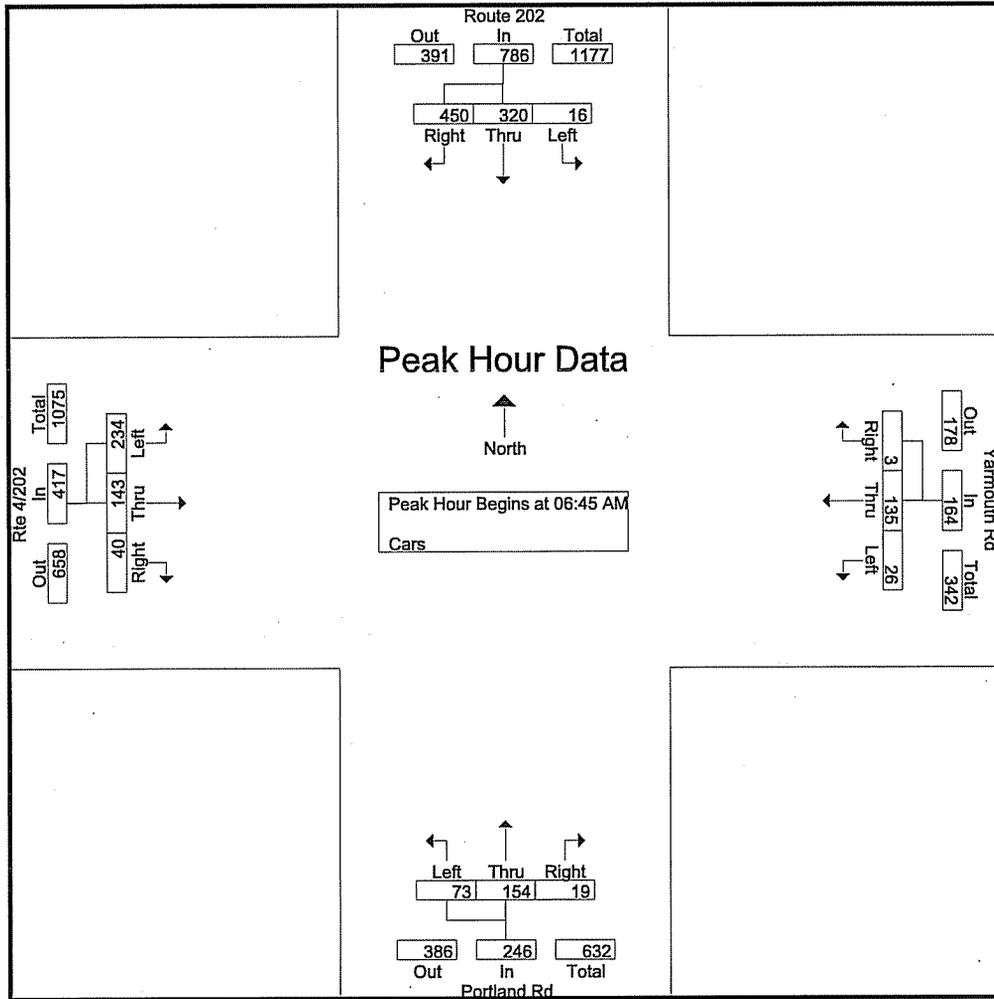
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Site Code : 5222800
Start Date : 9/6/2012
Page No : 3



Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy



Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	06:45 AM				07:15 AM				07:30 AM				07:00 AM			
+0 mins.	4	73	104	181	11	39	0	50	26	43	6	75	61	35	5	101
+15 mins.	5	78	106	189	7	42	1	50	13	38	4	55	66	36	12	114
+30 mins.	3	79	121	203	7	31	2	40	11	48	6	65	60	43	12	115
+45 mins.	4	90	119	213	4	30	2	36	17	32	5	54	68	38	12	118
Total Volume	16	320	450	786	29	142	5	176	67	161	21	249	255	152	41	448
% App. Total	2	40.7	57.3		16.5	80.7	2.8		26.9	64.7	8.4		56.9	33.9	9.2	
PHF	.800	.889	.930	.923	.659	.845	.625	.880	.644	.839	.875	.830	.938	.884	.854	.949

Accurate Counts
978-664-2565

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

Groups Printed- Cars

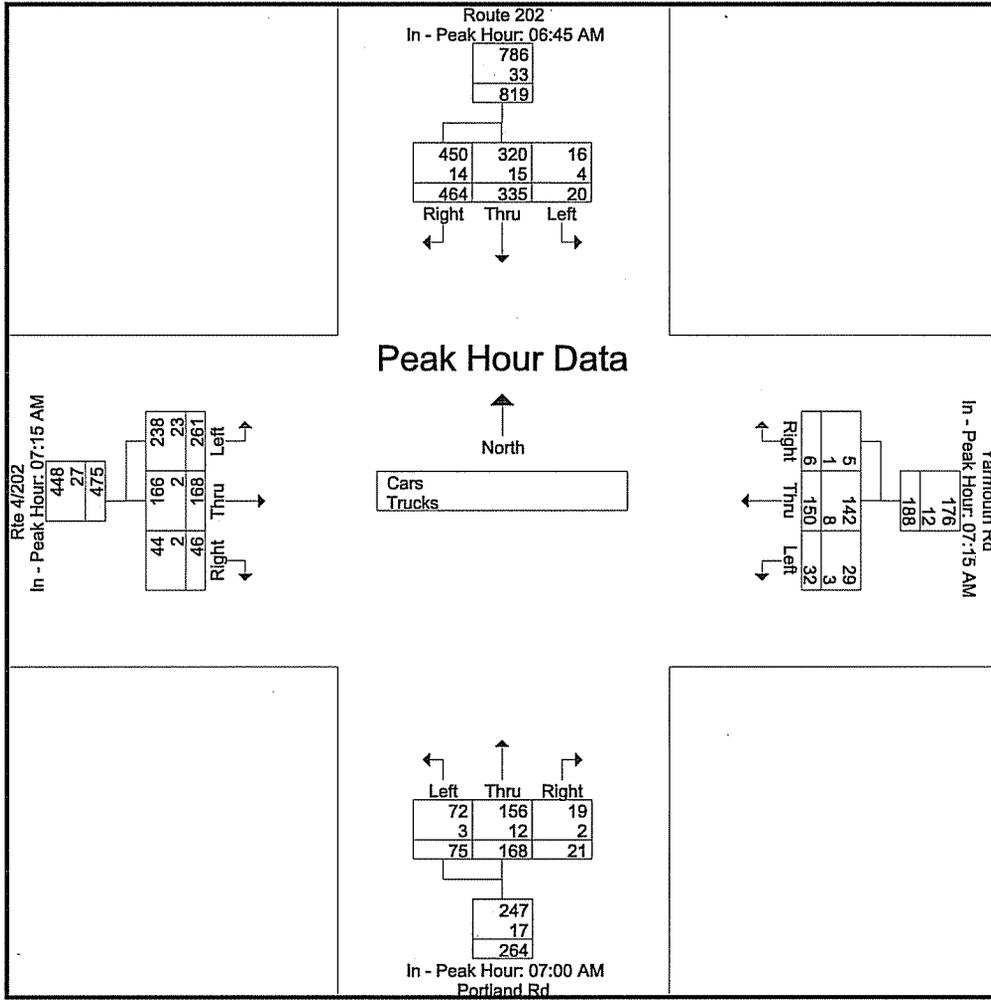
Start Time	Route 202 From North			Yarmouth Rd From East			Portland Rd From South			Rte 4/202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:30 AM	4	72	102	5	32	2	11	30	6	34	24	6	328
06:45 AM	4	73	104	2	31	1	14	36	4	47	29	11	356
Total	8	145	206	7	63	3	25	66	10	81	53	17	684
07:00 AM	5	78	106	6	23	1	15	46	5	61	35	5	386
07:15 AM	3	79	121	11	39	0	18	29	4	66	36	12	418
07:30 AM	4	90	119	7	42	1	26	43	6	60	43	12	453
07:45 AM	3	59	80	7	31	2	13	38	4	68	38	12	355
Total	15	306	426	31	135	4	72	156	19	255	152	41	1612
08:00 AM	5	59	74	4	30	2	11	48	6	44	49	8	340
08:15 AM	1	49	67	7	30	3	17	32	5	63	21	9	304
Grand Total	29	559	773	49	258	12	125	302	40	443	275	75	2940
Apprch %	2.1	41.1	56.8	15.4	80.9	3.8	26.8	64.7	8.6	55.9	34.7	9.5	
Total %	1	19	26.3	1.7	8.8	0.4	4.3	10.3	1.4	15.1	9.4	2.6	

Start Time	Route 202 From North				Yarmouth Rd From East				Portland Rd From South				Rte 4/202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:45 AM																	
06:45 AM	4	73	104	181	2	31	1	34	14	36	4	54	47	29	11	87	356
07:00 AM	5	78	106	189	6	23	1	30	15	46	5	66	61	35	5	101	386
07:15 AM	3	79	121	203	11	39	0	50	18	29	4	51	66	36	12	114	418
07:30 AM	4	90	119	213	7	42	1	50	26	43	6	75	60	43	12	115	453
Total Volume	16	320	450	786	26	135	3	164	73	154	19	246	234	143	40	417	1613
% App. Total	2	40.7	57.3		15.9	82.3	1.8		29.7	62.6	7.7		56.1	34.3	9.6		
PHF	.800	.889	.930	.923	.591	.804	.750	.820	.702	.837	.792	.820	.886	.831	.833	.907	.890

Accurate Counts
978-664-2565

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy

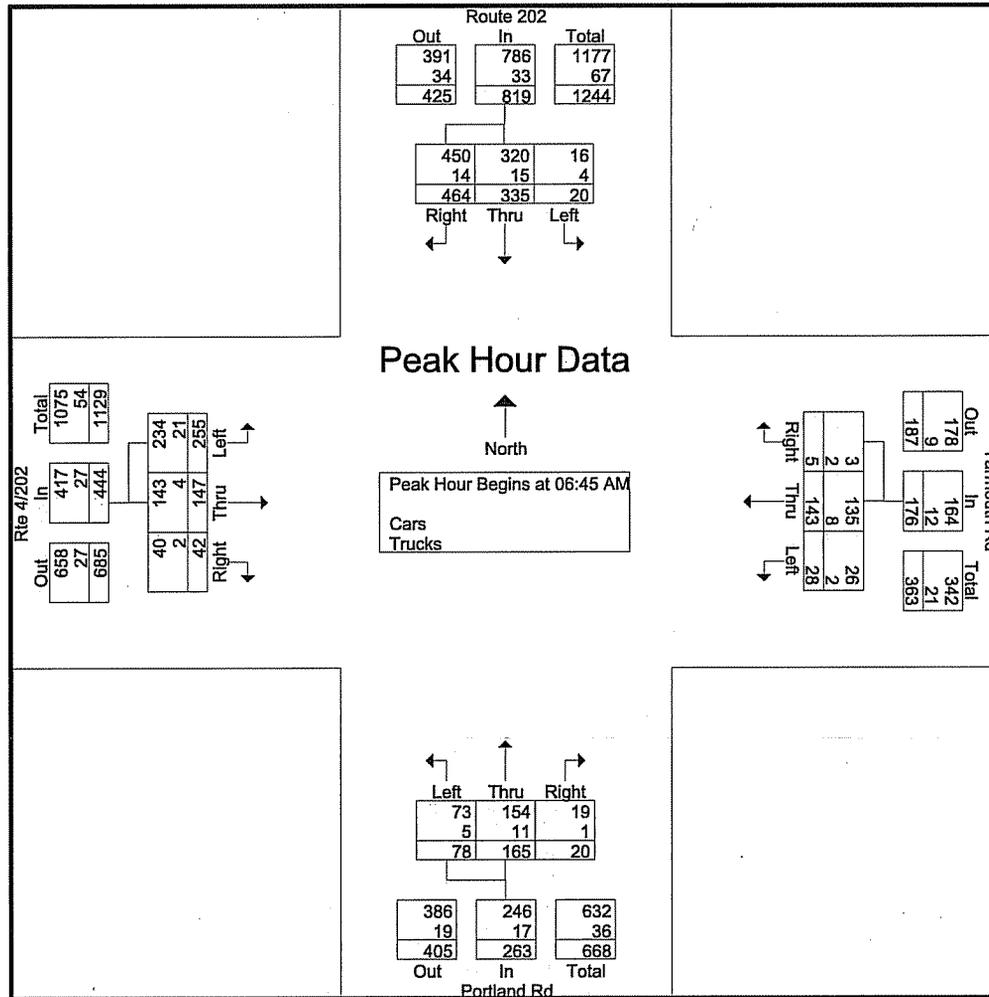
File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3



Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy



Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	06:45 AM				07:15 AM				07:00 AM				07:15 AM			
+0 mins.	5	78	109	192	12	39	0	51	16	51	6	73	73	36	12	121
+15 mins.	5	81	108	194	7	47	2	56	19	30	4	53	66	43	12	121
+30 mins.	3	81	123	207	8	33	2	43	26	46	6	78	73	38	12	123
+45 mins.	7	95	124	226	5	31	2	38	14	41	5	60	49	51	10	110
Total Volume	20	335	464	819	32	150	6	188	75	168	21	264	261	168	46	475
% App. Total	2.4	40.9	56.7		17	79.8	3.2		28.4	63.6	8		54.9	35.4	9.7	
PHF	.714	.882	.935	.906	.667	.798	.750	.839	.721	.824	.875	.846	.894	.824	.958	.965
Cars	16	320	450	786	29	142	5	176	72	156	19	247	238	166	44	448
% Cars	80	95.5	97	96	90.6	94.7	83.3	93.6	96	92.9	90.5	93.6	91.2	98.8	95.7	94.3
Trucks	4	15	14	33	3	8	1	12	3	12	2	17	23	2	2	27
% Trucks	20	4.5	3	4	9.4	5.3	16.7	6.4	4	7.1	9.5	6.4	8.8	1.2	4.3	5.7

Accurate Counts
978-664-2565

N/S Street : Route 202 / Portland Rd
E/W Street : Yarmouth Rd / Route 4/202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

Groups Printed- Cars - Trucks

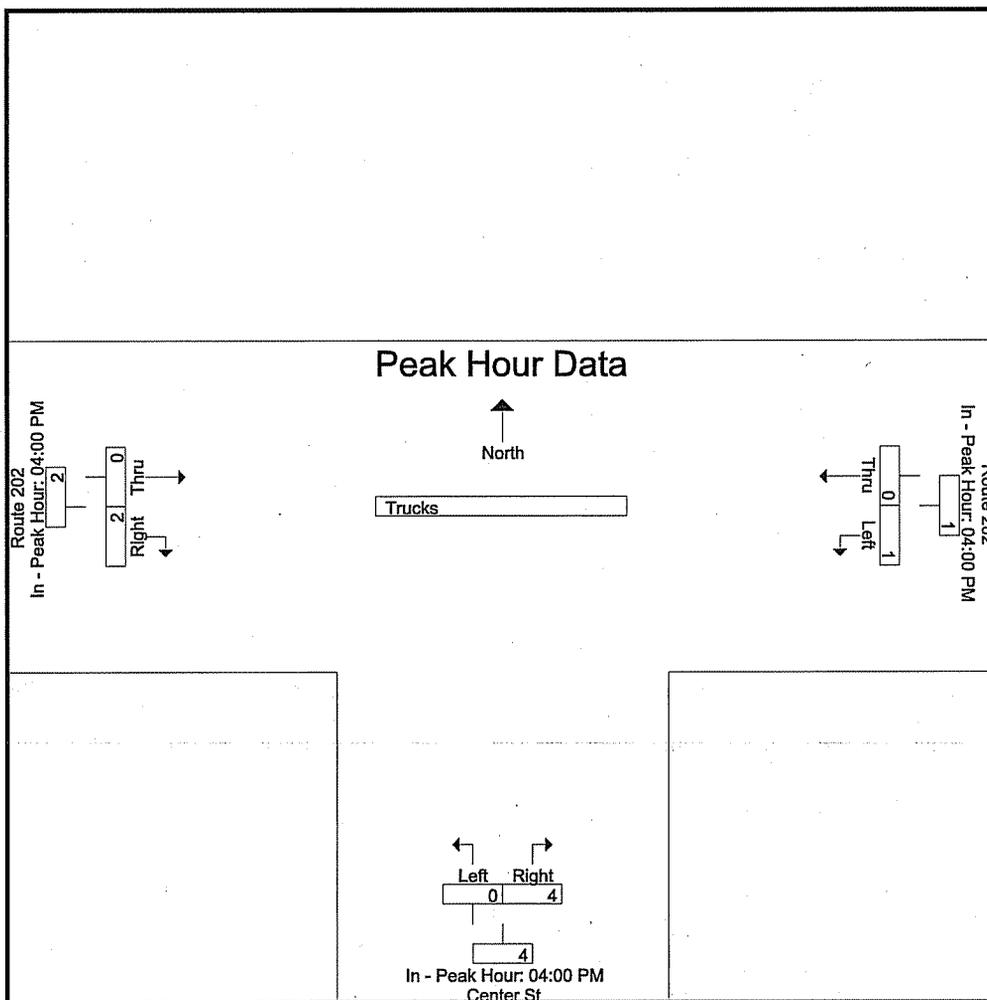
Start Time	Route 202 From North			Yarmouth Rd From East			Portland Rd From South			Rte 4/202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:30 AM	5	73	105	5	32	2	11	33	6	37	25	7	341
06:45 AM	5	78	109	3	33	1	17	38	4	51	29	13	381
Total	10	151	214	8	65	3	28	71	10	88	54	20	722
07:00 AM	5	81	108	6	24	2	16	51	6	65	39	5	408
07:15 AM	3	81	123	12	39	0	19	30	4	73	36	12	432
07:30 AM	7	95	124	7	47	2	26	46	6	66	43	12	481
07:45 AM	4	63	84	8	33	2	14	41	5	73	38	12	377
Total	19	320	439	33	143	6	75	168	21	277	156	41	1698
08:00 AM	5	63	81	5	31	2	11	49	6	49	51	10	363
08:15 AM	2	51	74	7	31	3	17	34	6	71	22	10	328
Grand Total	36	585	808	53	270	14	131	322	43	485	283	81	3111
Apprch %	2.5	40.9	56.5	15.7	80.1	4.2	26.4	64.9	8.7	57.1	33.3	9.5	
Total %	1.2	18.8	26	1.7	8.7	0.5	4.2	10.4	1.4	15.6	9.1	2.6	
Cars	29	559	773	49	258	12	125	302	40	443	275	75	2940
% Cars	80.6	95.6	95.7	92.5	95.6	85.7	95.4	93.8	93	91.3	97.2	92.6	94.5
Trucks	7	26	35	4	12	2	6	20	3	42	8	6	171
% Trucks	19.4	4.4	4.3	7.5	4.4	14.3	4.6	6.2	7	8.7	2.8	7.4	5.5

Start Time	Route 202 From North				Yarmouth Rd From East				Portland Rd From South				Rte 4/202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:45 AM																	
06:45 AM	5	78	109	192	3	33	1	37	17	38	4	59	51	29	13	93	381
07:00 AM	5	81	108	194	6	24	2	32	16	51	6	73	65	39	5	109	408
07:15 AM	3	81	123	207	12	39	0	51	19	30	4	53	73	36	12	121	432
07:30 AM	7	95	124	226	7	47	2	56	26	46	6	78	66	43	12	121	481
Total Volume	20	335	464	819	28	143	5	176	78	165	20	263	255	147	42	444	1702
% App. Total	2.4	40.9	56.7		15.9	81.2	2.8		29.7	62.7	7.6		57.4	33.1	9.5		
PHF	.714	.882	.935	.906	.583	.761	.625	.786	.750	.809	.833	.843	.873	.855	.808	.917	.885
Cars	16	320	450	786	26	135	3	164	73	154	19	246	234	143	40	417	1613
% Cars	80.0	95.5	97.0	96.0	92.9	94.4	60.0	93.2	93.6	93.3	95.0	93.5	91.8	97.3	95.2	93.9	94.8
Trucks	4	15	14	33	2	8	2	12	5	11	1	17	21	4	2	27	89
% Trucks	20.0	4.5	3.0	4.0	7.1	5.6	40.0	6.8	6.4	6.7	5.0	6.5	8.2	2.7	4.8	6.1	5.2

Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3

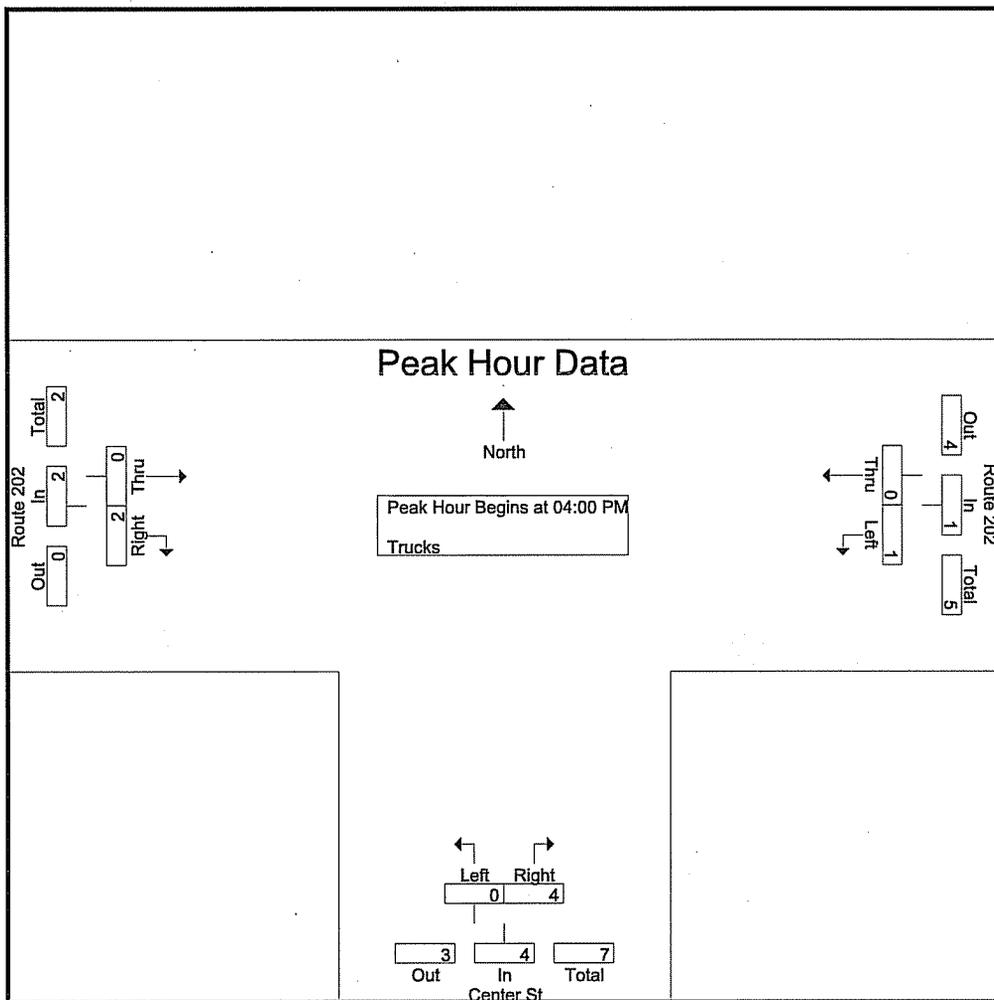
N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy



Accurate Counts
978-664-2565

N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	0	0	0	1	1	0	0	0
+15 mins.	1	0	1	0	2	2	0	2	2
+30 mins.	0	0	0	0	1	1	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	1	0	1	0	4	4	0	2	2
% App. Total	100	0	100	0	100	100	0	100	100
PHF	.250	.000	.250	.000	.500	.500	.000	.250	.250

Accurate Counts
978-664-2565

N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

Groups Printed- Trucks

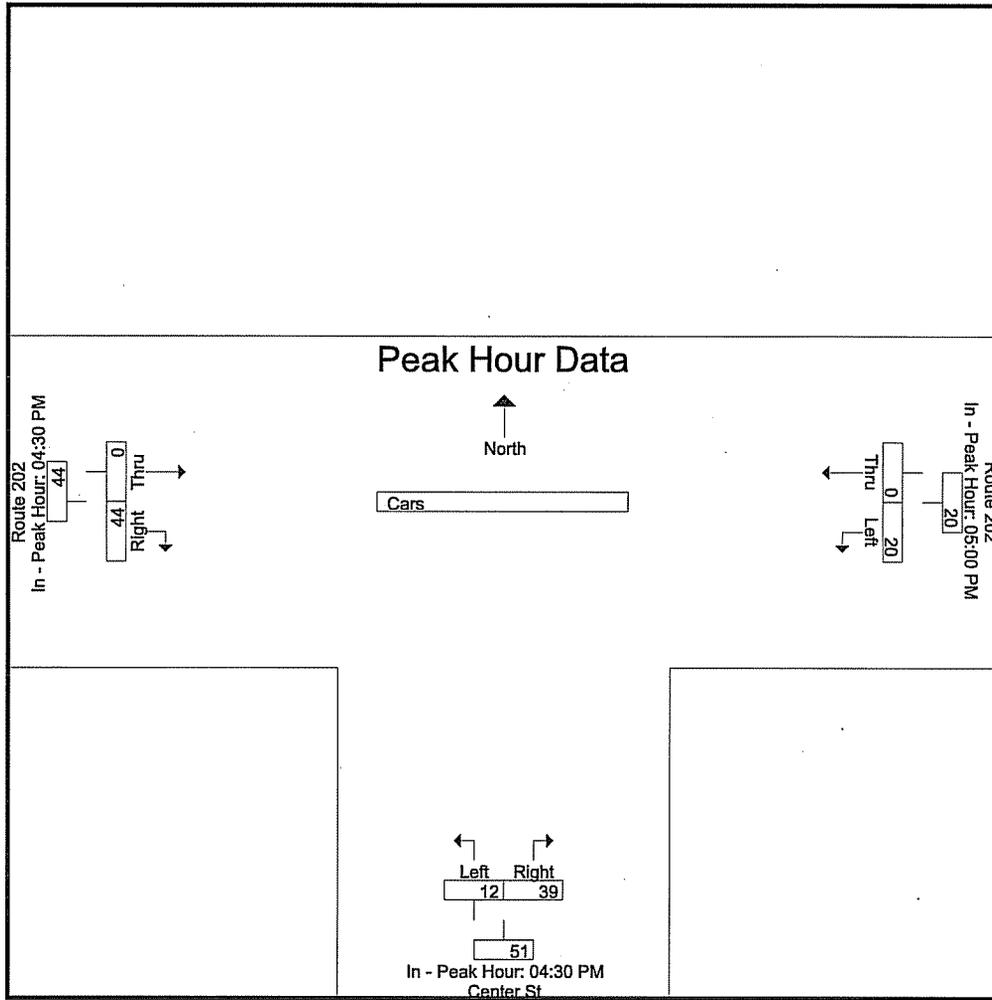
Start Time	Route 202 From East		Center St From South		Route 202 From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
04:00 PM	0	0	0	1	0	0	1
04:15 PM	1	0	0	2	0	2	5
04:30 PM	0	0	0	1	0	0	1
04:45 PM	0	0	0	0	0	0	0
Total	1	0	0	4	0	2	7
05:00 PM	0	0	0	0	0	0	0
05:15 PM	1	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0
Total	1	0	0	0	0	0	1
Grand Total	2	0	0	4	0	2	8
Apprch %	100	0	0	100	0	100	
Total %	25	0	0	50	0	25	

Start Time	Route 202 From East			Center St From South			Route 202 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	0	1	1	0	0	0	1
04:15 PM	1	0	1	0	2	2	0	2	2	5
04:30 PM	0	0	0	0	1	1	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	1	0	4	4	0	2	2	7
% App. Total	100	0	100	0	100	100	0	100	100	100
PHF	.250	.000	.250	.000	.500	.500	.000	.250	.250	.350

Accurate Counts
978-664-2565

N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

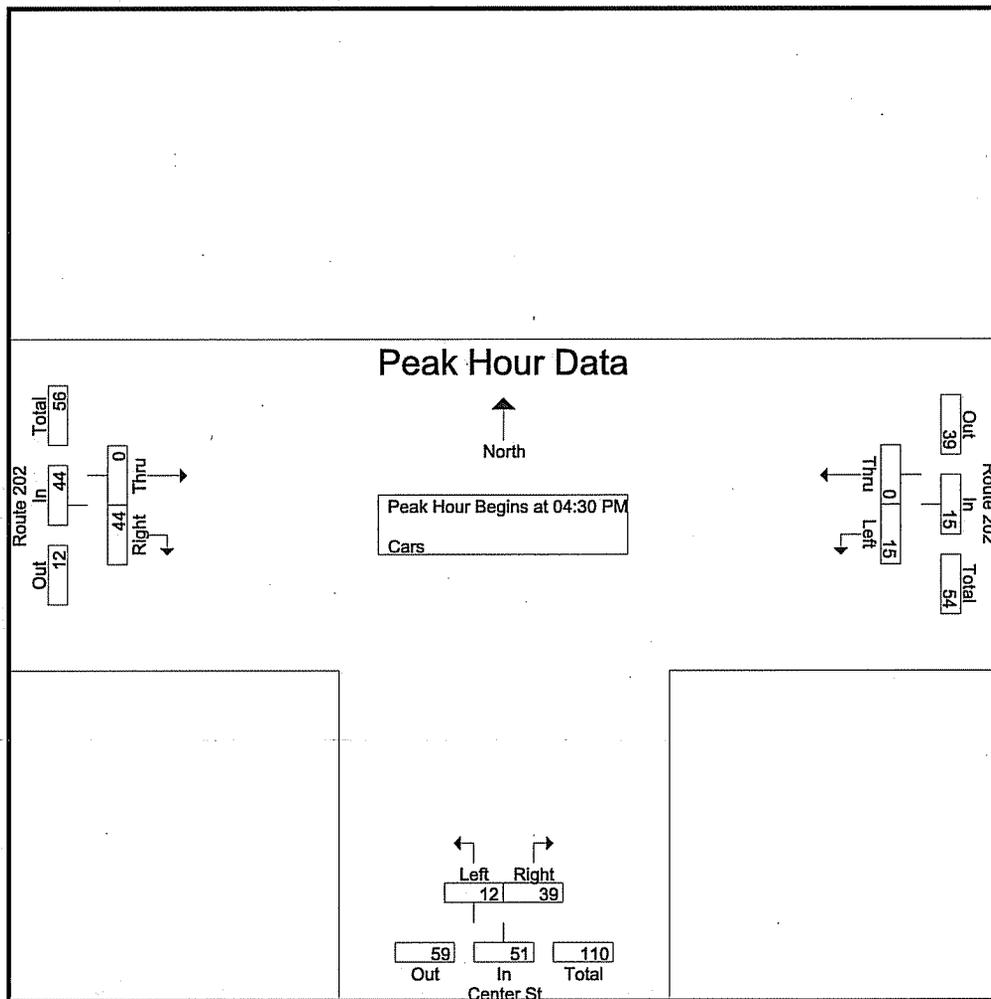
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Site Code : 5222800
Start Date : 9/6/2012
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM			04:30 PM			04:30 PM		
+0 mins.	4	0	4	3	7	10	0	10	
+15 mins.	3	0	3	3	14	17	0	16	
+30 mins.	5	0	5	3	10	13	0	11	
+45 mins.	8	0	8	3	8	11	0	7	
Total Volume	20	0	20	12	39	51	0	44	
% App. Total	100	0		23.5	76.5		0	100	
PHF	.625	.000	.625	1.000	.696	.750	.000	.688	

Accurate Counts

978-664-2565

N/S Street : Center Street
 E/W Street : Route 202
 City/State : Gray, ME
 Weather : Cloudy

File Name : 5222800
 Site Code : 5222800
 Start Date : 9/6/2012
 Page No : 1

Groups Printed- Cars

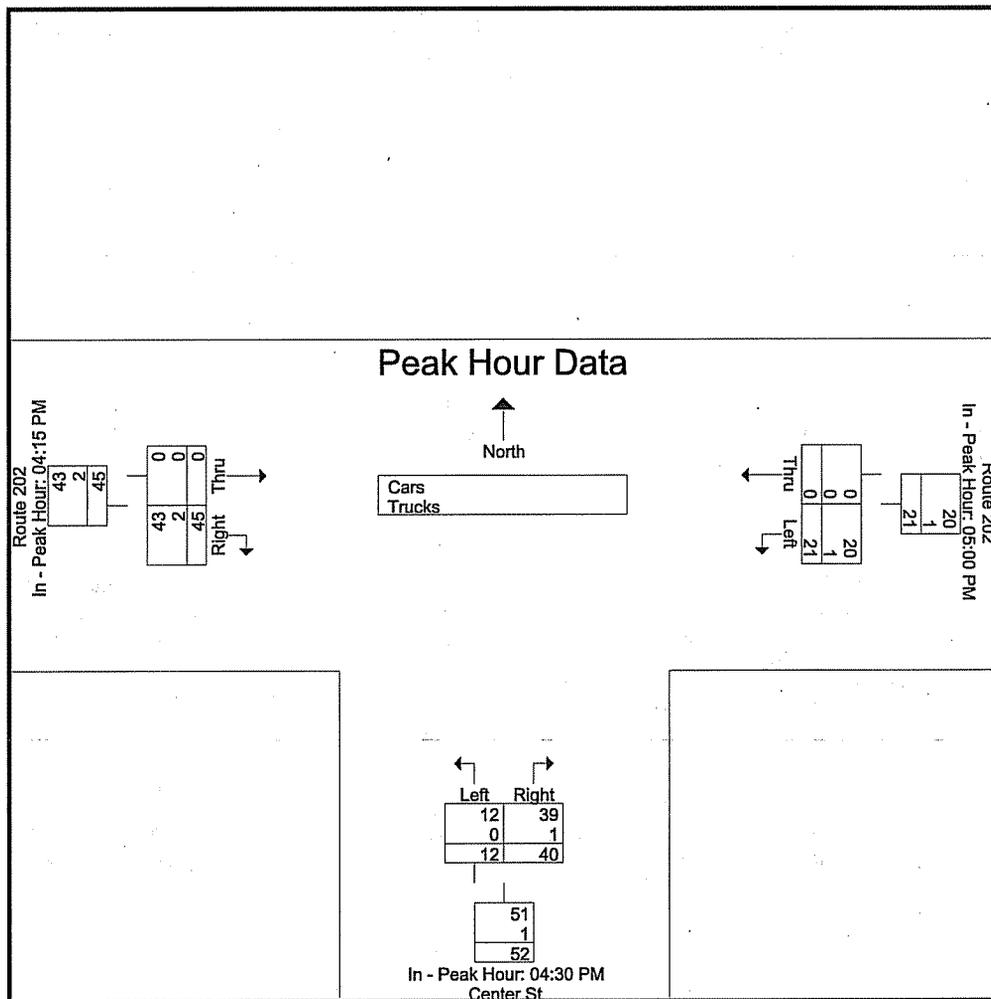
Start Time	Route 202 From East		Center St From South		Route 202 From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
04:00 PM	4	0	2	4	0	10	20
04:15 PM	1	0	2	3	0	6	12
04:30 PM	3	0	3	7	0	10	23
04:45 PM	5	0	3	14	0	16	38
Total	13	0	10	28	0	42	93
05:00 PM	4	0	3	10	0	11	28
05:15 PM	3	0	3	8	0	7	21
05:30 PM	5	0	3	7	0	6	21
05:45 PM	8	0	3	7	0	16	34
Total	20	0	12	32	0	40	104
Grand Total	33	0	22	60	0	82	197
Apprch %	100	0	26.8	73.2	0	100	
Total %	16.8	0	11.2	30.5	0	41.6	

Start Time	Route 202 From East			Center St From South			Route 202 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	3	0	3	3	7	10	0	10	10	23
04:45 PM	5	0	5	3	14	17	0	16	16	38
05:00 PM	4	0	4	3	10	13	0	11	11	28
05:15 PM	3	0	3	3	8	11	0	7	7	21
Total Volume	15	0	15	12	39	51	0	44	44	110
% App. Total	100	0	100	23.5	76.5	100	0	100	100	100
PHF	.750	.000	.750	1.00	.696	.750	.000	.688	.688	.724

Accurate Counts
978-664-2565

N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

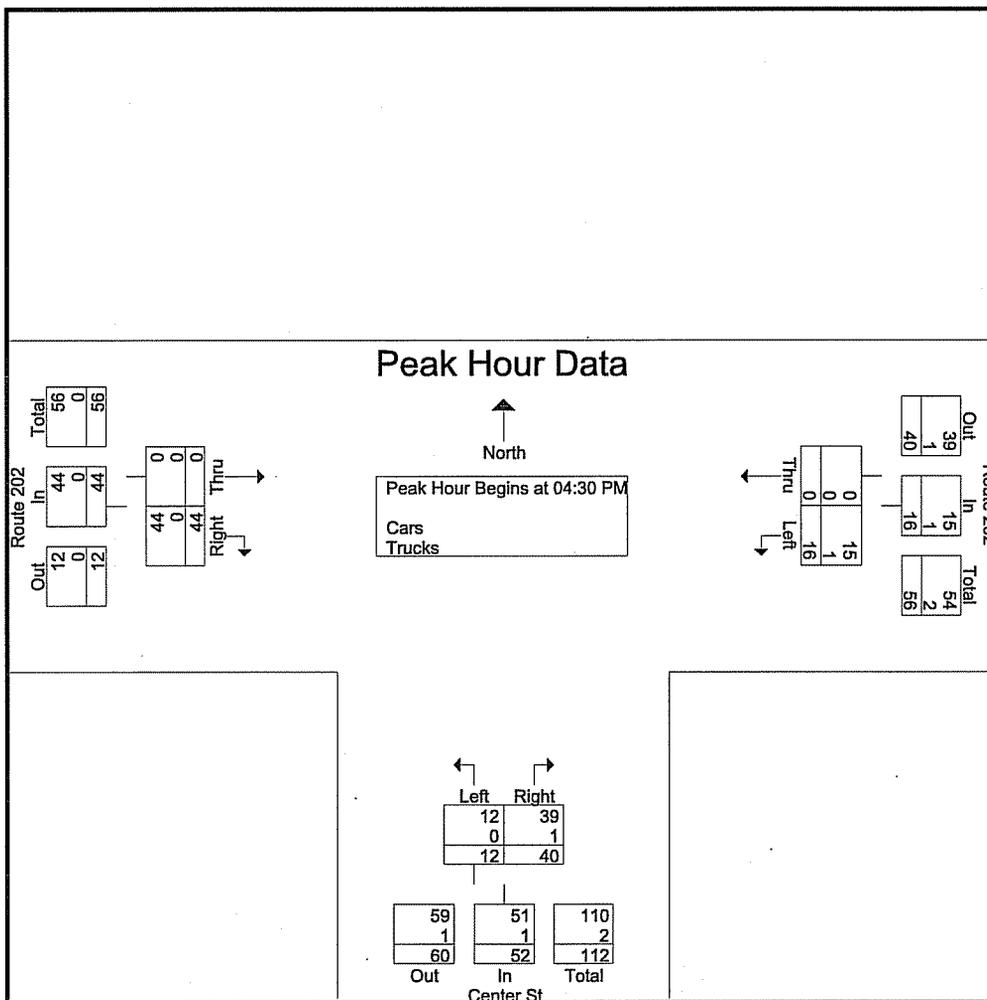
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Site Code : 5222800
Start Date : 9/6/2012
Page No : 3



Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2

N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM			04:30 PM			04:15 PM		
+0 mins.	4	0	4	3	8	11	0	8	8
+15 mins.	4	0	4	3	14	17	0	10	10
+30 mins.	5	0	5	3	10	13	0	16	16
+45 mins.	8	0	8	3	8	11	0	11	11
Total Volume	21	0	21	12	40	52	0	45	45
% App. Total	100	0		23.1	76.9		0	100	
PHF	.656	.000	.656	1.000	.714	.765	.000	.703	.703
Cars	20	0	20	12	39	51	0	43	43
% Cars	95.2	0	95.2	100	97.5	98.1	0	95.6	95.6
Trucks	1	0	1	0	1	1	0	2	2
% Trucks	4.8	0	4.8	0	2.5	1.9	0	4.4	4.4

Accurate Counts
978-664-2565

N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

Groups Printed- Cars - Trucks

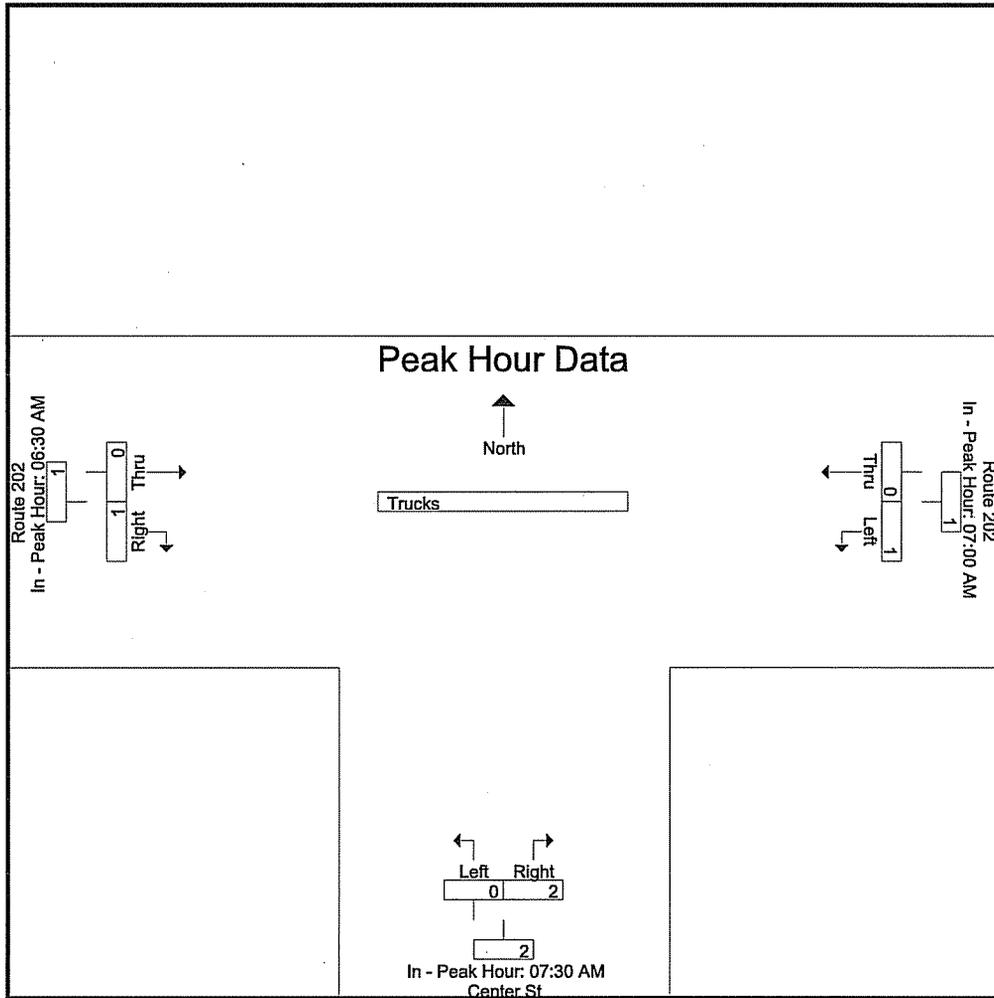
Start Time	Route 202 From East		Center St From South		Route 202 From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
04:00 PM	4	0	2	5	0	10	21
04:15 PM	2	0	2	5	0	8	17
04:30 PM	3	0	3	8	0	10	24
04:45 PM	5	0	3	14	0	16	38
Total	14	0	10	32	0	44	100
05:00 PM	4	0	3	10	0	11	28
05:15 PM	4	0	3	8	0	7	22
05:30 PM	5	0	3	7	0	6	21
05:45 PM	8	0	3	7	0	16	34
Total	21	0	12	32	0	40	105
Grand Total	35	0	22	64	0	84	205
Apprch %	100	0	25.6	74.4	0	100	
Total %	17.1	0	10.7	31.2	0	41	
Cars	33	0	22	60	0	82	197
% Cars	94.3	0	100	93.8	0	97.6	96.1
Trucks	2	0	0	4	0	2	8
% Trucks	5.7	0	0	6.2	0	2.4	3.9

Start Time	Route 202 From East			Center St From South			Route 202 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	3	0	3	3	8	11	0	10	10	24
04:45 PM	5	0	5	3	14	17	0	16	16	38
05:00 PM	4	0	4	3	10	13	0	11	11	28
05:15 PM	4	0	4	3	8	11	0	7	7	22
Total Volume	16	0	16	12	40	52	0	44	44	112
% App. Total	100	0		23.1	76.9		0	100		
PHF	.800	.000	.800	1.00	.714	.765	.000	.688	.688	.737
Cars	15	0	15	12	39	51	0	44	44	110
% Cars	93.8	0	93.8	100	97.5	98.1	0	100	100	98.2
Trucks	1	0	1	0	1	1	0	0	0	2
% Trucks	6.3	0	6.3	0	2.5	1.9	0	0	0	1.8

Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3

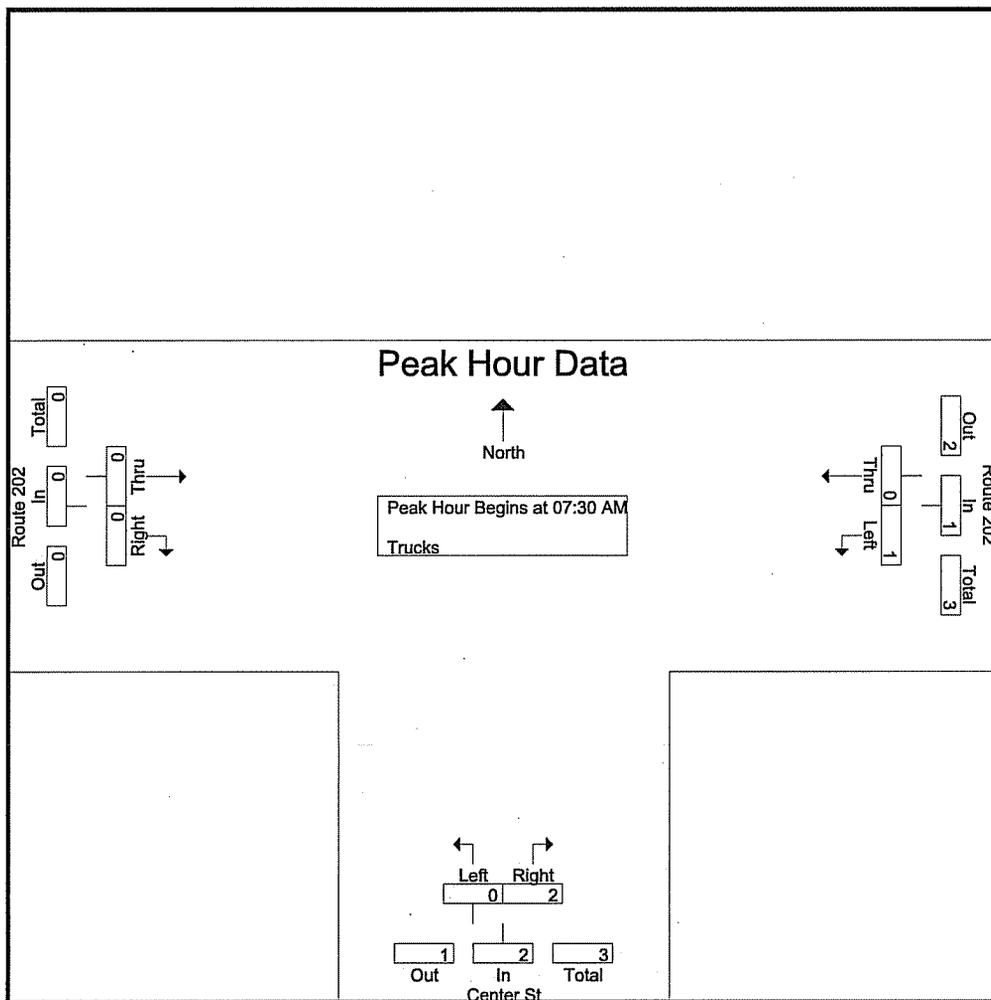
N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy



Accurate Counts
978-664-2565

N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2



Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:30 AM			06:30 AM			
+0 mins.	0	0	0	0	0	0	0	0	1	1
+15 mins.	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0
+45 mins.	1	0	1	0	2	2	0	0	0	0
Total Volume	1	0	1	0	2	2	0	0	1	1
% App. Total	100	0		0	100		0	100		
PHF	.250	.000	.250	.000	.250	.250	.000	.250	.250	.250

Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

Groups Printed- Trucks

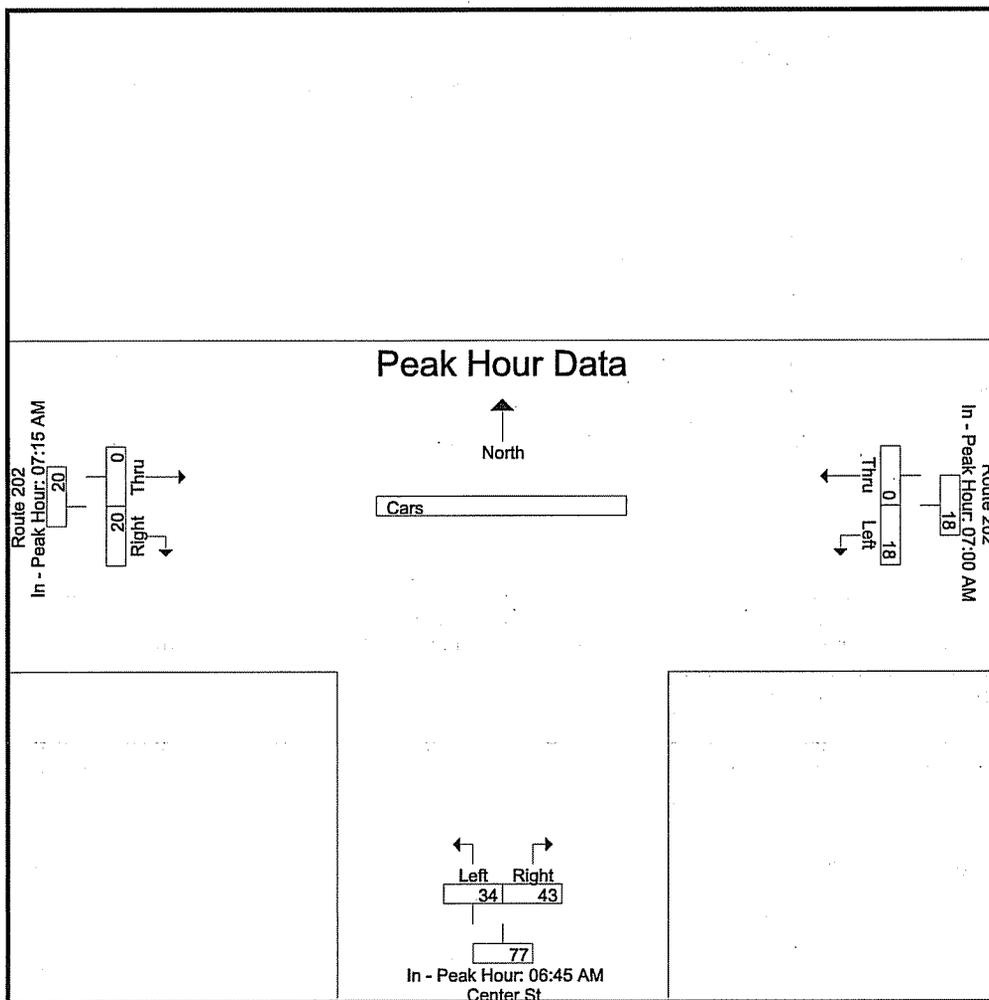
Start Time	Route 202 From East		Center St From South		Route 202 From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
06:30 AM	0	0	0	0	0	1	1
06:45 AM	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	1
07:00 AM	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0
07:45 AM	1	0	0	0	0	0	1
Total	1	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0
08:15 AM	0	0	0	2	0	0	2
Grand Total	1	0	0	2	0	1	4
Apprch %	100	0	0	100	0	100	
Total %	25	0	0	50	0	25	

Start Time	Route 202 From East			Center St From South			Route 202 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	1	0	1	0	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	2	2	0	0	0	2
Total Volume	1	0	1	0	2	2	0	0	0	3
% App. Total	100	0		0	100		0	0		
PHF	.250	.000	.250	.000	.250	.250	.000	.000	.000	.375

Accurate Counts
978-664-2565

N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

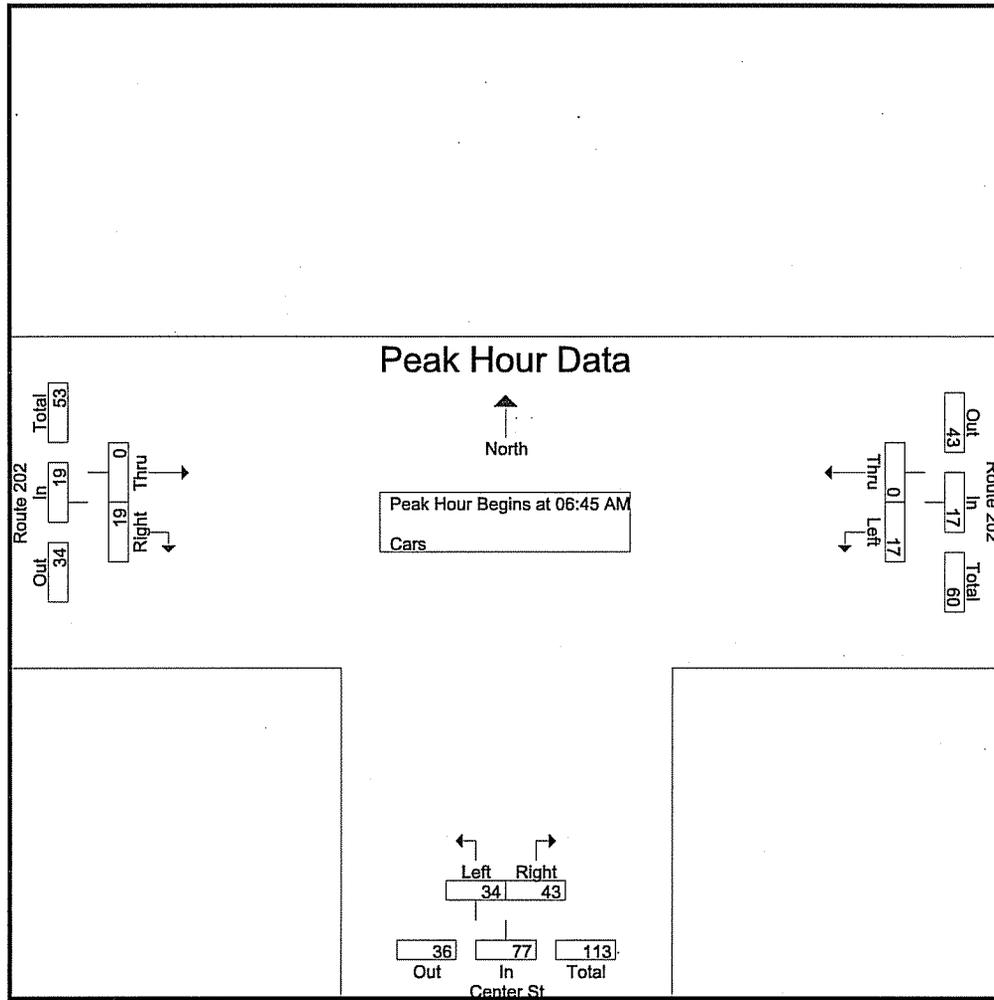
File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3



Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2

N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy



Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			06:45 AM			07:15 AM		
+0 mins.	4	0	4	7	10	17	0	5	5
+15 mins.	6	0	6	11	13	24	0	10	10
+30 mins.	5	0	5	10	10	20	0	1	1
+45 mins.	3	0	3	6	10	16	0	4	4
Total Volume	18	0	18	34	43	77	0	20	20
% App. Total	100	0		44.2	55.8		0	100	
PHF	.750	.000	.750	.773	.827	.802	.000	.500	.500

Accurate Counts
978-664-2565

N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

Groups Printed- Cars

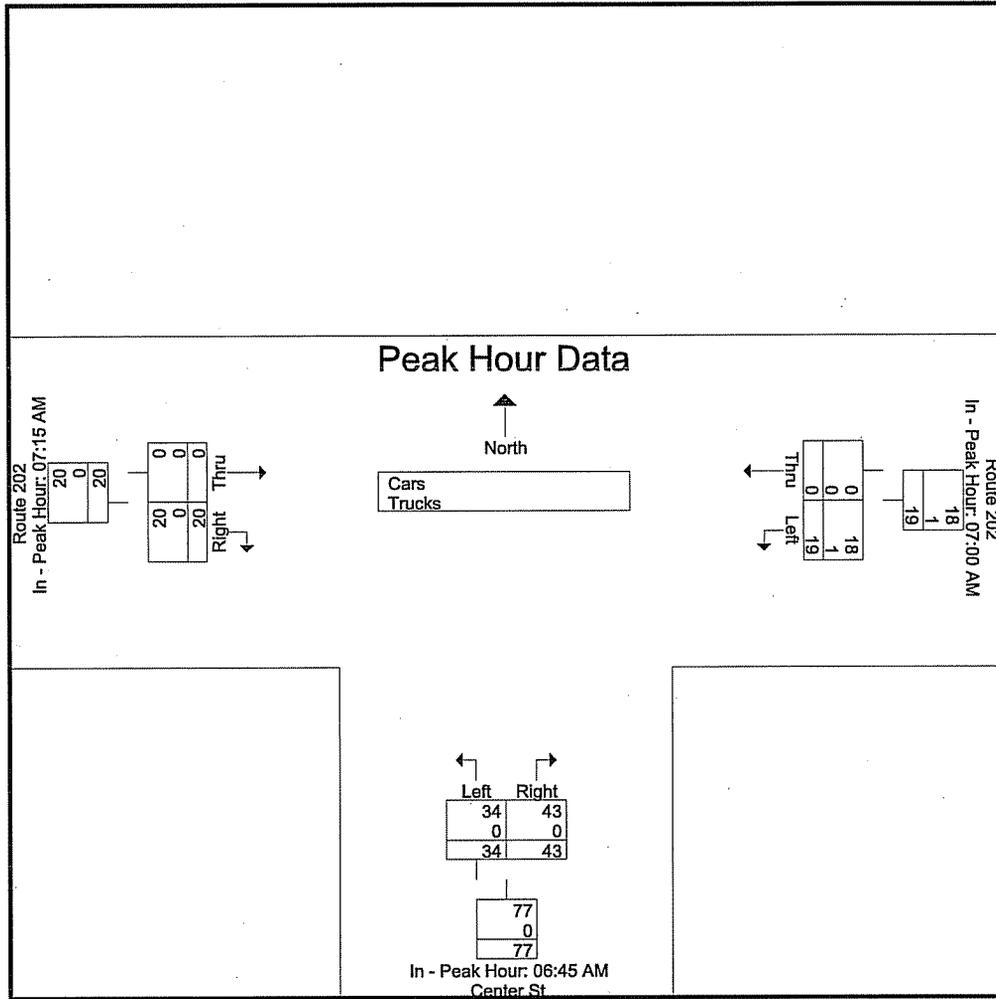
Start Time	Route 202 From East		Center St From South		Route 202 From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
06:30 AM	3	0	7	5	0	0	15
06:45 AM	2	0	7	10	0	1	20
Total	5	0	14	15	0	1	35
07:00 AM	4	0	11	13	0	3	31
07:15 AM	6	0	10	10	0	5	31
07:30 AM	5	0	6	10	0	10	31
07:45 AM	3	0	5	10	0	1	19
Total	18	0	32	43	0	19	112
08:00 AM	3	0	3	5	0	4	15
08:15 AM	4	0	7	10	0	4	25
Grand Total	30	0	56	73	0	28	187
Apprch %	100	0	43.4	56.6	0	100	
Total %	16	0	29.9	39	0	15	

Start Time	Route 202 From East			Center St From South			Route 202 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 06:45 AM										
06:45 AM	2	0	2	7	10	17	0	1	1	20
07:00 AM	4	0	4	11	13	24	0	3	3	31
07:15 AM	6	0	6	10	10	20	0	5	5	31
07:30 AM	5	0	5	6	10	16	0	10	10	31
Total Volume	17	0	17	34	43	77	0	19	19	113
% App. Total	100	0		44.2	55.8		0	100		
PHF	.708	.000	.708	.773	.827	.802	.000	.475	.475	.911

Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3

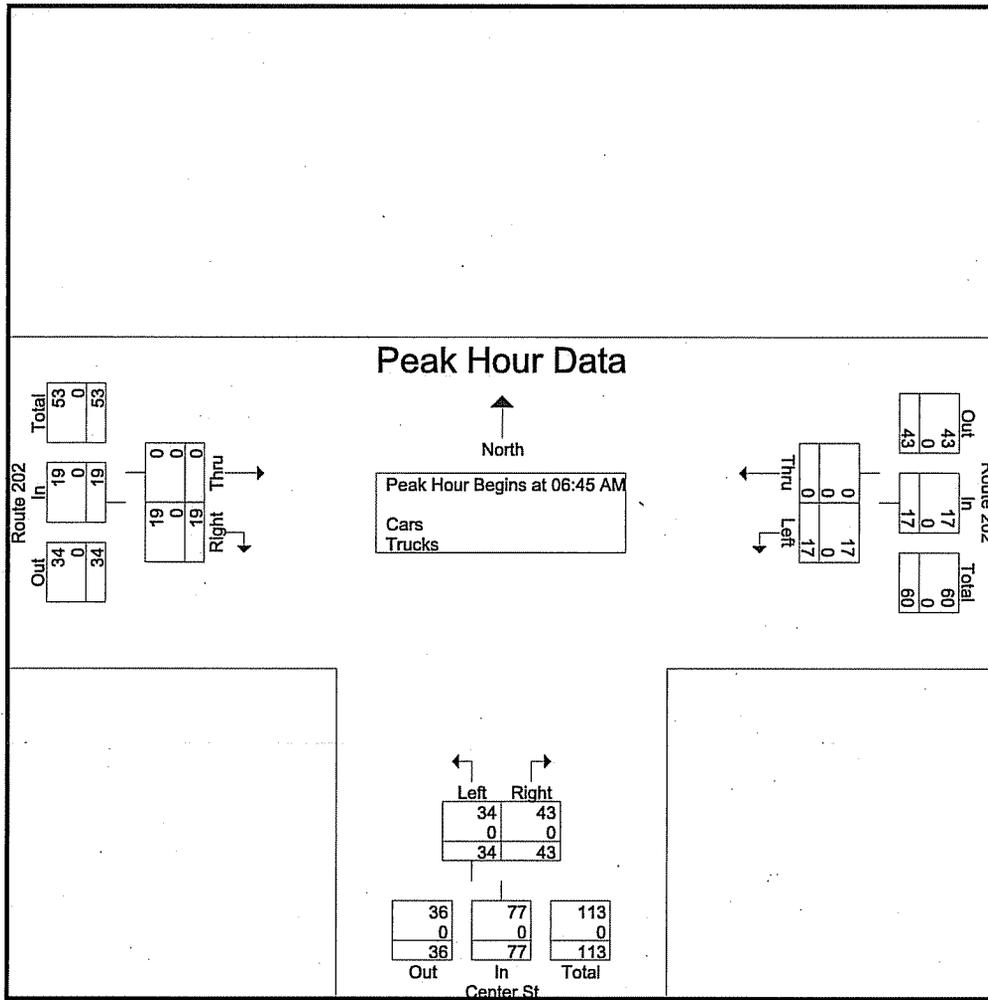
N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy



Accurate Counts
978-664-2565

N/S Street : Center Street
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2



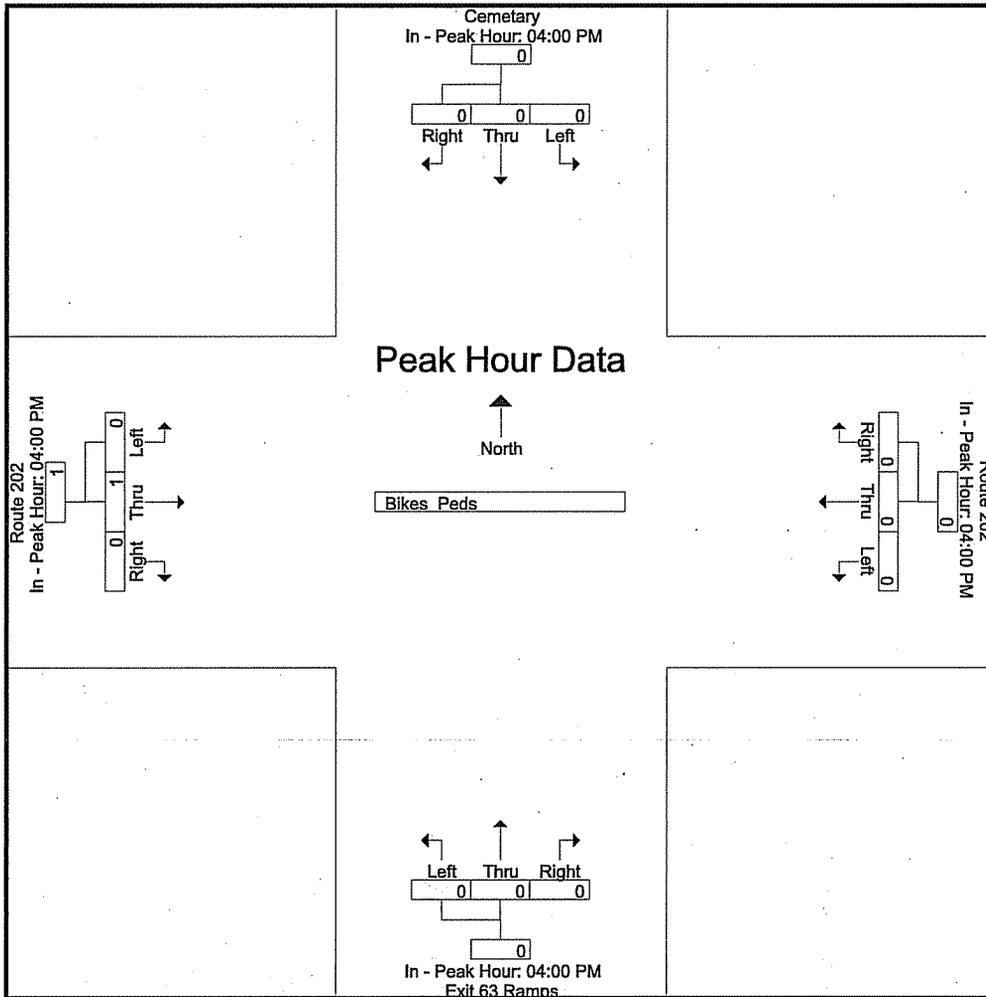
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			06:45 AM			07:15 AM		
+0 mins.	4	0	4	7	10	17	0	5	5
+15 mins.	6	0	6	11	13	24	0	10	10
+30 mins.	5	0	5	10	10	20	0	1	1
+45 mins.	4	0	4	6	10	16	0	4	4
Total Volume	19	0	19	34	43	77	0	20	20
% App. Total	100	0		44.2	55.8		0	100	
PHF	.792	.000	.792	.773	.827	.802	.000	.500	.500
Cars	18	0	18	34	43	77	0	20	20
% Cars	94.7	0	94.7	100	100	100	0	100	100
Trucks	1	0	1	0	0	0	0	0	0
% Trucks	5.3	0	5.3	0	0	0	0	0	0

Accurate Counts
978-664-2565

File Name : 5222800.
Site Code : 5222800.
Start Date : 9/6/2012
Page No : 3

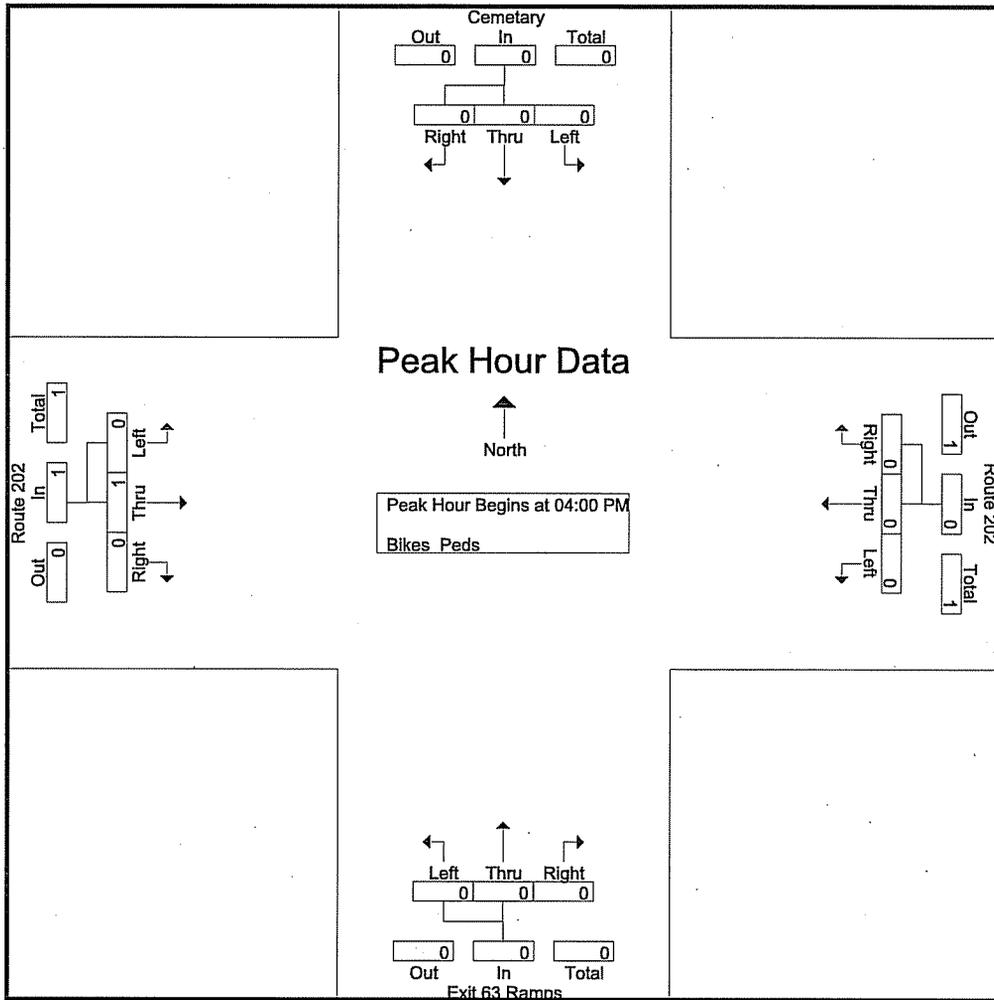
N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy



Accurate Counts
978-664-2565

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250

Accurate Counts
978-664-2565

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

Groups Printed- Bikes Peds

Start Time	Cemetary From North				Route 202 From East				Exit 63 Ramps From South				Route 202 From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Apprch %	0	0	0		0	0	0		0	0	0		0	100	0				
Total %	0	0	0		0	0	0		0	0	0		0	100	0			100	

Start Time	Cemetary From North				Route 202 From East				Exit 63 Ramps From South				Route 202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% App. Total	0	0	0		0	0	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.250

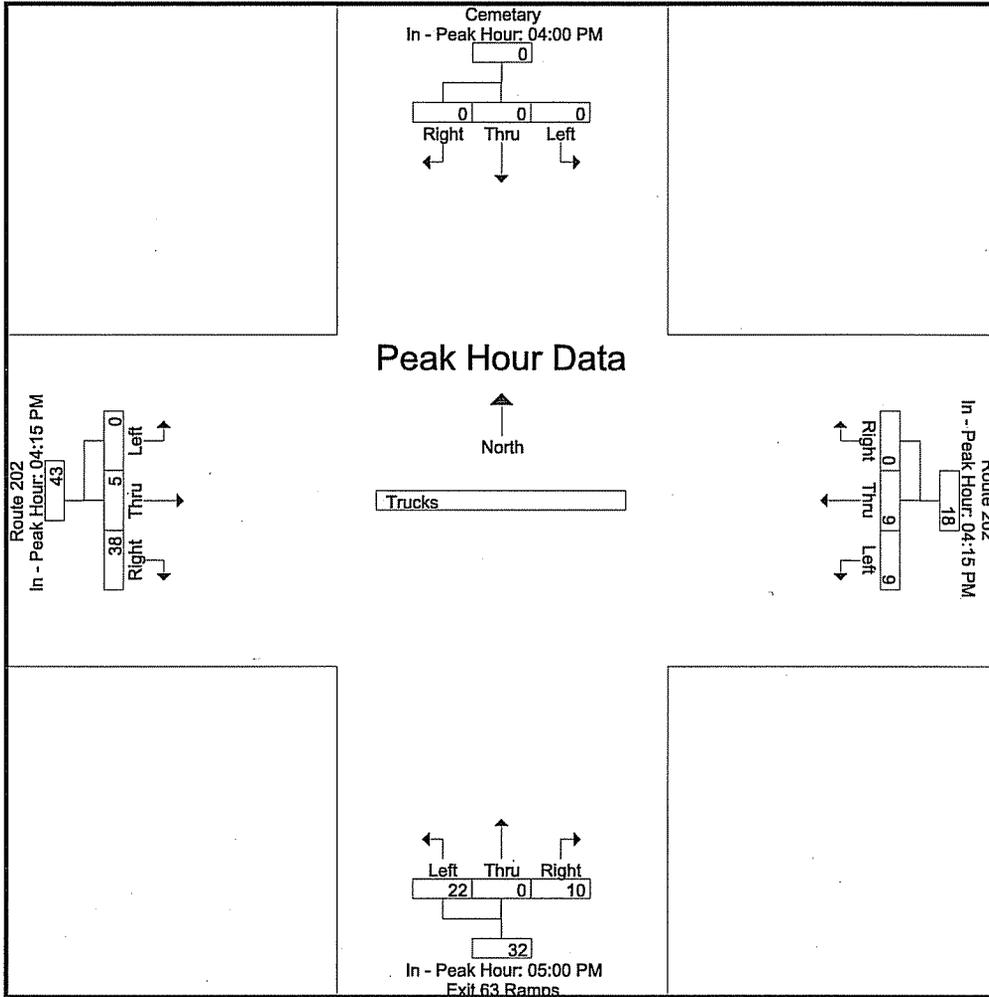
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:00 PM

Accurate Counts
978-664-2565

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy

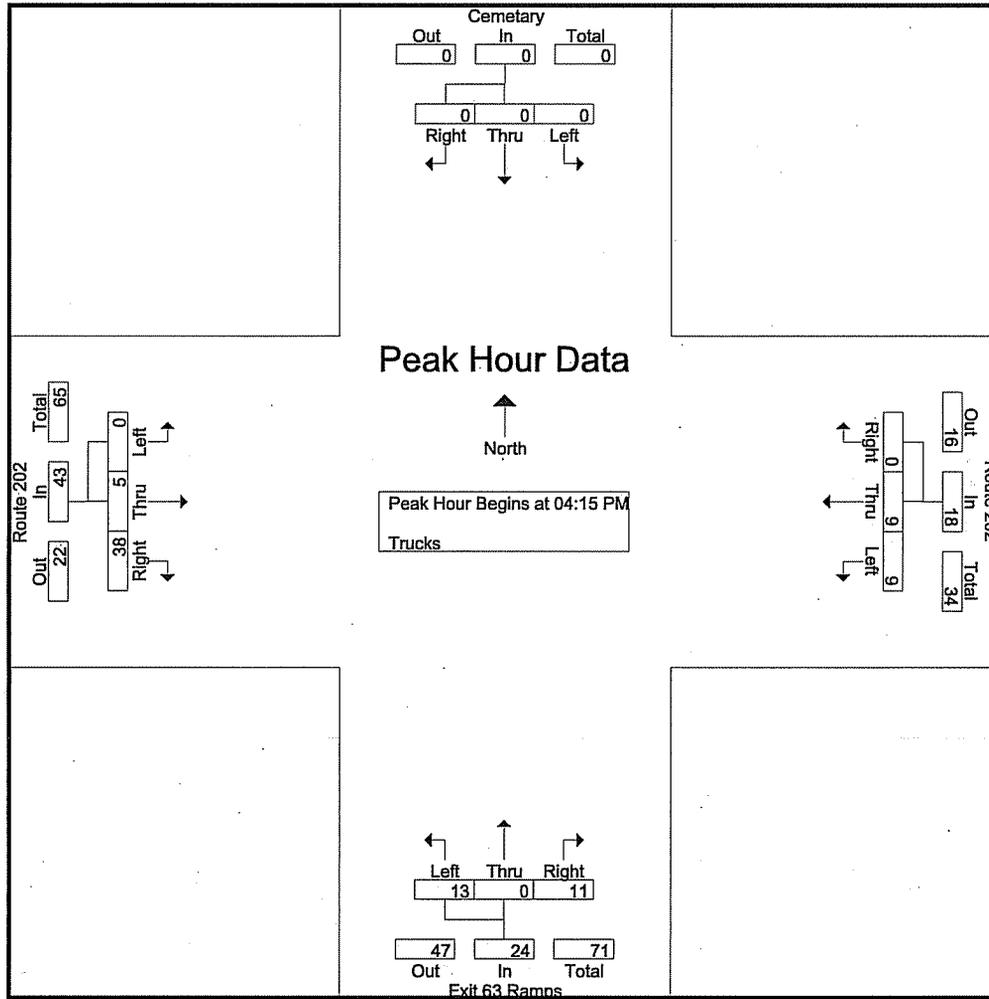
File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:15 PM				05:00 PM				04:15 PM			
+0 mins.	0	0	0	0	1	3	0	4	4	0	2	6	0	1	13	14
+15 mins.	0	0	0	0	2	1	0	3	6	0	3	9	0	4	7	11
+30 mins.	0	0	0	0	2	0	0	2	6	0	5	11	0	0	10	10
+45 mins.	0	0	0	0	4	5	0	9	6	0	0	6	0	0	8	8
Total Volume	0	0	0	0	9	9	0	18	22	0	10	32	0	5	38	43
% App. Total	0	0	0	0	50	50	0	50	68.8	0	31.2	68.8	0	11.6	88.4	88.4
PHF	.000	.000	.000	.000	.563	.450	.000	.500	.917	.000	.500	.727	.000	.313	.731	.768

Accurate Counts
978-664-2565

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

Groups Printed- Trucks

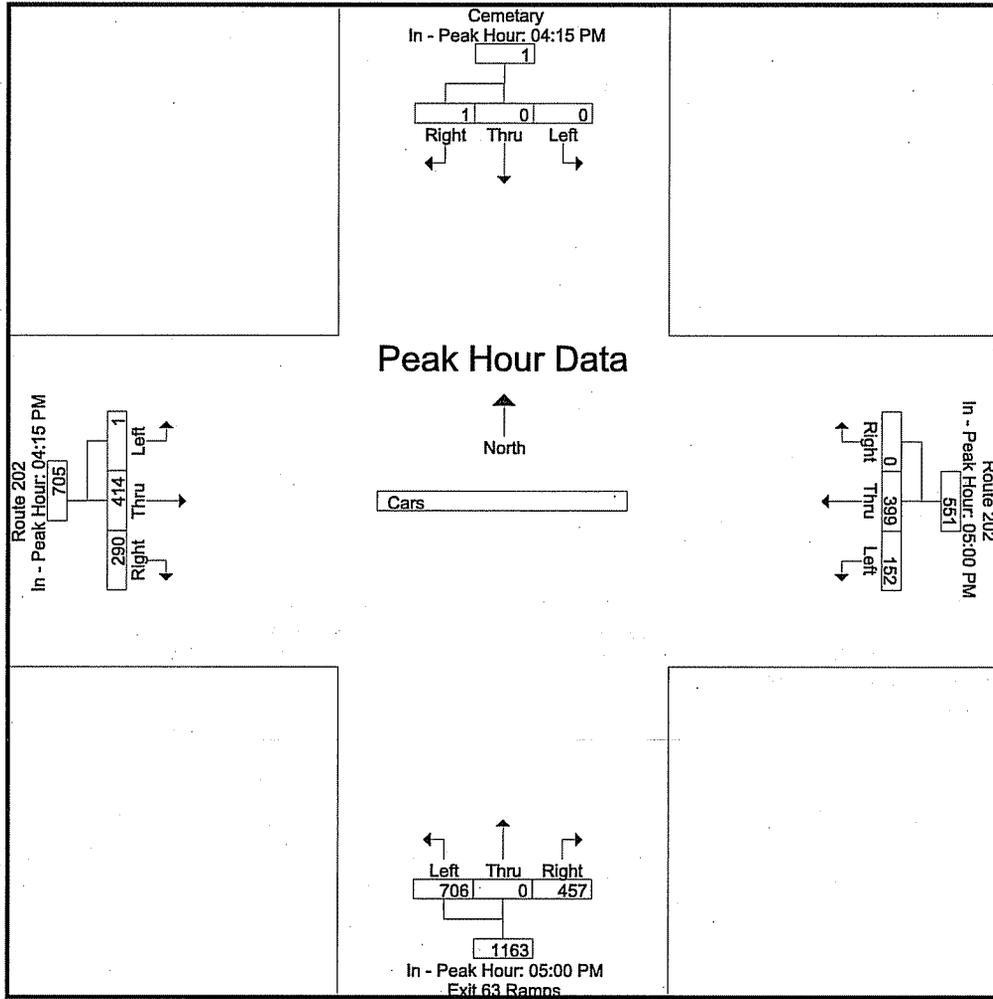
Start Time	Cemetary From North			Route 202 From East			Exit 63 Ramps From South			Route 202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:00 PM	0	0	0	1	4	0	7	0	2	0	1	3	18
04:15 PM	0	0	0	1	3	0	3	0	6	0	1	13	27
04:30 PM	0	0	0	2	1	0	4	0	1	0	4	7	19
04:45 PM	0	0	0	2	0	0	2	0	2	0	0	10	16
Total	0	0	0	6	8	0	16	0	11	0	6	33	80
05:00 PM	0	0	0	4	5	0	4	0	2	0	0	8	23
05:15 PM	0	0	0	2	1	0	6	0	3	0	3	5	20
05:30 PM	0	0	0	2	0	0	6	0	5	0	3	7	23
05:45 PM	0	0	0	0	0	0	6	0	0	0	7	6	19
Total	0	0	0	8	6	0	22	0	10	0	13	26	85
Grand Total	0	0	0	14	14	0	38	0	21	0	19	59	165
Apprch %	0	0	0	50	50	0	64.4	0	35.6	0	24.4	75.6	
Total %	0	0	0	8.5	8.5	0	23	0	12.7	0	11.5	35.8	

Start Time	Cemetary From North				Route 202 From East				Exit 63 Ramps From South				Route 202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	0	0	0	1	3	0	4	3	0	6	9	0	1	13	14	27
04:30 PM	0	0	0	0	2	1	0	3	4	0	1	5	0	4	7	11	19
04:45 PM	0	0	0	0	2	0	0	2	2	0	2	4	0	0	10	10	16
05:00 PM	0	0	0	0	4	5	0	9	4	0	2	6	0	0	8	8	23
Total Volume	0	0	0	0	9	9	0	18	13	0	11	24	0	5	38	43	85
% App. Total	0	0	0	0	50	50	0		54.2	0	45.8		0	11.6	88.4		
PHF	.000	.000	.000	.000	.563	.450	.000	.500	.813	.000	.458	.667	.000	.313	.731	.768	.787

Accurate Counts
978-664-2565

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy

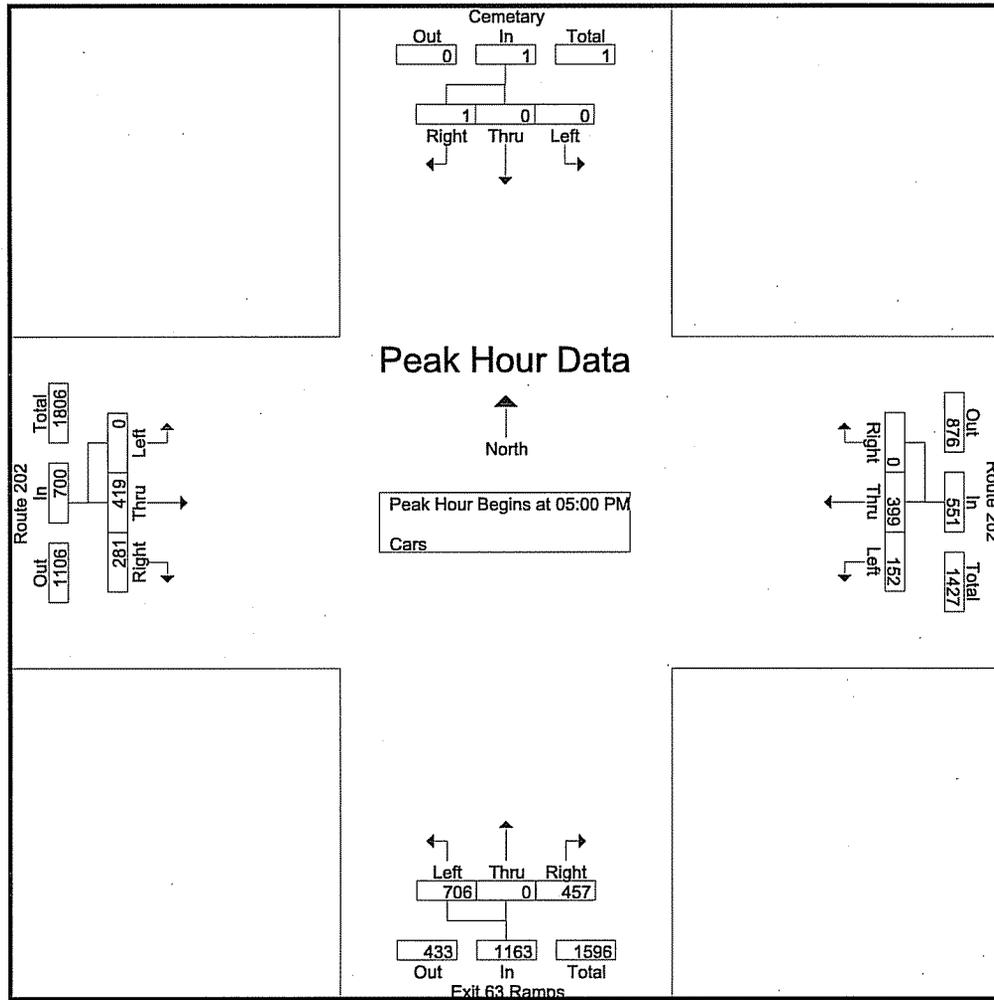
File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3



Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				05:00 PM				05:00 PM				04:15 PM			
+0 mins.	0	0	0	0	42	109	0	151	145	0	95	240	0	94	75	169
+15 mins.	0	0	0	0	52	85	0	137	183	0	97	280	1	101	65	167
+30 mins.	0	0	0	0	27	106	0	133	186	0	128	314	0	99	75	174
+45 mins.	0	0	1	1	31	99	0	130	192	0	137	329	0	120	75	195
Total Volume	0	0	1	1	152	399	0	551	706	0	457	1163	1	414	290	705
% App. Total	0	0	100		27.6	72.4	0		60.7	0	39.3		0.1	58.7	41.1	
PHF	.000	.000	.250	.250	.731	.915	.000	.912	.919	.000	.834	.884	.250	.863	.967	.904

Accurate Counts
978-664-2565

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800.
Site Code : 5222800.
Start Date : 9/6/2012
Page No : 1

Groups Printed- Cars

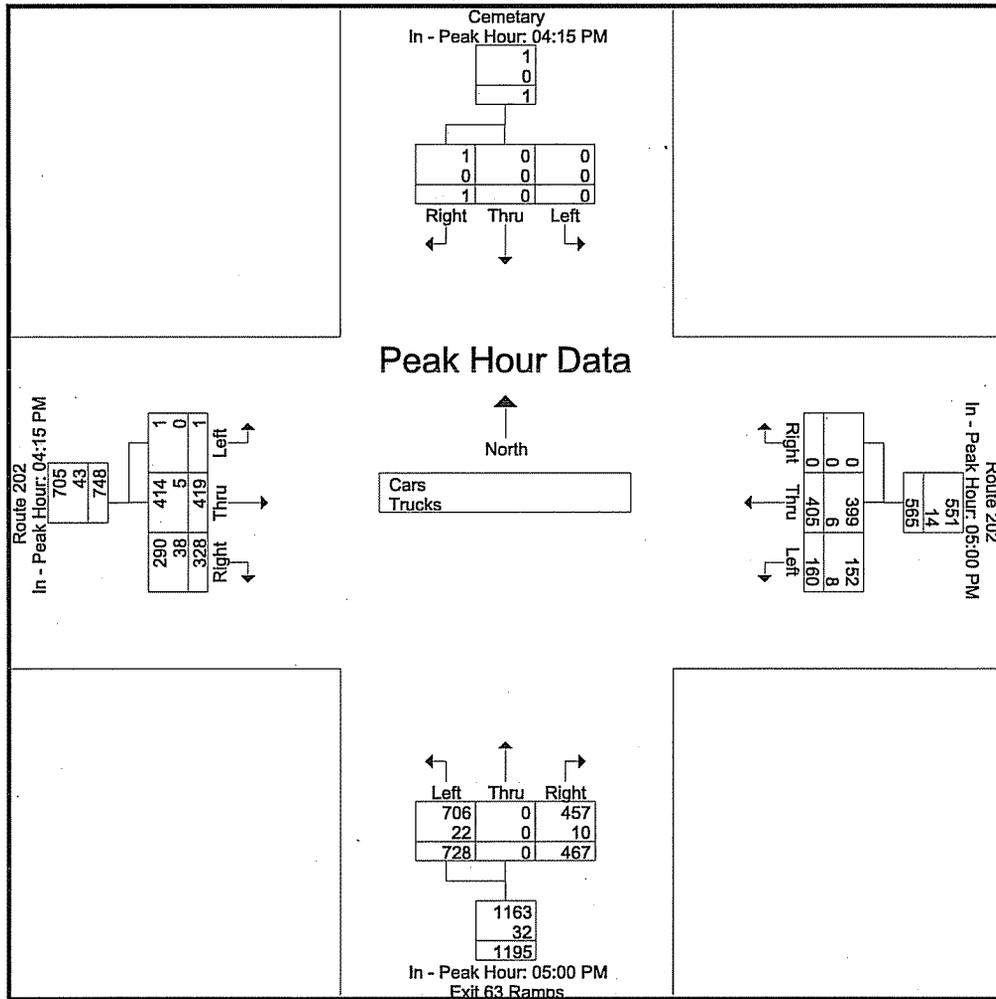
Start Time	Cemetary From North			Route 202 From East			Exit 63 Ramps From South			Route 202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:00 PM	0	0	0	33	88	0	106	0	78	0	94	72	471
04:15 PM	0	0	0	30	85	0	118	0	52	0	94	75	454
04:30 PM	0	0	0	47	75	0	143	0	73	1	101	65	505
04:45 PM	0	0	0	35	91	0	165	0	104	0	99	75	569
Total	0	0	0	145	339	0	532	0	307	1	388	287	1999
05:00 PM	0	0	1	42	109	0	145	0	95	0	120	75	587
05:15 PM	0	0	0	52	85	0	183	0	97	0	92	76	585
05:30 PM	0	0	0	27	106	0	186	0	128	0	102	52	601
05:45 PM	0	0	0	31	99	0	192	0	137	0	105	78	642
Total	0	0	1	152	399	0	706	0	457	0	419	281	2415
Grand Total	0	0	1	297	738	0	1238	0	764	1	807	568	4414
Apprch %	0	0	100	28.7	71.3	0	61.8	0	38.2	0.1	58.6	41.3	
Total %	0	0	0	6.7	16.7	0	28	0	17.3	0	18.3	12.9	

Start Time	Cemetary From North				Route 202 From East				Exit 63 Ramps From South				Route 202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	1	1	42	109	0	151	145	0	95	240	0	120	75	195	587
05:15 PM	0	0	0	0	52	85	0	137	183	0	97	280	0	92	76	168	585
05:30 PM	0	0	0	0	27	106	0	133	186	0	128	314	0	102	52	154	601
05:45 PM	0	0	0	0	31	99	0	130	192	0	137	329	0	105	78	183	642
Total Volume	0	0	1	1	152	399	0	551	706	0	457	1163	0	419	281	700	2415
% App. Total	0	0	100	100	27.6	72.4	0	91.2	60.7	0	39.3	100	0	59.9	40.1	100	100
PHF	.000	.000	.250	.250	.731	.915	.000	.912	.919	.000	.834	.884	.000	.873	.901	.897	.940

Accurate Counts
978-664-2565

File Name : 5222800.
Site Code : 5222800.
Start Date : 9/6/2012
Page No : 3

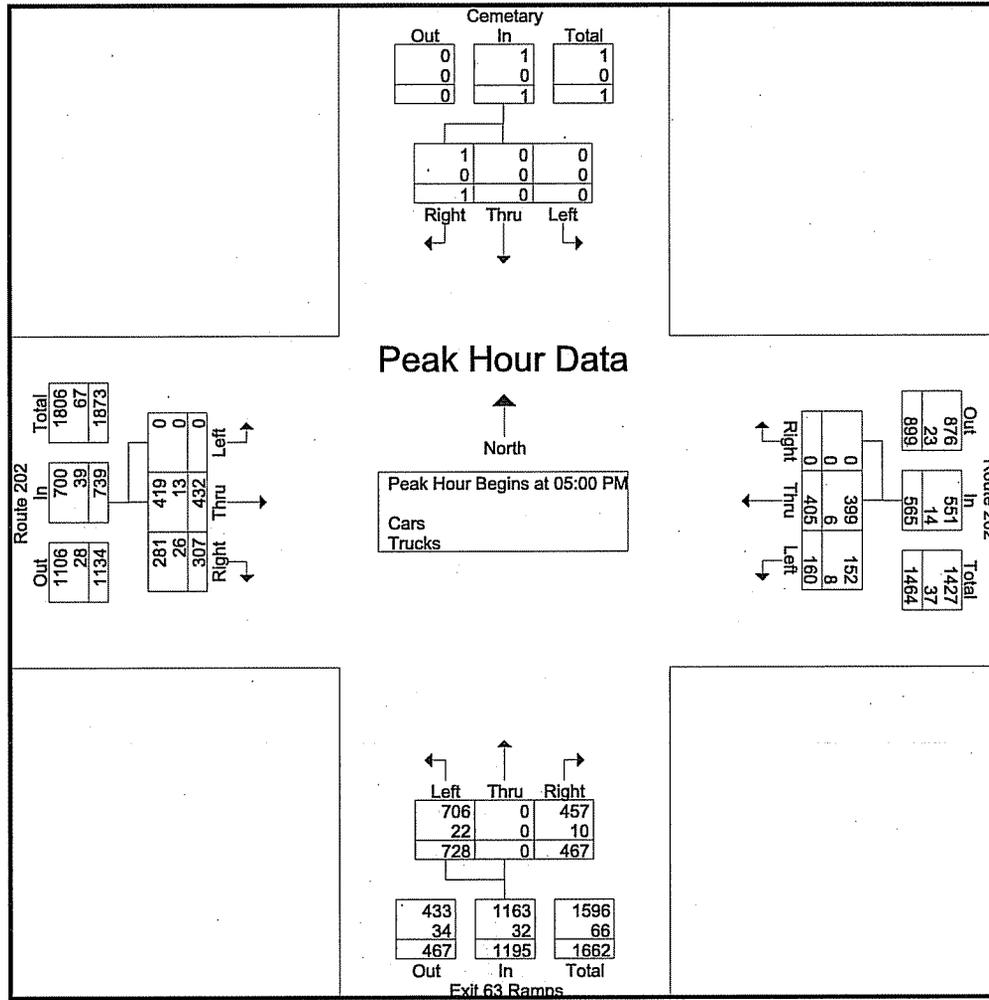
N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy



Accurate Counts
978-664-2565

File Name : 5222800.
Site Code : 5222800.
Start Date : 9/6/2012
Page No : 2

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				05:00 PM				05:00 PM				04:15 PM			
+0 mins.	0	0	0	0	46	114	0	160	149	0	97	246	0	95	88	183
+15 mins.	0	0	0	0	54	86	0	140	189	0	100	289	1	105	72	178
+30 mins.	0	0	0	0	29	106	0	135	192	0	133	325	0	99	85	184
+45 mins.	0	0	1	1	31	99	0	130	198	0	137	335	0	120	83	203
Total Volume	0	0	1	1	160	405	0	565	728	0	467	1195	1	419	328	748
% App. Total	0	0	100		28.3	71.7	0		60.9	0	39.1		0.1	56	43.9	
PHF	.000	.000	.250	.250	.741	.888	.000	.883	.919	.000	.852	.892	.250	.873	.932	.921
Cars	0	0	1	1	152	399	0	551	706	0	457	1163	1	414	290	705
% Cars	0	0	100	100	95	98.5	0	97.5	97	0	97.9	97.3	100	98.8	88.4	94.3
Trucks	0	0	0	0	8	6	0	14	22	0	10	32	0	5	38	43
% Trucks	0	0	0	0	5	1.5	0	2.5	3	0	2.1	2.7	0	1.2	11.6	5.7

Accurate Counts

978-664-2565

N/S Street : Exit 63 Ramps / Cemetary Dr
 E/W Street: Route 202
 City/State : Gray, ME
 Weather : Cloudy

File Name : 5222800
 Site Code : 5222800
 Start Date : 9/6/2012
 Page No : 1

Groups Printed- Cars - Trucks

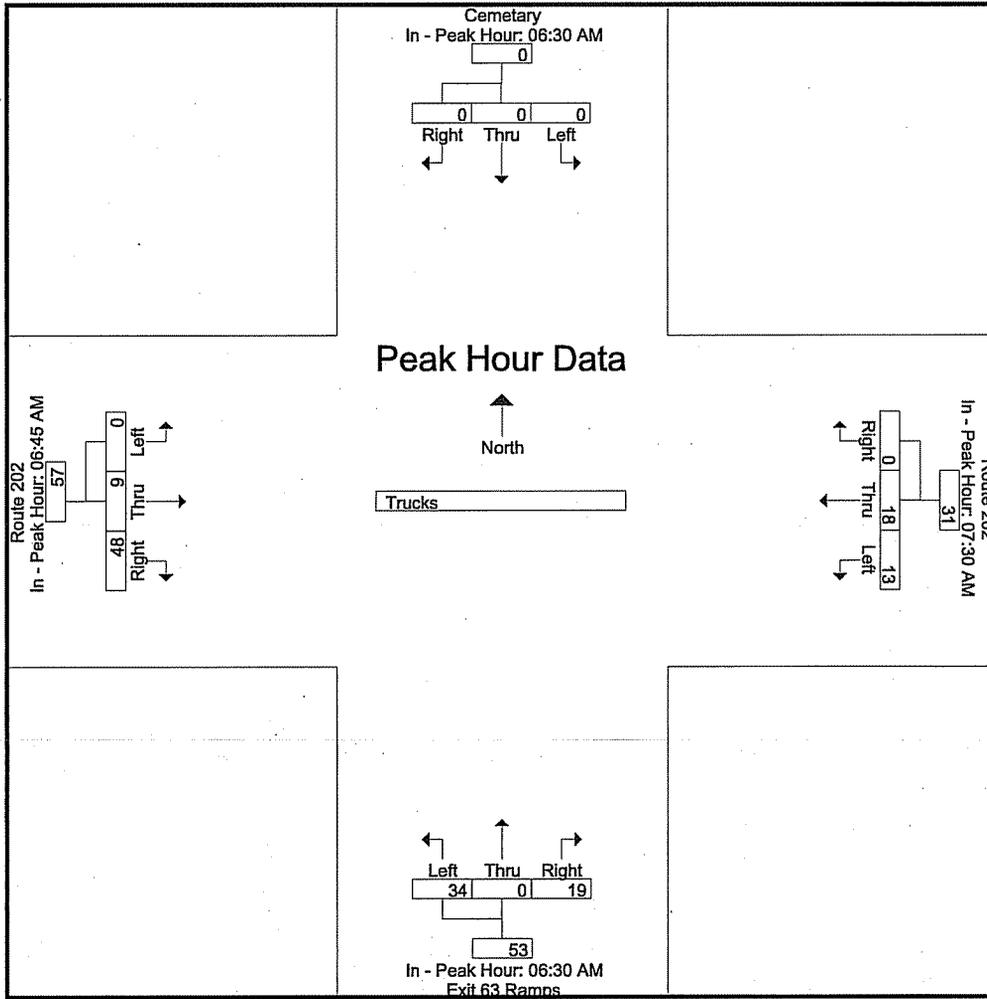
Start Time	Cemetary From North			Route 202 From East			Exit 63 Ramps From South			Route 202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:00 PM	0	0	0	34	92	0	113	0	80	0	95	75	489
04:15 PM	0	0	0	31	88	0	121	0	58	0	95	88	481
04:30 PM	0	0	0	49	76	0	147	0	74	1	105	72	524
04:45 PM	0	0	0	37	91	0	167	0	106	0	99	85	585
Total	0	0	0	151	347	0	548	0	318	1	394	320	2079
05:00 PM	0	0	1	46	114	0	149	0	97	0	120	83	610
05:15 PM	0	0	0	54	86	0	189	0	100	0	95	81	605
05:30 PM	0	0	0	29	106	0	192	0	133	0	105	59	624
05:45 PM	0	0	0	31	99	0	198	0	137	0	112	84	661
Total	0	0	1	160	405	0	728	0	467	0	432	307	2500
Grand Total	0	0	1	311	752	0	1276	0	785	1	826	627	4579
Apprch %	0	0	100	29.3	70.7	0	61.9	0	38.1	0.1	56.8	43.1	
Total %	0	0	0	6.8	16.4	0	27.9	0	17.1	0	18	13.7	
Cars	0	0	1	297	738	0	1238	0	764	1	807	568	4414
% Cars	0	0	100	95.5	98.1	0	97	0	97.3	100	97.7	90.6	96.4
Trucks	0	0	0	14	14	0	38	0	21	0	19	59	165
% Trucks	0	0	0	4.5	1.9	0	3	0	2.7	0	2.3	9.4	3.6

Start Time	Cemetary From North				Route 202 From East				Exit 63 Ramps From South				Route 202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	1	1	46	114	0	160	149	0	97	246	0	120	83	203	610
05:15 PM	0	0	0	0	54	86	0	140	189	0	100	289	0	95	81	176	605
05:30 PM	0	0	0	0	29	106	0	135	192	0	133	325	0	105	59	164	624
05:45 PM	0	0	0	0	31	99	0	130	198	0	137	335	0	112	84	196	661
Total Volume	0	0	1	1	160	405	0	565	728	0	467	1195	0	432	307	739	2500
% App. Total	0	0	100	100	28.3	71.7	0	28.3	60.9	0	39.1	60.9	0	58.5	41.5	58.5	66.1
PHF	.000	.000	.250	.250	.741	.888	.000	.883	.919	.000	.852	.892	.000	.900	.914	.910	.946
Cars	0	0	1	1	152	399	0	551	706	0	457	1163	0	419	281	700	2415
% Cars	0	0	100	100	95.0	98.5	0	97.5	97.0	0	97.9	97.3	0	97.0	91.5	94.7	96.6
Trucks	0	0	0	0	8	6	0	14	22	0	10	32	0	13	26	39	85
% Trucks	0	0	0	0	5.0	1.5	0	2.5	3.0	0	2.1	2.7	0	3.0	8.5	5.3	3.4

Accurate Counts
978-664-2565

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy

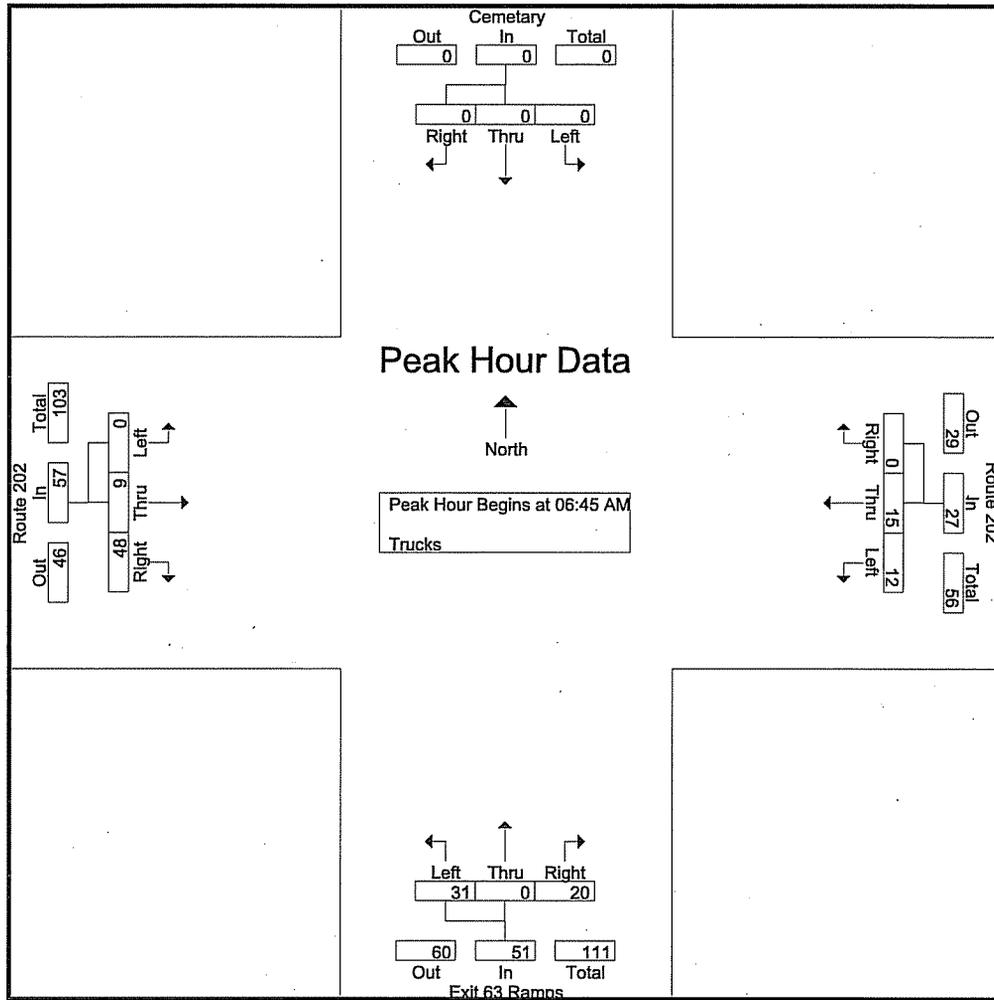
File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2



Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	06:30 AM				07:30 AM				06:30 AM				06:45 AM			
+0 mins.	0	0	0	0	4	5	0	9	12	0	3	15	0	3	12	15
+15 mins.	0	0	0	0	1	6	0	7	7	0	5	12	0	2	10	12
+30 mins.	0	0	0	0	3	4	0	7	9	0	8	17	0	3	12	15
+45 mins.	0	0	0	0	5	3	0	8	6	0	3	9	0	1	14	15
Total Volume	0	0	0	0	13	18	0	31	34	0	19	53	0	9	48	57
% App. Total	0	0	0	0	41.9	58.1	0	0	64.2	0	35.8	0	0	15.8	84.2	0
PHF	.000	.000	.000	.000	.650	.750	.000	.861	.708	.000	.594	.779	.000	.750	.857	.950

Accurate Counts
978-664-2565

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

Groups Printed- Trucks

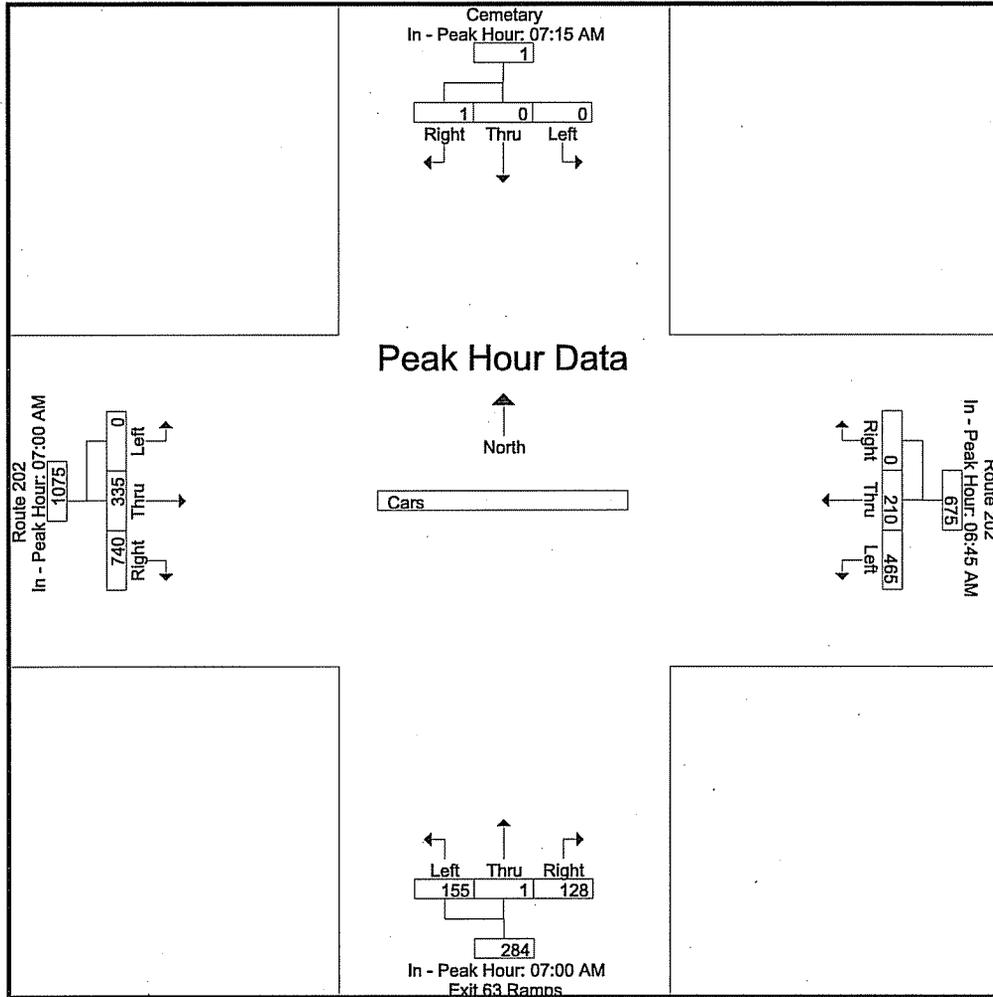
Start Time	Cemetary From North			Route 202 From East			Exit 63 Ramps From South			Route 202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:30 AM	0	0	0	1	1	0	12	0	3	0	1	11	29
06:45 AM	0	0	0	3	7	0	7	0	5	0	3	12	37
Total	0	0	0	4	8	0	19	0	8	0	4	23	66
07:00 AM	0	0	0	2	2	0	9	0	8	0	2	10	33
07:15 AM	0	0	0	3	1	0	6	0	3	0	3	12	28
07:30 AM	0	0	0	4	5	0	9	0	4	0	1	14	37
07:45 AM	0	0	0	1	6	0	6	0	3	0	5	9	30
Total	0	0	0	10	14	0	30	0	18	0	11	45	128
08:00 AM	0	0	0	3	4	0	7	0	3	0	5	6	28
08:15 AM	0	0	0	5	3	0	5	0	5	0	7	9	34
Grand Total	0	0	0	22	29	0	61	0	34	0	27	83	256
Apprch %	0	0	0	43.1	56.9	0	64.2	0	35.8	0	24.5	75.5	
Total %	0	0	0	8.6	11.3	0	23.8	0	13.3	0	10.5	32.4	

Start Time	Cemetary From North				Route 202 From East				Exit 63 Ramps From South				Route 202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:45 AM																	
06:45 AM	0	0	0	0	3	7	0	10	7	0	5	12	0	3	12	15	37
07:00 AM	0	0	0	0	2	2	0	4	9	0	8	17	0	2	10	12	33
07:15 AM	0	0	0	0	3	1	0	4	6	0	3	9	0	3	12	15	28
07:30 AM	0	0	0	0	4	5	0	9	9	0	4	13	0	1	14	15	37
Total Volume	0	0	0	0	12	15	0	27	31	0	20	51	0	9	48	57	135
% App. Total	0	0	0	0	44.4	55.6	0	0	60.8	0	39.2	0	0	15.8	84.2	0	0
PHF	.000	.000	.000	.000	.750	.536	.000	.675	.861	.000	.625	.750	.000	.750	.857	.950	.912

Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3

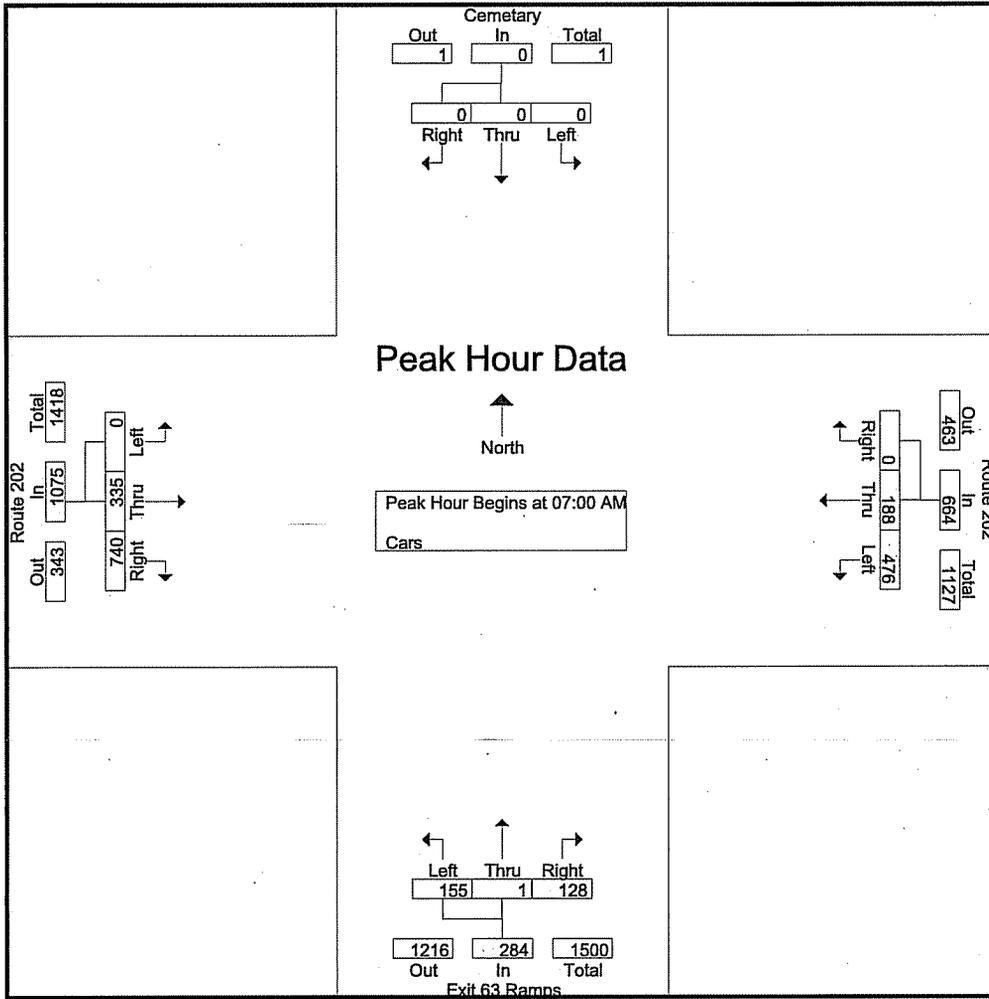
N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy



Accurate Counts
978-664-2565

File Name : 5222800.
Site Code : 5222800.
Start Date : 9/6/2012
Page No : 2

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy



Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				06:45 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	98	57	0	155	46	0	22	68	0	75	176	251
+15 mins.	0	0	0	0	94	48	0	142	36	1	26	63	0	89	182	271
+30 mins.	0	0	0	0	140	56	0	196	38	0	42	80	0	80	202	282
+45 mins.	0	0	1	1	133	49	0	182	35	0	38	73	0	91	180	271
Total Volume	0	0	1	1	465	210	0	675	155	1	128	284	0	335	740	1075
% App. Total	0	0	100		68.9	31.1	0		54.6	0.4	45.1		0	31.2	68.8	
PHF	.000	.000	.250	.250	.830	.921	.000	.861	.842	.250	.762	.888	.000	.920	.916	.953

Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy

Groups Printed- Cars

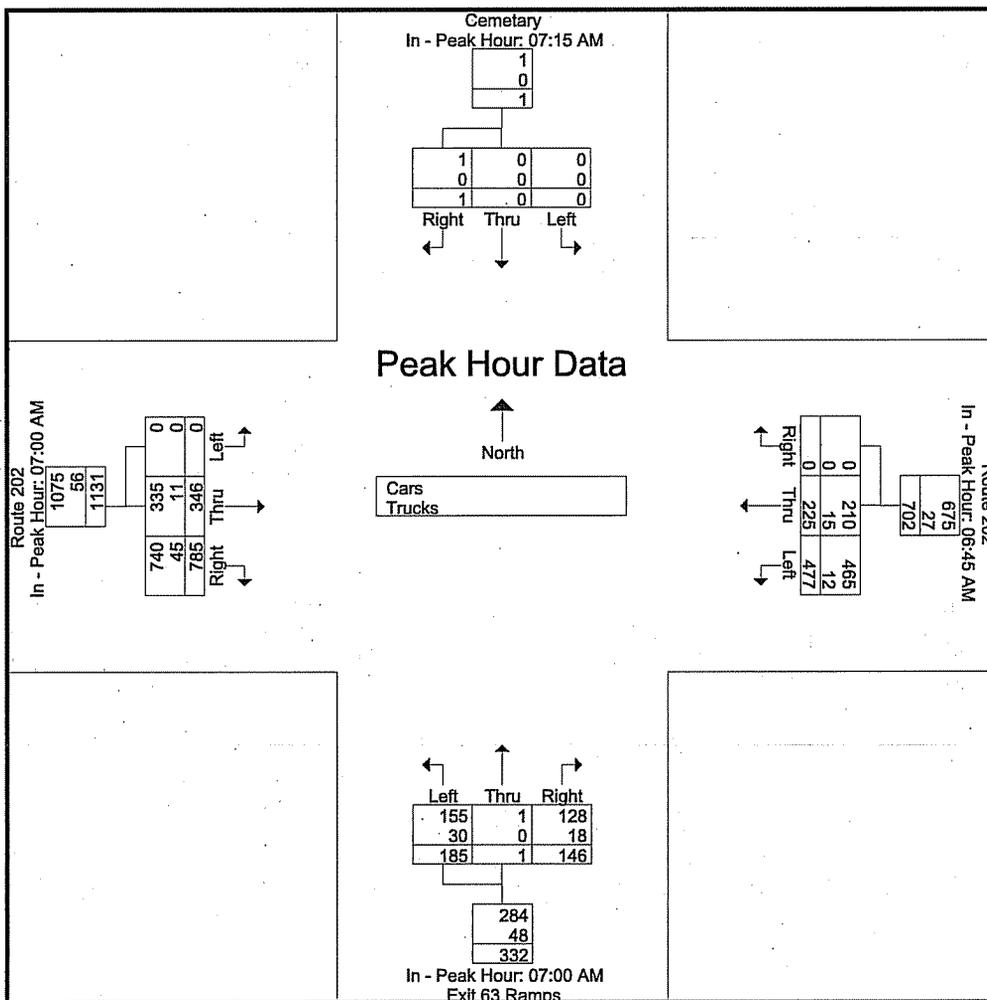
Start Time	Cemetary From North			Route 202 From East			Exit 63 Ramps From South			Route 202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:30 AM	0	0	0	101	39	0	41	0	8	0	50	137	376
06:45 AM	0	0	0	98	57	0	40	0	20	0	61	176	452
Total	0	0	0	199	96	0	81	0	28	0	111	313	828
07:00 AM	0	0	0	94	48	0	46	0	22	0	75	176	461
07:15 AM	0	0	0	140	56	0	36	1	26	0	89	182	530
07:30 AM	0	0	0	133	49	0	38	0	42	0	80	202	544
07:45 AM	0	0	0	109	35	0	35	0	38	0	91	180	488
Total	0	0	0	476	188	0	155	1	128	0	335	740	2023
08:00 AM	0	0	1	81	37	1	28	0	29	0	67	145	389
08:15 AM	0	0	0	78	37	0	31	0	28	0	77	122	373
Grand Total	0	0	1	834	358	1	295	1	213	0	590	1320	3613
Apprch %	0	0	100	69.9	30	0.1	58	0.2	41.8	0	30.9	69.1	
Total %	0	0	0	23.1	9.9	0	8.2	0	5.9	0	16.3	36.5	

Start Time	Cemetary From North				Route 202 From East				Exit 63 Ramps From South				Route 202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	94	48	0	142	46	0	22	68	0	75	176	251	461
07:15 AM	0	0	0	0	140	56	0	196	36	1	26	63	0	89	182	271	530
07:30 AM	0	0	0	0	133	49	0	182	38	0	42	80	0	80	202	282	544
07:45 AM	0	0	0	0	109	35	0	144	35	0	38	73	0	91	180	271	488
Total Volume	0	0	0	0	476	188	0	664	155	1	128	284	0	335	740	1075	2023
% App. Total	0	0	0	0	71.7	28.3	0		54.6	0.4	45.1		0	31.2	68.8		
PHF	.000	.000	.000	.000	.850	.839	.000	.847	.842	.250	.762	.888	.000	.920	.916	.953	.930

Accurate Counts
978-664-2565

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy

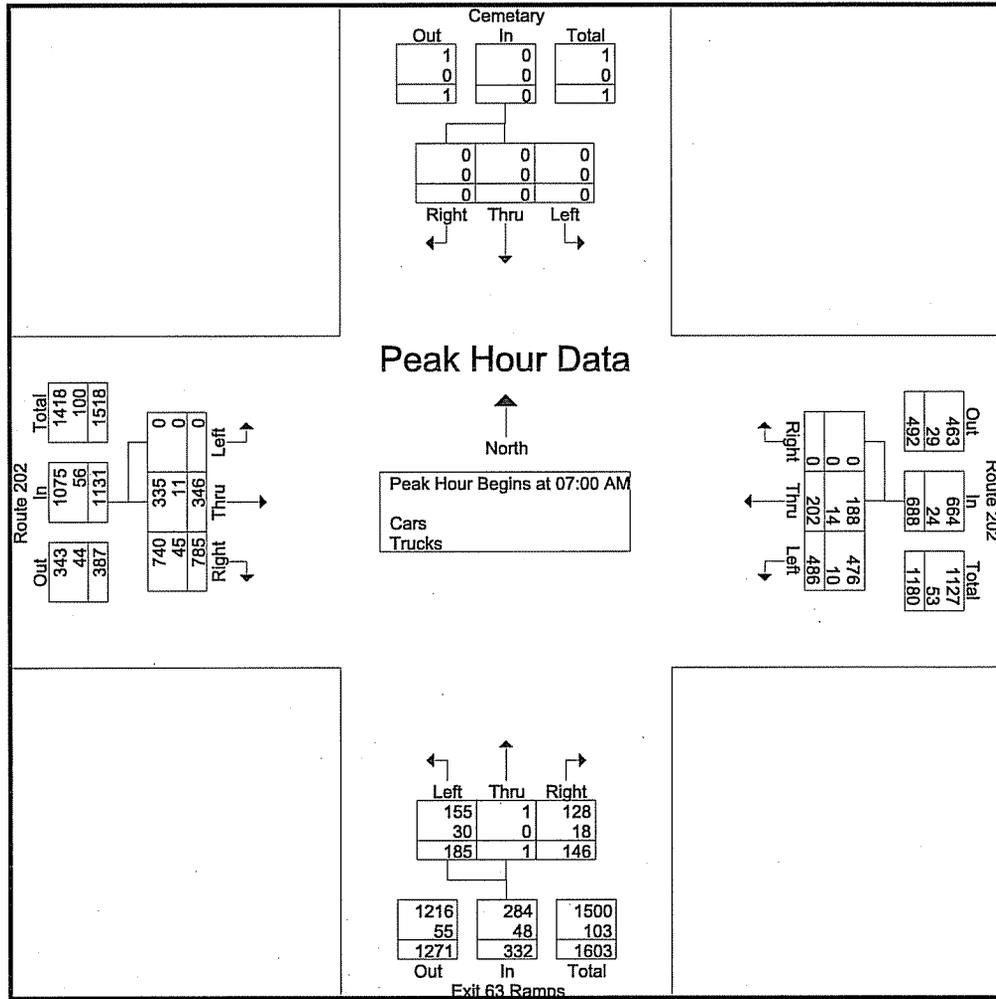
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Site Code : 5222800
Start Date : 9/6/2012
Page No : 3



Accurate Counts
978-664-2565

File Name : 5222800.
Site Code : 5222800.
Start Date : 9/6/2012
Page No : 2

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy



Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				06:45 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	101	64	0	165	55	0	30	85	0	77	186	263
+15 mins.	0	0	0	0	96	50	0	146	42	1	29	72	0	92	194	286
+30 mins.	0	0	0	0	143	57	0	200	47	0	46	93	0	81	216	297
+45 mins.	0	0	1	1	137	54	0	191	41	0	41	82	0	96	189	285
Total Volume	0	0	1	1	477	225	0	702	185	1	146	332	0	346	785	1131
% App. Total	0	0	100		67.9	32.1	0		55.7	0.3	44		0	30.6	69.4	
PHF	.000	.000	.250	.250	.834	.879	.000	.878	.841	.250	.793	.892	.000	.901	.909	.952
Cars	0	0	1	1	465	210	0	675	155	1	128	284	0	335	740	1075
% Cars	0	0	100	100	97.5	93.3	0	96.2	83.8	100	87.7	85.5	0	96.8	94.3	95
Trucks	0	0	0	0	12	15	0	27	30	0	18	48	0	11	45	56
% Trucks	0	0	0	0	2.5	6.7	0	3.8	16.2	0	12.3	14.5	0	3.2	5.7	5

Accurate Counts
978-664-2565

N/S Street : Exit 63 Ramps / Cemetary Dr
E/W Street: Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

Groups Printed- Cars - Trucks

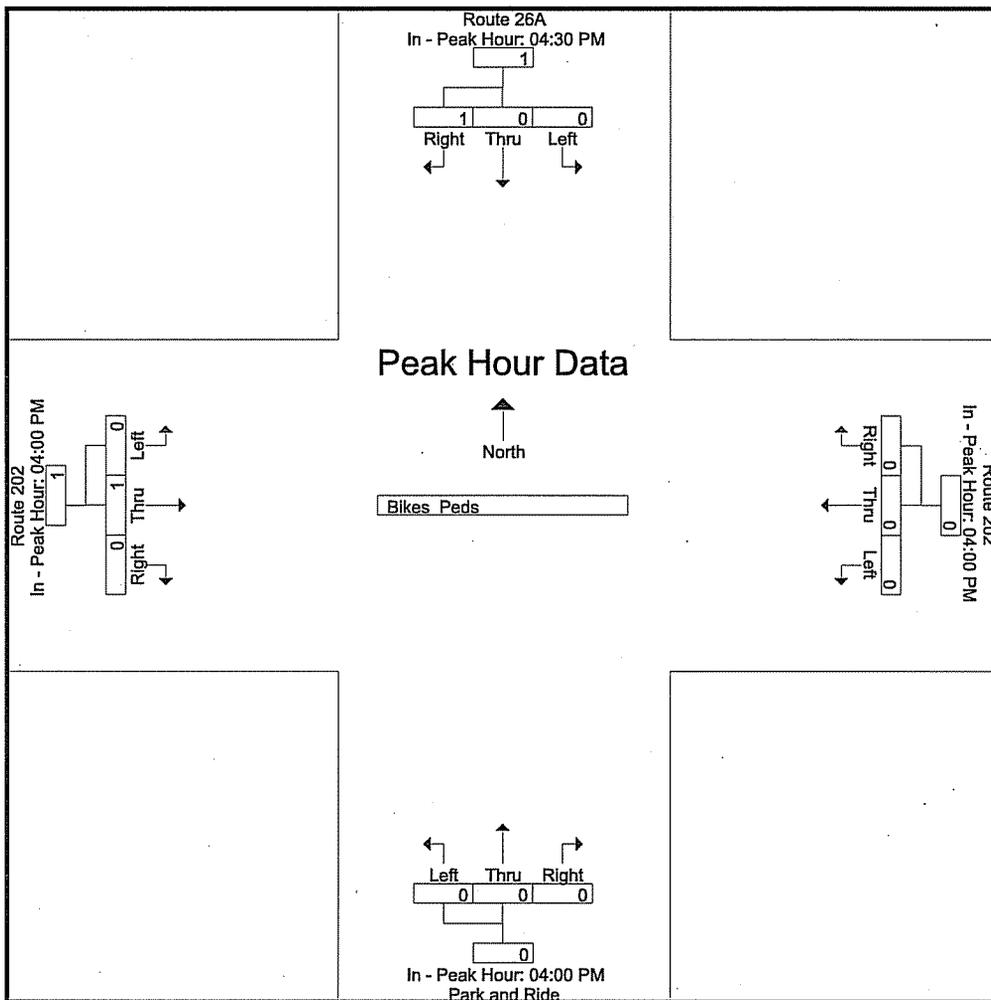
Start Time	Cemetary From North			Route 202 From East			Exit 63 Ramps From South			Route 202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:30 AM	0	0	0	102	40	0	53	0	11	0	51	148	405
06:45 AM	0	0	0	101	64	0	47	0	25	0	64	188	489
Total	0	0	0	203	104	0	100	0	36	0	115	336	894
07:00 AM	0	0	0	96	50	0	55	0	30	0	77	186	494
07:15 AM	0	0	0	143	57	0	42	1	29	0	92	194	558
07:30 AM	0	0	0	137	54	0	47	0	46	0	81	216	581
07:45 AM	0	0	0	110	41	0	41	0	41	0	96	189	518
Total	0	0	0	486	202	0	185	1	146	0	346	785	2151
08:00 AM	0	0	1	84	41	1	35	0	32	0	72	151	417
08:15 AM	0	0	0	83	40	0	36	0	33	0	84	131	407
Grand Total	0	0	1	856	387	1	356	1	247	0	617	1403	3869
Apprch %	0	0	100	68.8	31.1	0.1	58.9	0.2	40.9	0	30.5	69.5	
Total %	0	0	0	22.1	10	0	9.2	0	6.4	0	15.9	36.3	
Cars	0	0	1	834	358	1	295	1	213	0	590	1320	3613
% Cars	0	0	100	97.4	92.5	100	82.9	100	86.2	0	95.6	94.1	93.4
Trucks	0	0	0	22	29	0	61	0	34	0	27	83	256
% Trucks	0	0	0	2.6	7.5	0	17.1	0	13.8	0	4.4	5.9	6.6

Start Time	Cemetary From North				Route 202 From East				Exit 63 Ramps From South				Route 202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	96	50	0	146	55	0	30	85	0	77	186	263	494
07:15 AM	0	0	0	0	143	57	0	200	42	1	29	72	0	92	194	286	558
07:30 AM	0	0	0	0	137	54	0	191	47	0	46	93	0	81	216	297	581
07:45 AM	0	0	0	0	110	41	0	151	41	0	41	82	0	96	189	285	518
Total Volume	0	0	0	0	486	202	0	688	185	1	146	332	0	346	785	1131	2151
% App. Total	0	0	0	0	70.6	29.4	0		55.7	0.3	44		0	30.6	69.4		
PHF	.000	.000	.000	.000	.850	.886	.000	.860	.841	.250	.793	.892	.000	.901	.909	.952	.926
Cars	0	0	0	0	476	188	0	664	155	1	128	284	0	335	740	1075	2023
% Cars	0	0	0	0	97.9	93.1	0	96.5	83.8	100	87.7	85.5	0	96.8	94.3	95.0	94.0
Trucks	0	0	0	0	10	14	0	24	30	0	18	48	0	11	45	56	128
% Trucks	0	0	0	0	2.1	6.9	0	3.5	16.2	0	12.3	14.5	0	3.2	5.7	5.0	6.0

Accurate Counts
978-664-2565

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

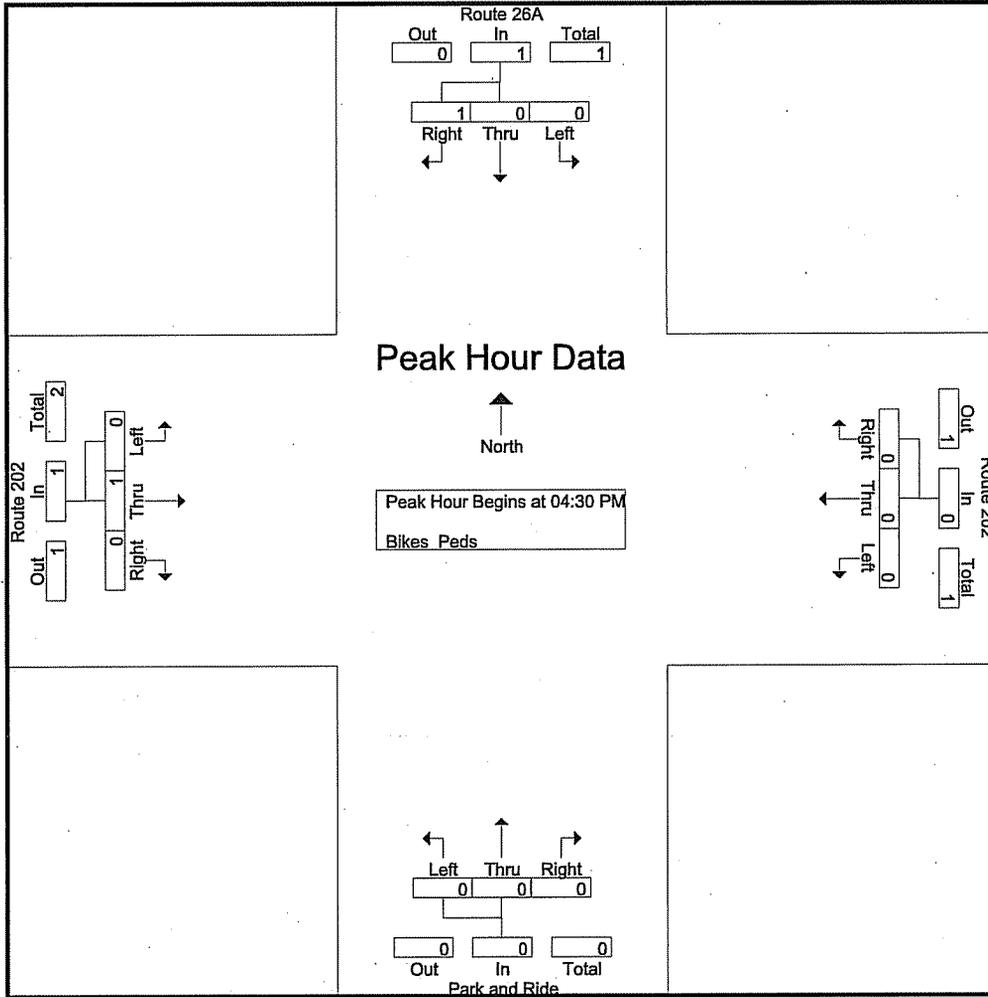
File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3



Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
+45 mins.	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1
% App. Total	0	0	100		0	0	0	0	0	0	0	0	0	100	0	
PHF	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250

Accurate Counts
978-664-2565

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

Groups Printed- Bikes Peds

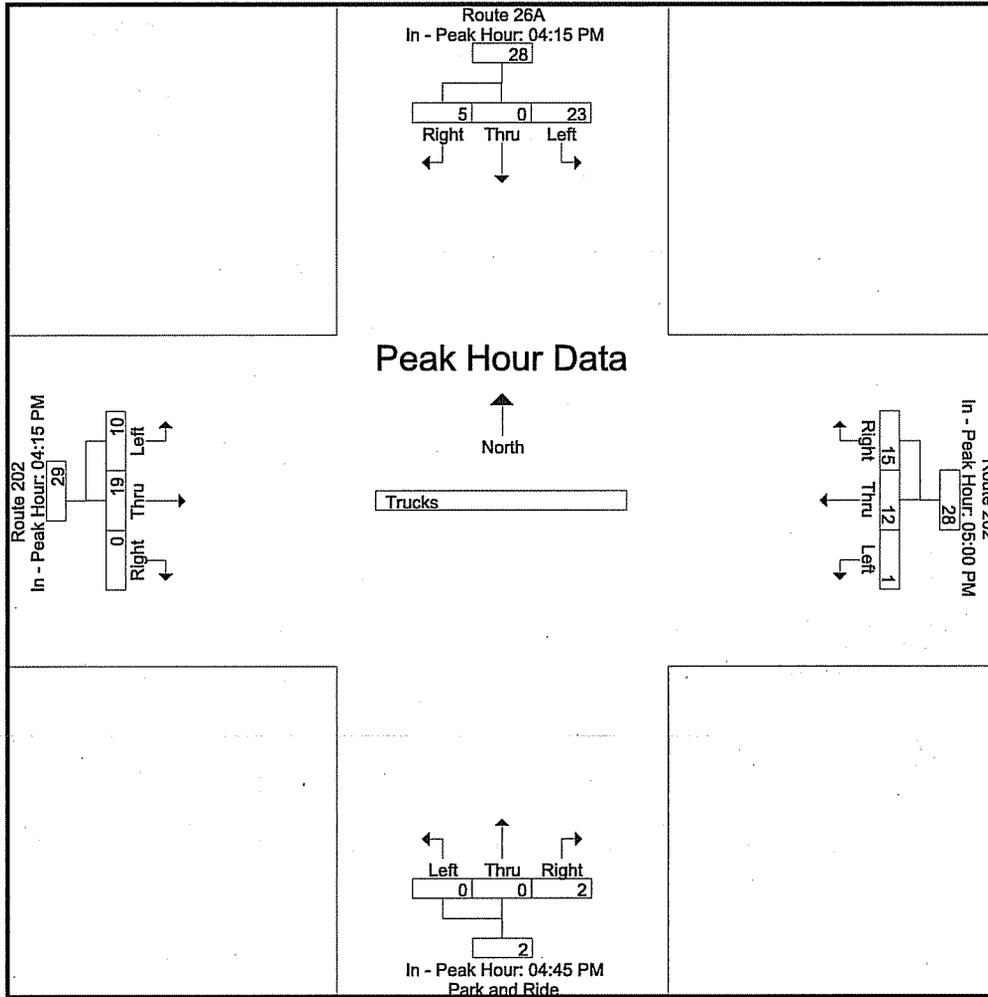
Start Time	Route 26A From North				Route 202 From East				Park and Ride From South				Route 202 From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Grand Total	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	2
Apprch %	0	0	100		0	0	0		0	0	0		0	100	0				
Total %	0	0	50		0	0	0		0	0	0		0	50	0		0	100	

Start Time	Route 26A From North				Route 202 From East				Park and Ride From South				Route 202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1	2
% App. Total	0	0	100		0	0	0		0	0	0		0	100	0		
PHF	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.500

Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3

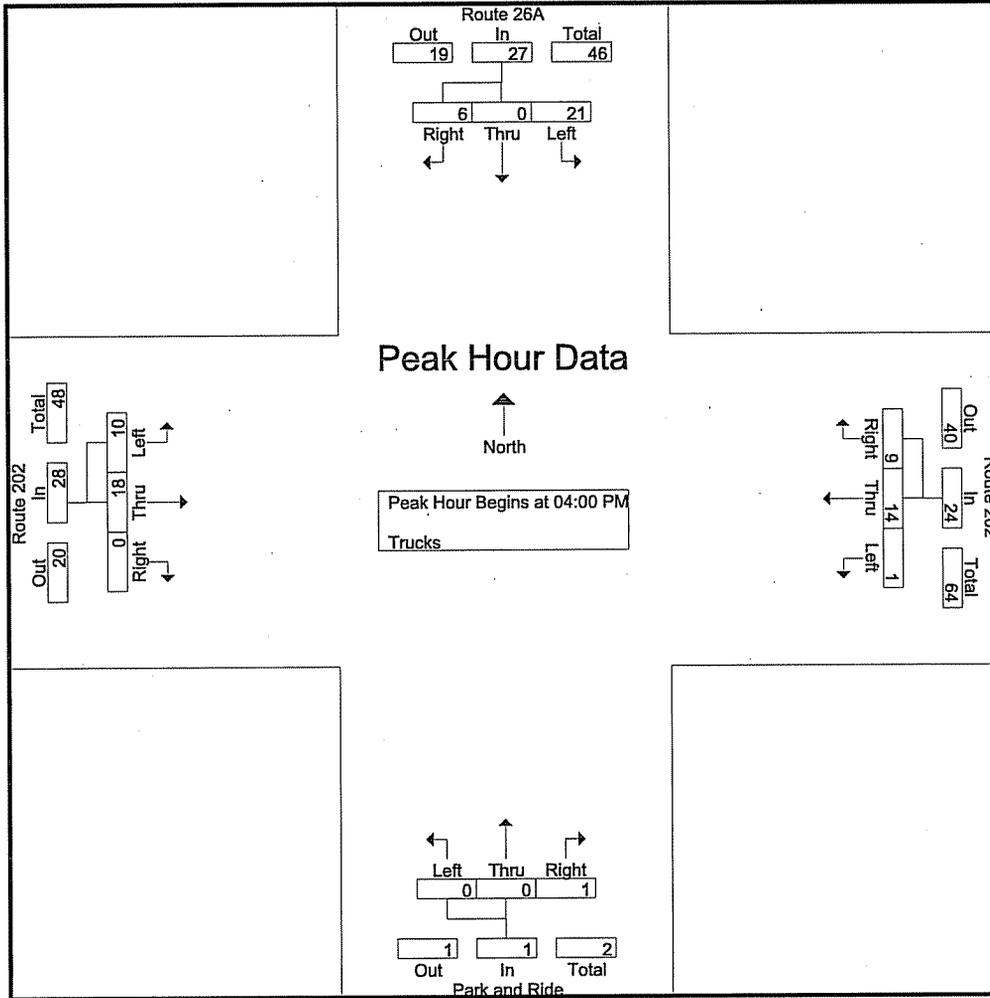
N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy



Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				05:00 PM				04:45 PM				04:15 PM			
+0 mins.	7	0	2	9	0	7	1	8	0	0	1	1	1	7	0	8
+15 mins.	6	0	0	6	0	3	5	8	0	0	0	0	6	5	0	11
+30 mins.	6	0	3	9	1	2	3	6	0	0	0	0	2	3	0	5
+45 mins.	4	0	0	4	0	0	6	6	0	0	1	1	1	4	0	5
Total Volume	23	0	5	28	1	12	15	28	0	0	2	2	10	19	0	29
% App. Total	82.1	0	17.9		3.6	42.9	53.6		0	0	100		34.5	65.5	0	
PHF	.821	.000	.417	.778	.250	.429	.625	.875	.000	.000	.500	.500	.417	.679	.000	.659

Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

Groups Printed- Trucks

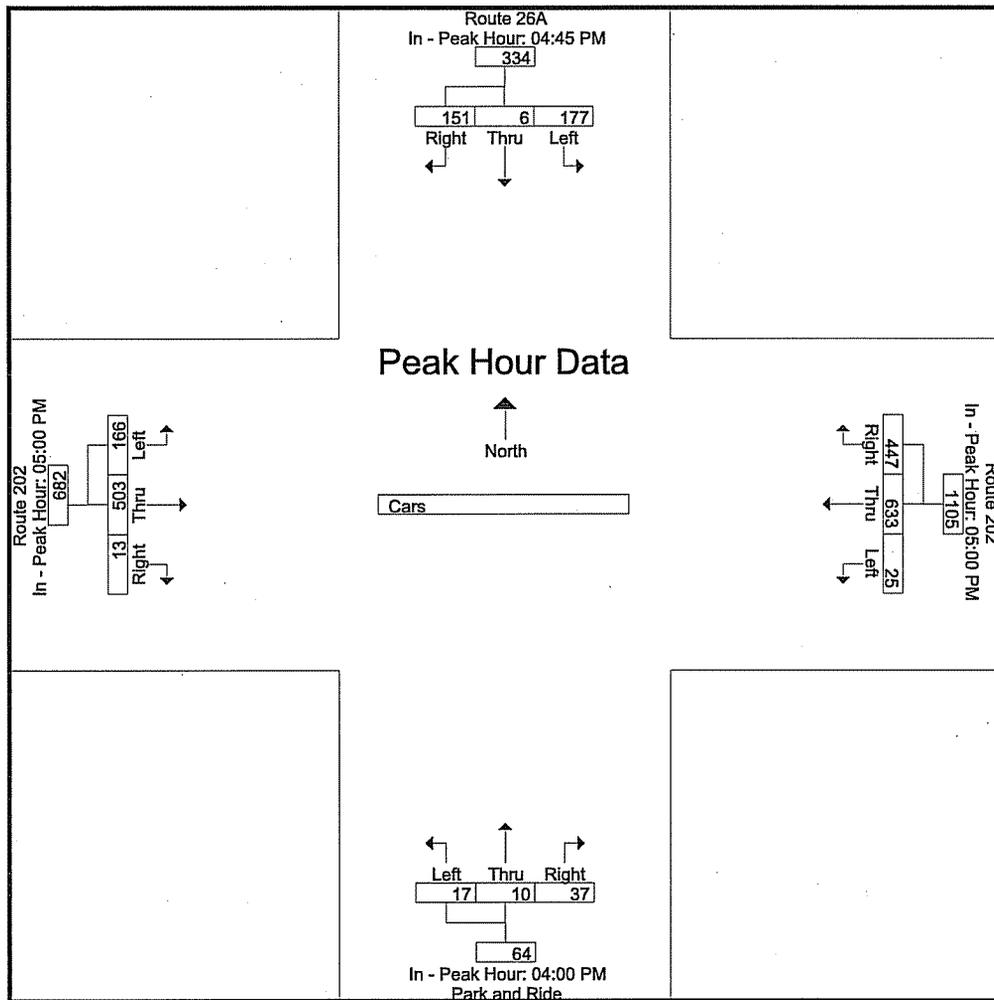
Start Time	Route 26A From North			Route 202 From East			Park and Ride From South			Route 202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:00 PM	2	0	1	0	7	4	0	0	0	1	3	0	18
04:15 PM	7	0	2	0	5	1	0	0	0	1	7	0	23
04:30 PM	6	0	0	1	2	3	0	0	0	6	5	0	23
04:45 PM	6	0	3	0	0	1	0	0	1	2	3	0	16
Total	21	0	6	1	14	9	0	0	1	10	18	0	80
05:00 PM	4	0	0	0	7	1	0	0	0	1	4	0	17
05:15 PM	4	0	0	0	3	5	0	0	0	0	4	0	16
05:30 PM	4	0	1	1	2	3	0	0	1	1	5	0	18
05:45 PM	2	0	0	0	0	6	0	0	0	1	10	0	19
Total	14	0	1	1	12	15	0	0	1	3	23	0	70
Grand Total	35	0	7	2	26	24	0	0	2	13	41	0	150
Apprch %	83.3	0	16.7	3.8	50	46.2	0	0	100	24.1	75.9	0	
Total %	23.3	0	4.7	1.3	17.3	16	0	0	1.3	8.7	27.3	0	

Start Time	Route 26A From North				Route 202 From East				Park and Ride From South				Route 202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	2	0	1	3	0	7	4	11	0	0	0	0	1	3	0	4	18
04:15 PM	7	0	2	9	0	5	1	6	0	0	0	0	1	7	0	8	23
04:30 PM	6	0	0	6	1	2	3	6	0	0	0	0	6	5	0	11	23
04:45 PM	6	0	3	9	0	0	1	1	0	0	1	1	2	3	0	5	16
Total Volume	21	0	6	27	1	14	9	24	0	0	1	1	10	18	0	28	80
% App. Total	77.8	0	22.2		4.2	58.3	37.5		0	0	100		35.7	64.3	0		
PHF	.750	.000	.500	.750	.250	.500	.563	.545	.000	.000	.250	.250	.417	.643	.000	.636	.870

Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3

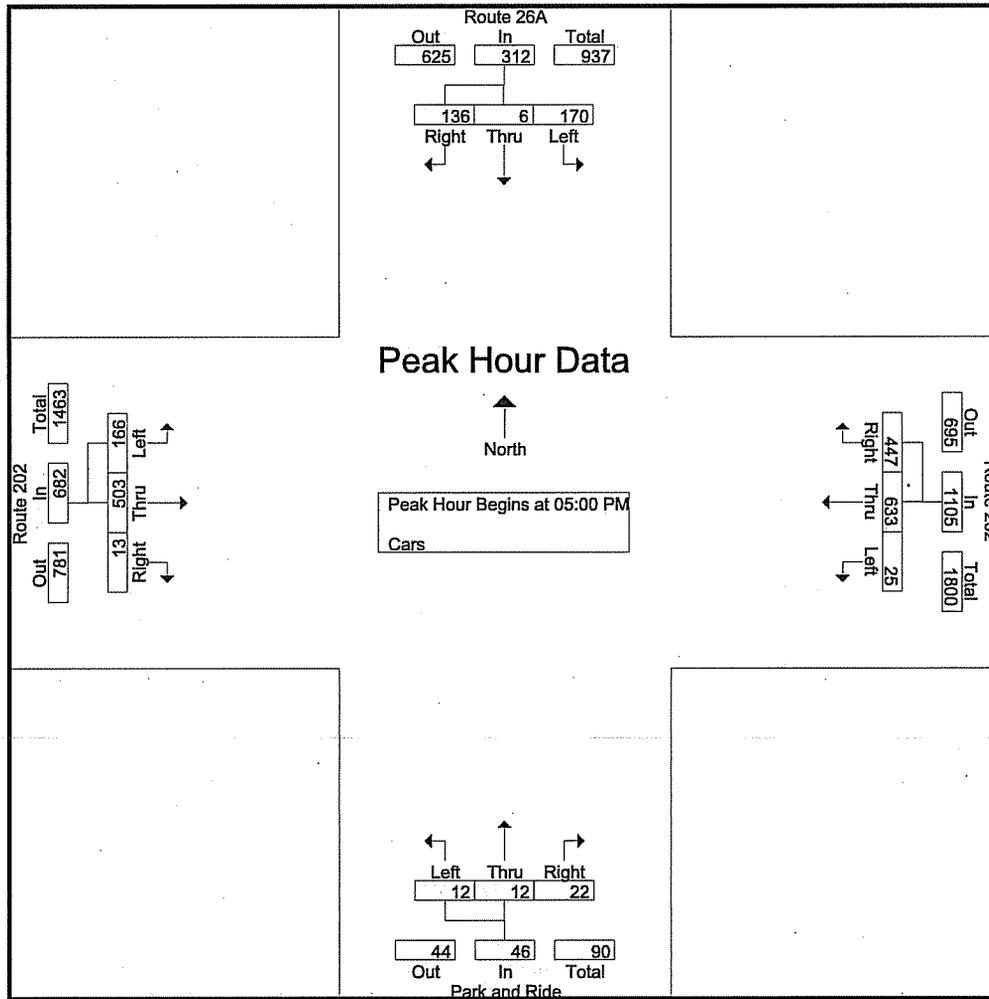
N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy



Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				05:00 PM				04:00 PM				05:00 PM			
+0 mins.	55	1	44	100	4	151	99	254	3	2	8	13	49	148	5	202
+15 mins.	41	2	33	76	8	150	117	275	3	0	8	11	35	111	4	150
+30 mins.	52	0	36	88	5	180	104	289	5	3	7	15	43	118	1	162
+45 mins.	29	3	38	70	8	152	127	287	6	5	14	25	39	126	3	168
Total Volume	177	6	151	334	25	633	447	1105	17	10	37	64	166	503	13	682
% App. Total	53	1.8	45.2		2.3	57.3	40.5		26.6	15.6	57.8		24.3	73.8	1.9	
PHF	.805	.500	.858	.835	.781	.879	.880	.956	.708	.500	.661	.640	.847	.850	.650	.844

Accurate Counts
978-664-2565

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

Groups Printed- Cars

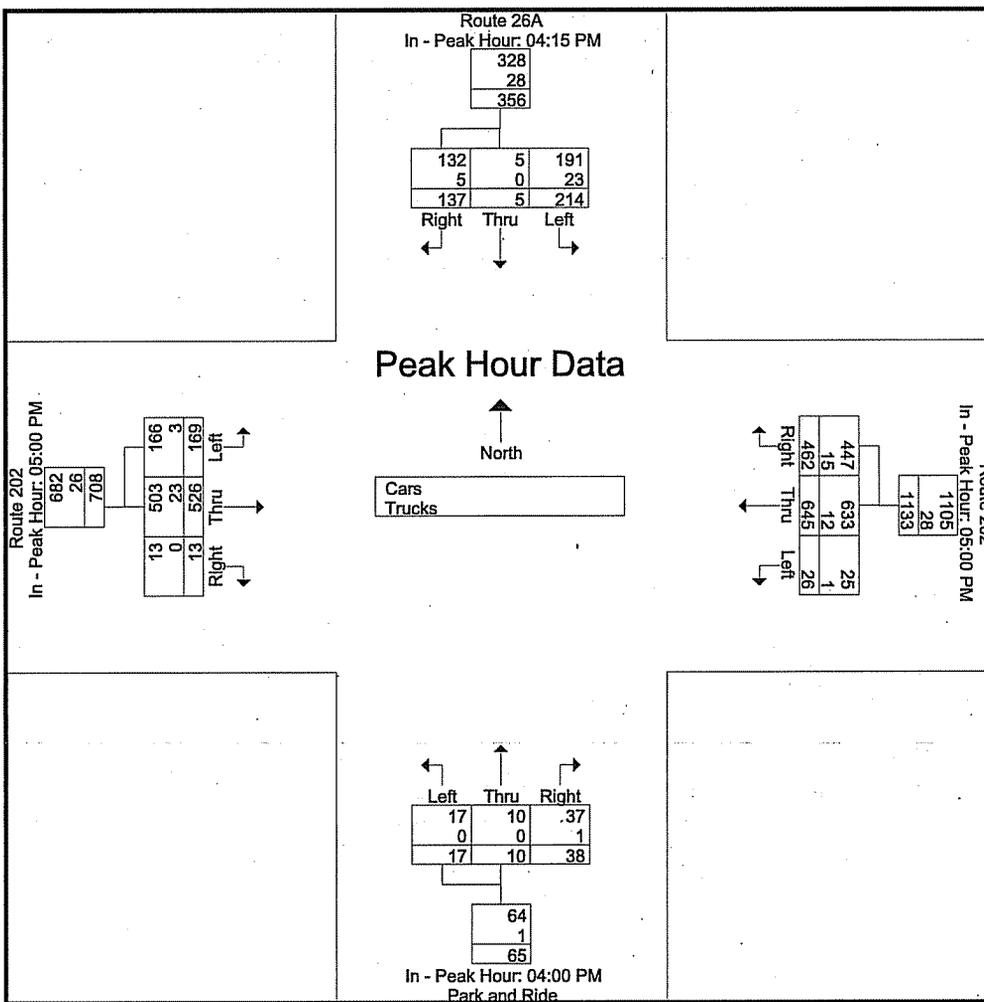
Start Time	Route 26A From North			Route 202 From East			Park and Ride From South			Route 202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:00 PM	45	1	26	3	124	71	3	2	8	29	117	3	432
04:15 PM	56	1	28	8	120	77	3	0	8	36	101	3	441
04:30 PM	39	1	27	11	136	69	5	3	7	37	124	4	463
04:45 PM	55	1	44	9	150	94	6	5	14	36	107	2	523
Total	195	4	125	31	530	311	17	10	37	138	449	12	1859
05:00 PM	41	2	33	4	151	99	0	2	2	49	148	5	536
05:15 PM	52	0	36	8	150	117	3	1	8	35	111	4	525
05:30 PM	29	3	38	5	180	104	7	3	5	43	118	1	536
05:45 PM	48	1	29	8	152	127	2	6	7	39	126	3	548
Total	170	6	136	25	633	447	12	12	22	166	503	13	2145
Grand Total	365	10	261	56	1163	758	29	22	59	304	952	25	4004
Apprch %	57.4	1.6	41	2.8	58.8	38.3	26.4	20	53.6	23.7	74.3	2	
Total %	9.1	0.2	6.5	1.4	29	18.9	0.7	0.5	1.5	7.6	23.8	0.6	

Start Time	Route 26A From North				Route 202 From East				Park and Ride From South				Route 202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	41	2	33	76	4	151	99	254	0	2	2	4	49	148	5	202	536
05:15 PM	52	0	36	88	8	150	117	275	3	1	8	12	35	111	4	150	525
05:30 PM	29	3	38	70	5	180	104	289	7	3	5	15	43	118	1	162	536
05:45 PM	48	1	29	78	8	152	127	287	2	6	7	15	39	126	3	168	548
Total Volume	170	6	136	312	25	633	447	1105	12	12	22	46	166	503	13	682	2145
% App. Total	54.5	1.9	43.6		2.3	57.3	40.5		26.1	26.1	47.8		24.3	73.8	1.9		
PHF	.817	.500	.895	.886	.781	.879	.880	.956	.429	.500	.688	.767	.847	.850	.650	.844	.979

Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

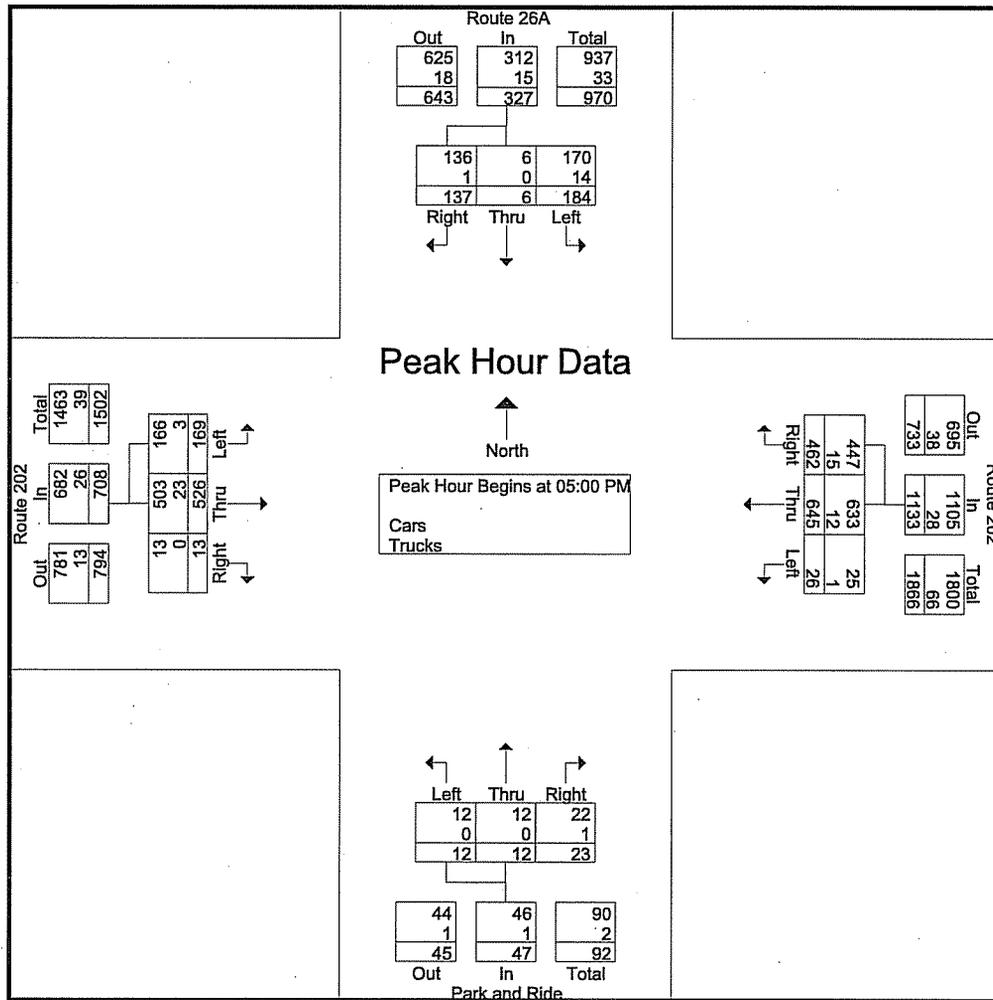


Accurate Counts

978-664-2565

N/S Street : Route 26A / Park and Ride
 E/W Street : Route 202
 City/State : Gray, ME
 Weather : Cloudy

File Name : 5222800
 Site Code : 5222800
 Start Date : 9/6/2012
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:15 PM				05:00 PM				04:00 PM				05:00 PM			
+0 mins.	63	1	30	94	4	158	100	262	3	2	8	13	50	152	5	207
+15 mins.	45	1	27	73	8	153	122	283	3	0	8	11	35	115	4	154
+30 mins.	61	1	47	109	6	182	107	295	5	3	7	15	44	123	1	168
+45 mins.	45	2	33	80	8	152	133	293	6	5	15	26	40	136	3	179
Total Volume	214	5	137	356	26	645	462	1133	17	10	38	65	169	526	13	708
% App. Total	60.1	1.4	38.5		2.3	56.9	40.8		26.2	15.4	58.5		23.9	74.3	1.8	
PHF	.849	.625	.729	.817	.813	.886	.868	.960	.708	.500	.633	.625	.845	.865	.650	.855
Cars	191	5	132	328	25	633	447	1105	17	10	37	64	166	503	13	682
% Cars	89.3	100	96.4	92.1	96.2	98.1	96.8	97.5	100	100	97.4	98.5	98.2	95.6	100	96.3
Trucks	23	0	5	28	1	12	15	28	0	0	1	1	3	23	0	26
% Trucks	10.7	0	3.6	7.9	3.8	1.9	3.2	2.5	0	0	2.6	1.5	1.8	4.4	0	3.7

Accurate Counts
978-664-2565

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

Groups Printed- Cars - Trucks

Start Time	Route 26A From North			Route 202 From East			Park and Ride From South			Route 202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:00 PM	47	1	27	3	131	75	3	2	8	30	120	3	450
04:15 PM	63	1	30	8	125	78	3	0	8	37	108	3	464
04:30 PM	45	1	27	12	138	72	5	3	7	43	129	4	486
04:45 PM	61	1	47	9	150	95	6	5	15	38	110	2	539
Total	216	4	131	32	544	320	17	10	38	148	467	12	1939
05:00 PM	45	2	33	4	158	100	0	2	2	50	152	5	553
05:15 PM	56	0	36	8	153	122	3	1	8	35	115	4	541
05:30 PM	33	3	39	6	182	107	7	3	6	44	123	1	554
05:45 PM	50	1	29	8	152	133	2	6	7	40	136	3	567
Total	184	6	137	26	645	462	12	12	23	169	526	13	2215
Grand Total	400	10	268	58	1189	782	29	22	61	317	993	25	4154
Apprch %	59	1.5	39.5	2.9	58.6	38.5	25.9	19.6	54.5	23.7	74.4	1.9	
Total %	9.6	0.2	6.5	1.4	28.6	18.8	0.7	0.5	1.5	7.6	23.9	0.6	
Cars	365	10	261	56	1163	758	29	22	59	304	952	25	4004
% Cars	91.2	100	97.4	96.6	97.8	96.9	100	100	96.7	95.9	95.9	100	96.4
Trucks	35	0	7	2	26	24	0	0	2	13	41	0	150
% Trucks	8.8	0	2.6	3.4	2.2	3.1	0	0	3.3	4.1	4.1	0	3.6

Start Time	Route 26A From North				Route 202 From East				Park and Ride From South				Route 202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	45	2	33	80	4	158	100	262	0	2	2	4	50	152	5	207	553
05:15 PM	56	0	36	92	8	153	122	283	3	1	8	12	35	115	4	154	541
05:30 PM	33	3	39	75	6	182	107	295	7	3	6	16	44	123	1	168	554
05:45 PM	50	1	29	80	8	152	133	293	2	6	7	15	40	136	3	179	567
Total Volume	184	6	137	327	26	645	462	1133	12	12	23	47	169	526	13	708	2215
% App. Total	56.3	1.8	41.9		2.3	56.9	40.8		25.5	25.5	48.9		23.9	74.3	1.8		
PHF	.821	.500	.878	.889	.813	.886	.868	.960	.429	.500	.719	.734	.845	.865	.650	.855	.977
Cars	170	6	136	312	25	633	447	1105	12	12	22	46	166	503	13	682	2145
% Cars	92.4	100	99.3	95.4	96.2	98.1	96.8	97.5	100	100	95.7	97.9	98.2	95.6	100	96.3	96.8
Trucks	14	0	1	15	1	12	15	28	0	0	1	1	3	23	0	26	70
% Trucks	7.6	0	0.7	4.6	3.8	1.9	3.2	2.5	0	0	4.3	2.1	1.8	4.4	0	3.7	3.2

Accurate Counts

978-664-2565

N/S Street : Route 26A / Park and Ride

E/W Street : Route 202

City/State : Gray, ME

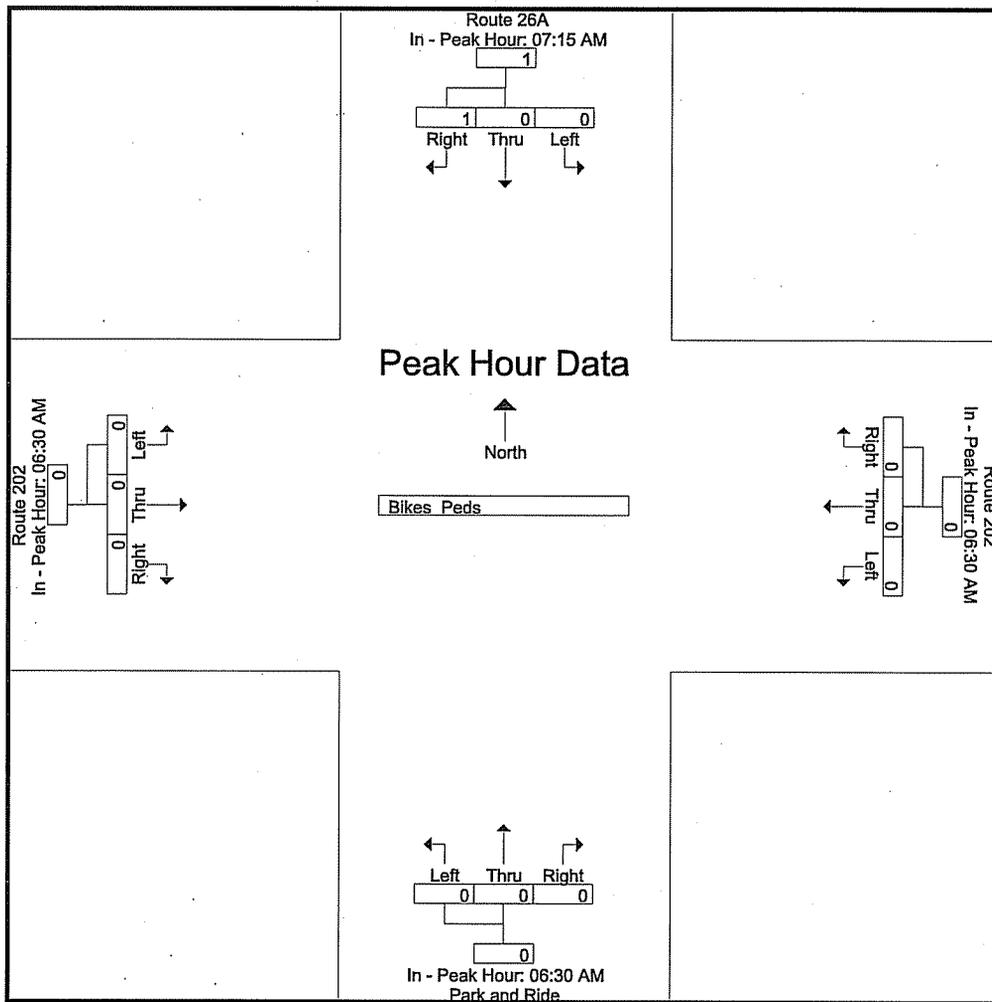
Weather : Cloudy

File Name : 5222800

Site Code : 5222800

Start Date : 9/6/2012

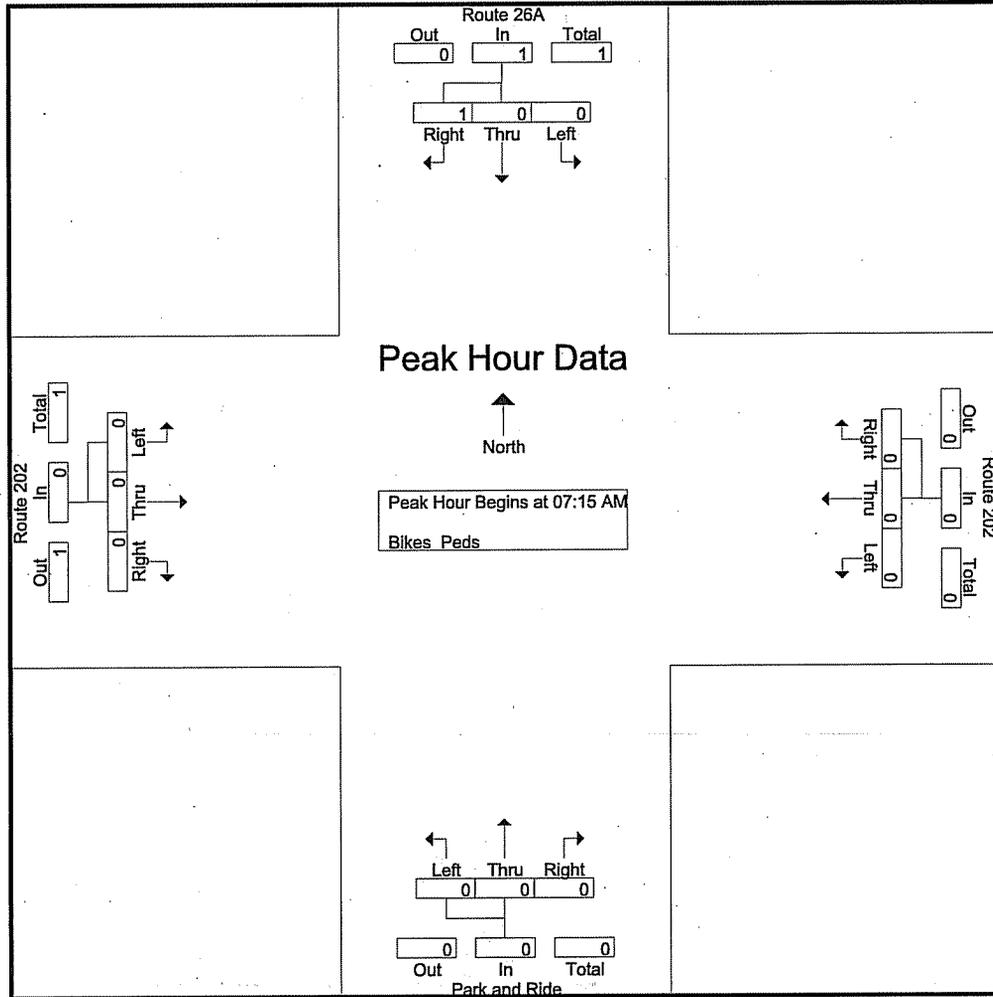
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2



Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				06:30 AM				06:30 AM				06:30 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	100		0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

Groups Printed- Bikes Peds

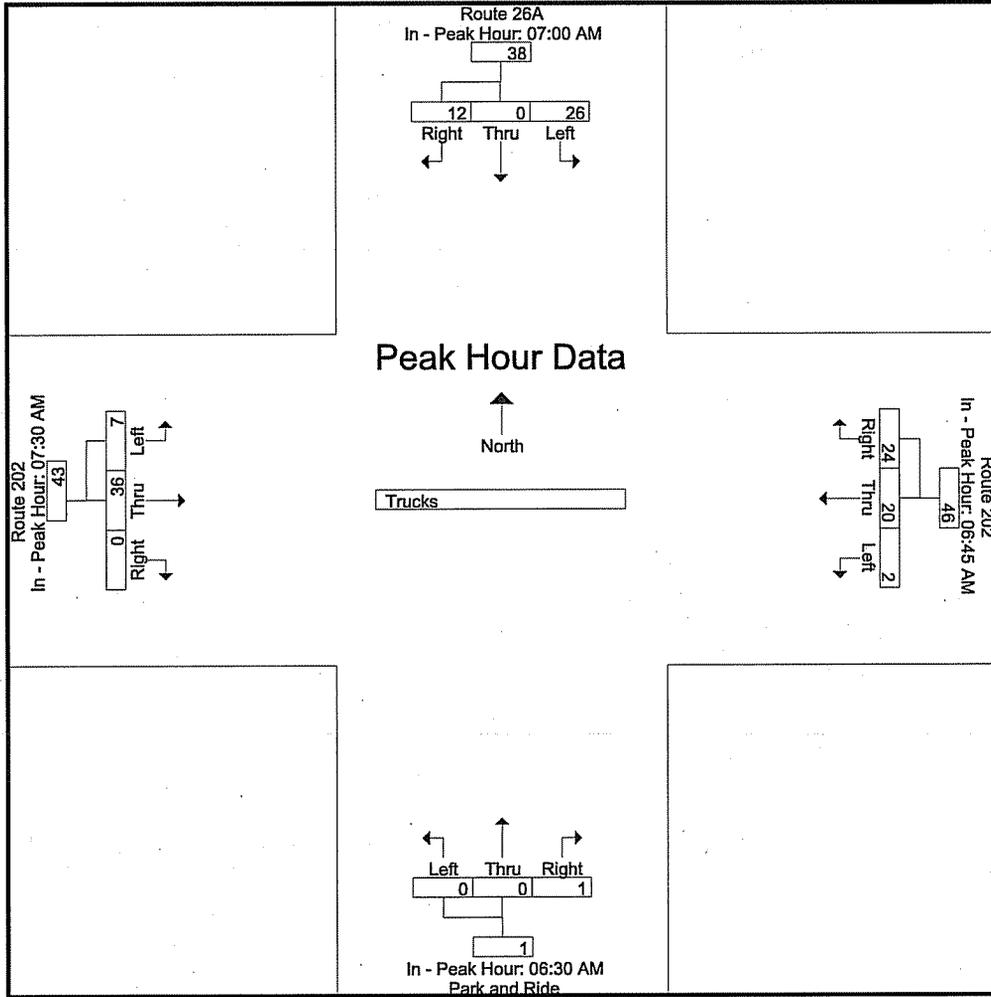
Start Time	Route 26A From North				Route 202 From East				Park and Ride From South				Route 202 From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Apprch %	0	0	100		0	0	0		0	0	0		0	0	0				
Total %	0	0	100		0	0	0		0	0	0		0	0	0		0	100	

Start Time	Route 26A From North				Route 202 From East				Park and Ride From South				Route 202 From West				Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 07:15 AM																		
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	0	100		0	0	0		0	0	0		0	0	0			
PHF	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

Accurate Counts
978-664-2565

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

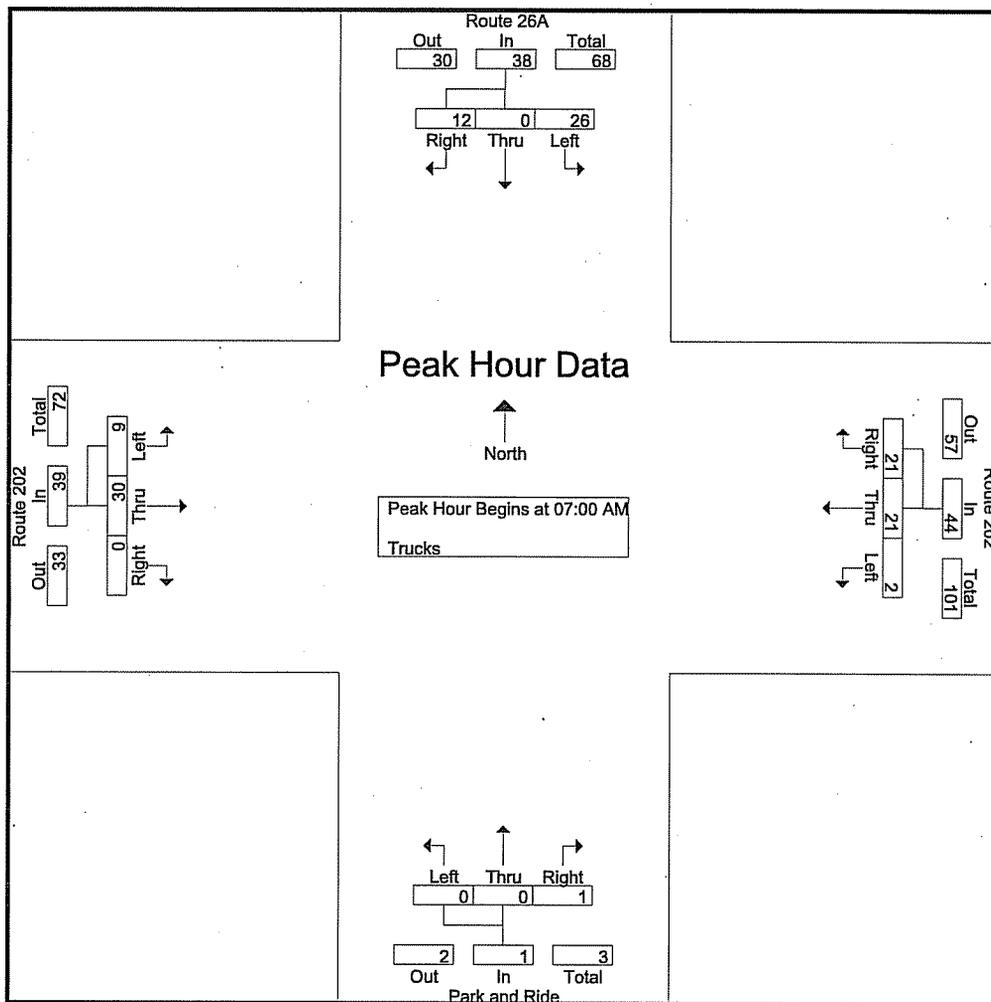
File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2



Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00 AM				06:45 AM				06:30 AM				07:30 AM			
+0 mins.	9	0	1	10	0	7	7	14	0	0	0	0	1	7	0	8
+15 mins.	6	0	3	9	1	4	5	10	0	0	0	0	2	11	0	13
+30 mins.	8	0	4	12	1	1	7	9	0	0	1	1	1	5	0	6
+45 mins.	3	0	4	7	0	8	5	13	0	0	0	0	3	13	0	16
Total Volume	26	0	12	38	2	20	24	46	0	0	1	1	7	36	0	43
% App. Total	68.4	0	31.6		4.3	43.5	52.2		0	0	100		16.3	83.7	0	
PHF	.722	.000	.750	.792	.500	.625	.857	.821	.000	.000	.250	.250	.583	.692	.000	.672

Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

Groups Printed- Trucks

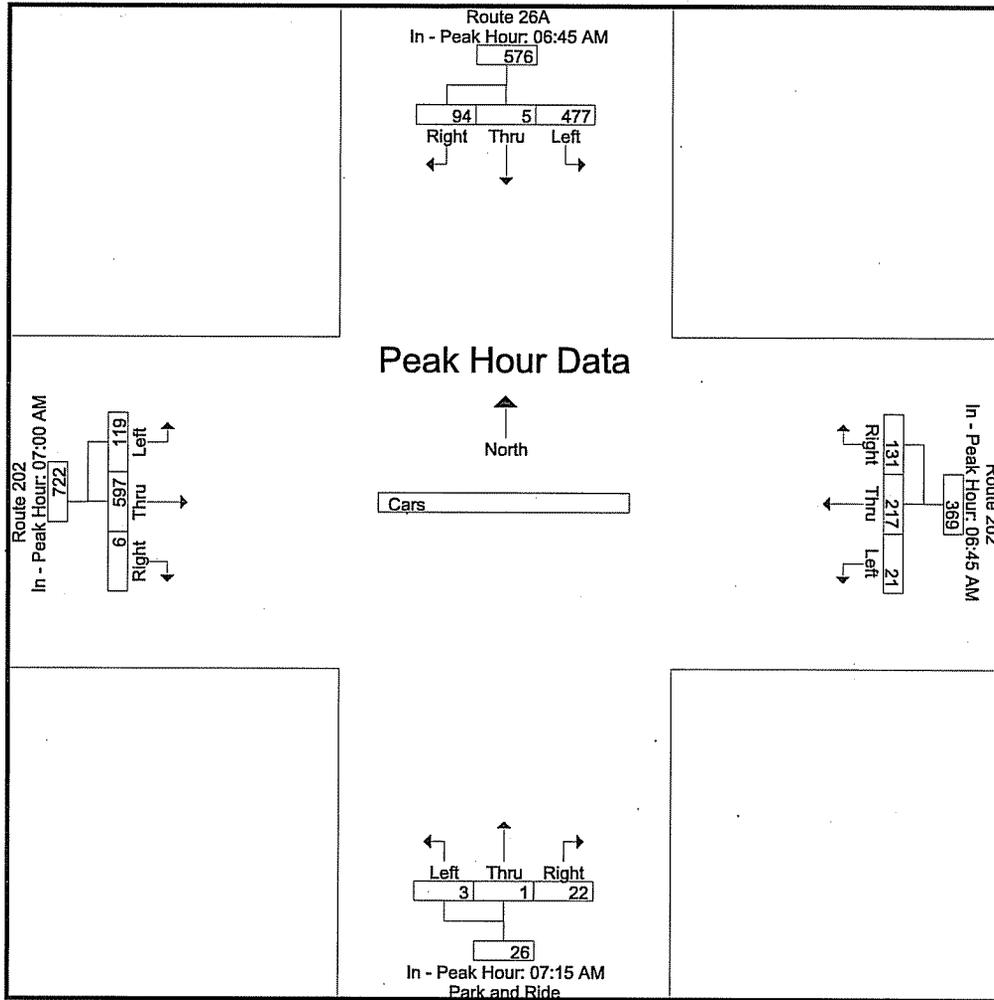
Start Time	Route 26A From North			Route 202 From East			Park and Ride From South			Route 202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:30 AM	10	0	2	0	8	4	0	0	0	2	2	0	28
06:45 AM	5	0	0	0	7	7	0	0	0	1	9	0	29
Total	15	0	2	0	15	11	0	0	0	3	11	0	57
07:00 AM	9	0	1	1	4	5	0	0	1	3	3	0	27
07:15 AM	6	0	3	1	1	7	0	0	0	3	9	0	30
07:30 AM	8	0	4	0	8	5	0	0	0	1	7	0	33
07:45 AM	3	0	4	0	8	4	0	0	0	2	11	0	32
Total	26	0	12	2	21	21	0	0	1	9	30	0	122
08:00 AM	5	0	0	0	9	2	0	0	0	1	5	0	22
08:15 AM	3	0	0	0	6	2	0	0	0	3	13	0	27
Grand Total	49	0	14	2	51	36	0	0	1	16	59	0	228
Apprch %	77.8	0	22.2	2.2	57.3	40.4	0	0	100	21.3	78.7	0	
Total %	21.5	0	6.1	0.9	22.4	15.8	0	0	0.4	7	25.9	0	

Start Time	Route 26A From North				Route 202 From East				Park and Ride From South				Route 202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	9	0	1	10	1	4	5	10	0	0	1	1	3	3	0	6	27
07:15 AM	6	0	3	9	1	1	7	9	0	0	0	0	3	9	0	12	30
07:30 AM	8	0	4	12	0	8	5	13	0	0	0	0	1	7	0	8	33
07:45 AM	3	0	4	7	0	8	4	12	0	0	0	0	2	11	0	13	32
Total Volume	26	0	12	38	2	21	21	44	0	0	1	1	9	30	0	39	122
% App. Total	68.4	0	31.6		4.5	47.7	47.7		0	0	100		23.1	76.9	0		
PHF	.722	.000	.750	.792	.500	.656	.750	.846	.000	.000	.250	.250	.750	.682	.000	.750	.924

Accurate Counts
978-664-2565

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

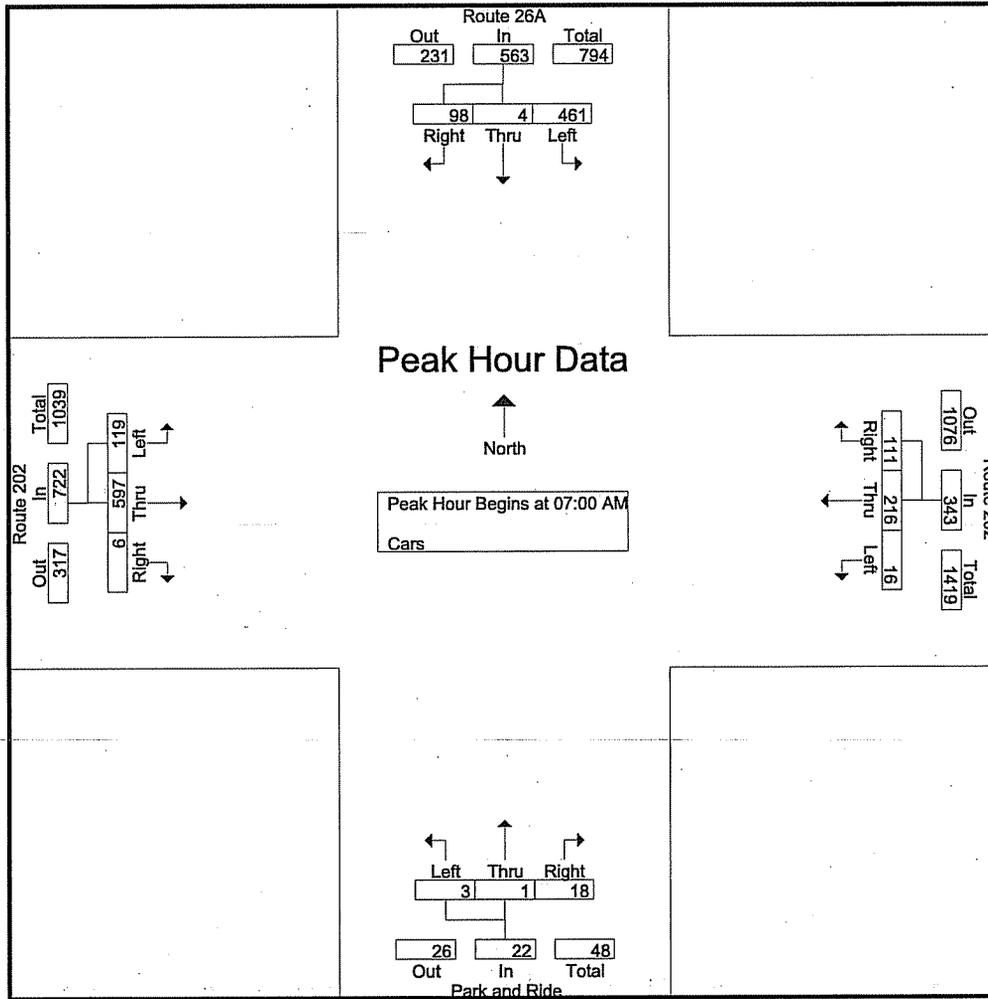
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Site Code : 5222800
Start Date : 9/6/2012
Page No : 3



Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy



Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	06:45 AM				06:45 AM				07:15 AM				07:00 AM			
+0 mins.	111	2	22	135	7	47	44	98	0	0	8	8	44	130	0	174
+15 mins.	119	1	16	136	2	55	37	94	2	0	4	6	31	144	3	178
+30 mins.	123	2	26	151	7	58	28	93	1	0	5	6	15	150	2	167
+45 mins.	124	0	30	154	5	57	22	84	0	1	5	6	29	173	1	203
Total Volume	477	5	94	576	21	217	131	369	3	1	22	26	119	597	6	722
% App. Total	82.8	0.9	16.3		5.7	58.8	35.5		11.5	3.8	84.6		16.5	82.7	0.8	
PHF	.962	.625	.783	.935	.750	.935	.744	.941	.375	.250	.688	.813	.676	.863	.500	.889

Accurate Counts
978-664-2565

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

Groups Printed- Cars

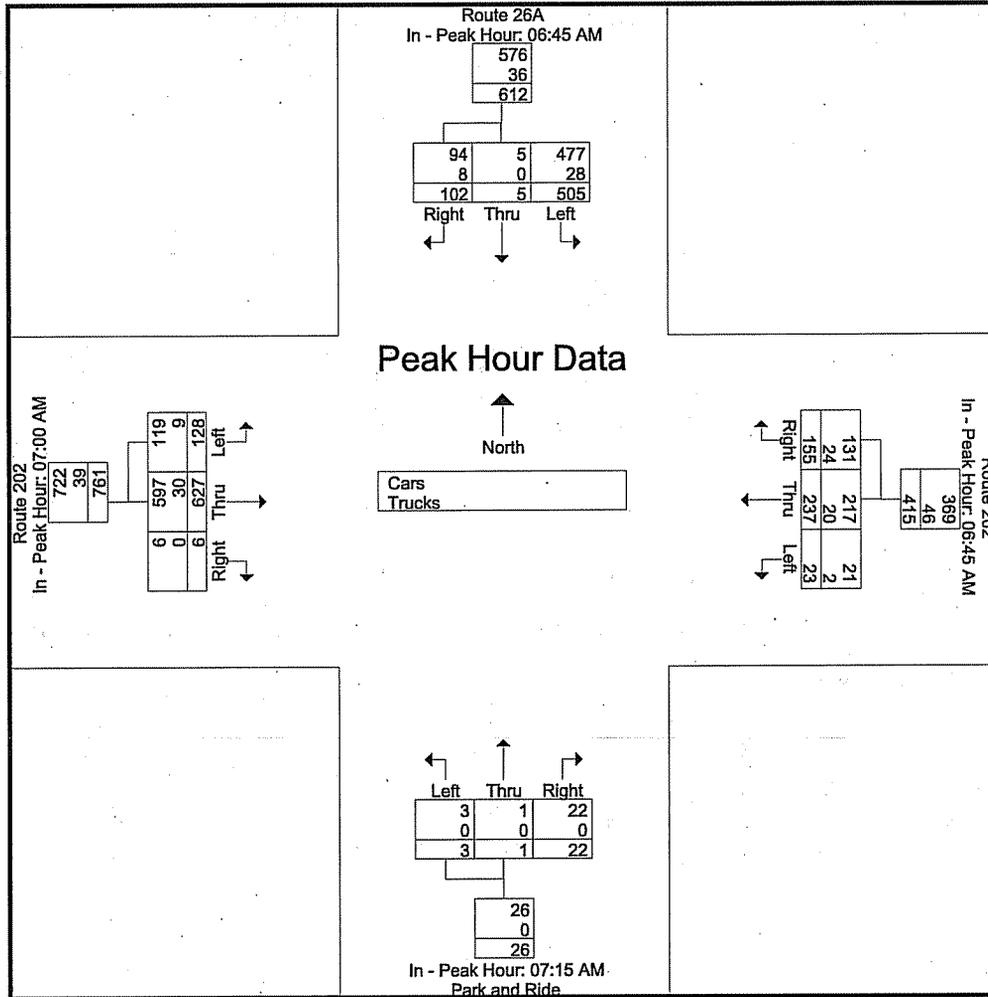
Start Time	Route 26A From North			Route 202 From East			Park and Ride From South			Route 202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:30 AM	99	2	19	2	46	34	2	0	3	24	89	6	326
06:45 AM	111	2	22	7	47	44	0	0	7	27	116	4	387
Total	210	4	41	9	93	78	2	0	10	51	205	10	713
07:00 AM	119	1	16	2	55	37	0	1	1	44	130	0	406
07:15 AM	123	2	26	7	58	28	0	0	8	31	144	3	430
07:30 AM	124	0	30	5	57	22	2	0	4	15	150	2	411
07:45 AM	95	1	26	2	46	24	1	0	5	29	173	1	403
Total	461	4	98	16	216	111	3	1	18	119	597	6	1650
08:00 AM	80	2	19	2	47	21	0	1	5	19	122	1	319
08:15 AM	84	0	27	5	45	17	0	2	2	18	118	3	321
Grand Total	835	10	185	32	401	227	5	4	35	207	1042	20	3003
Apprch %	81.1	1	18	4.8	60.8	34.4	11.4	9.1	79.5	16.3	82.1	1.6	
Total %	27.8	0.3	6.2	1.1	13.4	7.6	0.2	0.1	1.2	6.9	34.7	0.7	

Start Time	Route 26A From North				Route 202 From East				Park and Ride From South				Route 202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	119	1	16	136	2	55	37	94	0	1	1	2	44	130	0	174	406
07:15 AM	123	2	26	151	7	58	28	93	0	0	8	8	31	144	3	178	430
07:30 AM	124	0	30	154	5	57	22	84	2	0	4	6	15	150	2	167	411
07:45 AM	95	1	26	122	2	46	24	72	1	0	5	6	29	173	1	203	403
Total Volume	461	4	98	563	16	216	111	343	3	1	18	22	119	597	6	722	1650
% App. Total	81.9	0.7	17.4		4.7	63	32.4		13.6	4.5	81.8		16.5	82.7	0.8		
PHF	.929	.500	.817	.914	.571	.931	.750	.912	.375	.250	.563	.688	.676	.863	.500	.889	.959

Accurate Counts
978-664-2565

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 3

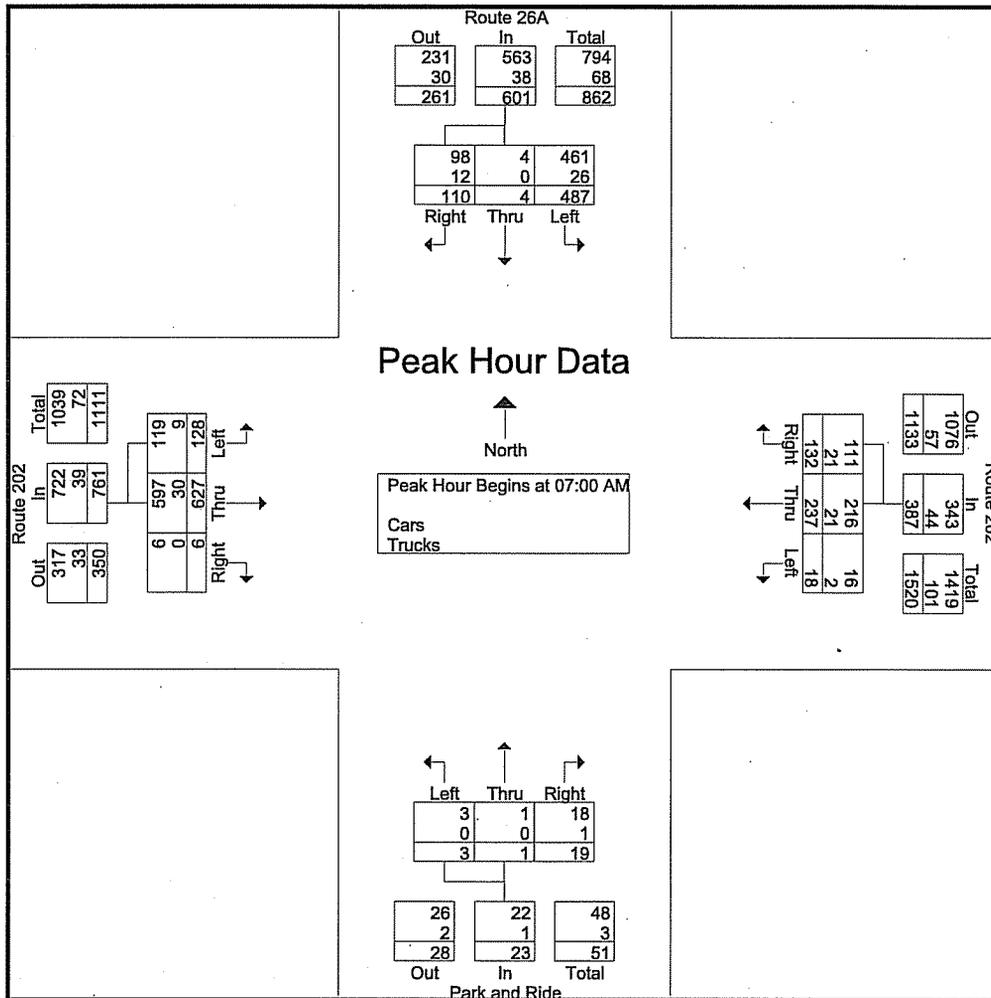
N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy



Accurate Counts
978-664-2565

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 2



Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	06:45 AM				06:45 AM				07:15 AM				07:00 AM			
+0 mins.	116	2	22	140	7	54	51	112	0	0	8	8	47	133	0	180
+15 mins.	128	1	17	146	3	59	42	104	2	0	4	6	34	153	3	190
+30 mins.	129	2	29	160	8	59	35	102	1	0	5	6	16	157	2	175
+45 mins.	132	0	34	166	5	65	27	97	0	1	5	6	31	184	1	216
Total Volume	505	5	102	612	23	237	155	415	3	1	22	26	128	627	6	761
% App. Total	82.5	0.8	16.7		5.5	57.1	37.3		11.5	3.8	84.6		16.8	82.4	0.8	
PHF	.956	.625	.750	.922	.719	.912	.760	.926	.375	.250	.688	.813	.681	.852	.500	.881
Cars	477	5	94	576	21	217	131	369	3	1	22	26	119	597	6	722
% Cars	94.5	100	92.2	94.1	91.3	91.6	84.5	88.9	100	100	100	100	93	95.2	100	94.9
Trucks	28	0	8	36	2	20	24	46	0	0	0	0	9	30	0	39
% Trucks	5.5	0	7.8	5.9	8.7	8.4	15.5	11.1	0	0	0	0	7	4.8	0	5.1

Accurate Counts
978-664-2565

N/S Street : Route 26A / Park and Ride
E/W Street : Route 202
City/State : Gray, ME
Weather : Cloudy

File Name : 5222800
Site Code : 5222800
Start Date : 9/6/2012
Page No : 1

Groups Printed- Cars - Trucks

Start Time	Route 26A From North			Route 202 From East			Park and Ride From South			Route 202 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:30 AM	109	2	21	2	54	38	2	0	3	26	91	6	354
06:45 AM	116	2	22	7	54	51	0	0	7	28	125	4	416
Total	225	4	43	9	108	89	2	0	10	54	216	10	770
07:00 AM	128	1	17	3	59	42	0	1	2	47	133	0	433
07:15 AM	129	2	29	8	59	35	0	0	8	34	153	3	460
07:30 AM	132	0	34	5	65	27	2	0	4	16	157	2	444
07:45 AM	98	1	30	2	54	28	1	0	5	31	184	1	435
Total	487	4	110	18	237	132	3	1	19	128	627	6	1772
08:00 AM	85	2	19	2	56	23	0	1	5	20	127	1	341
08:15 AM	87	0	27	5	51	19	0	2	2	21	131	3	348
Grand Total	884	10	199	34	452	263	5	4	36	223	1101	20	3231
Apprch %	80.9	0.9	18.2	4.5	60.3	35.1	11.1	8.9	80	16.6	81.9	1.5	
Total %	27.4	0.3	6.2	1.1	14	8.1	0.2	0.1	1.1	6.9	34.1	0.6	
Cars	835	10	185	32	401	227	5	4	35	207	1042	20	3003
% Cars	94.5	100	93	94.1	88.7	86.3	100	100	97.2	92.8	94.6	100	92.9
Trucks	49	0	14	2	51	36	0	0	1	16	59	0	228
% Trucks	5.5	0	7	5.9	11.3	13.7	0	0	2.8	7.2	5.4	0	7.1

Start Time	Route 26A From North				Route 202 From East				Park and Ride From South				Route 202 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	128	1	17	146	3	59	42	104	0	1	2	3	47	133	0	180	433
07:15 AM	129	2	29	160	8	59	35	102	0	0	8	8	34	153	3	190	460
07:30 AM	132	0	34	166	5	65	27	97	2	0	4	6	16	157	2	175	444
07:45 AM	98	1	30	129	2	54	28	84	1	0	5	6	31	184	1	216	435
Total Volume	487	4	110	601	18	237	132	387	3	1	19	23	128	627	6	761	1772
% App. Total	81	0.7	18.3		4.7	61.2	34.1		13	4.3	82.6		16.8	82.4	0.8		
PHF	.922	.500	.809	.905	.563	.912	.786	.930	.375	.250	.594	.719	.681	.852	.500	.881	.963
Cars	461	4	98	563	16	216	111	343	3	1	18	22	119	597	6	722	1650
% Cars	94.7	100	89.1	93.7	88.9	91.1	84.1	88.6	100	100	94.7	95.7	93.0	95.2	100	94.9	93.1
Trucks	26	0	12	38	2	21	21	44	0	0	1	1	9	30	0	39	122
% Trucks	5.3	0	10.9	6.3	11.1	8.9	15.9	11.4	0	0	5.3	4.3	7.0	4.8	0	5.1	6.9

Accurate Counts

978-664-2565

Location : Route 26A
 Location : North of Route 202
 City/State: Gray, ME

Start Time	09-Sep-12 Sun	SB		Hour Totals		NB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		17	119			13	102				
12:15		8	83			17	99				
12:30		10	101			12	110				
12:45		9	96	44	399	8	97	50	408	94	807
01:00		7	92			14	91				
01:15		8	104			8	78				
01:30		7	101			4	98				
01:45		8	87	30	384	7	88	33	355	63	739
02:00		9	103			6	86				
02:15		9	106			9	76				
02:30		5	97			5	79				
02:45		7	84	30	390	2	74	22	315	52	705
03:00		7	77			2	83				
03:15		4	83			3	62				
03:30		5	89			3	73				
03:45		2	74	18	323	0	84	8	302	26	625
04:00		11	71			0	77				
04:15		8	82			4	83				
04:30		11	76			8	107				
04:45		8	87	38	316	0	75	12	342	50	658
05:00		13	103			3	67				
05:15		13	112			5	71				
05:30		18	87			10	83				
05:45		16	82	60	384	4	53	22	274	82	658
06:00		22	79			4	72				
06:15		42	71			14	59				
06:30		22	48			9	61				
06:45		11	54	97	252	20	50	47	242	144	494
07:00		8	51			14	49				
07:15		6	37			19	66				
07:30		14	34			20	49				
07:45		10	53	38	175	35	58	88	222	126	397
08:00		24	40			35	39				
08:15		46	42			37	45				
08:30		41	41			29	41				
08:45		52	28	163	151	43	26	144	151	307	302
09:00		64	30			43	28				
09:15		85	31			44	21				
09:30		97	29			71	17				
09:45		81	32	327	122	71	12	229	78	556	200
10:00		96	28			64	13				
10:15		101	28			64	19				
10:30		102	30			81	16				
10:45		106	19	405	105	83	7	292	55	697	160
11:00		103	8			70	8				
11:15		99	14			66	12				
11:30		111	11			93	10				
11:45		117	16	430	49	69	10	298	40	728	89
Total		1680	3050			1245	2784			2925	5834
Percent		35.5%	64.5%			30.9%	69.1%			33.4%	66.6%
Grand Total		10132	12433			6700	14488			16832	26921
Percent		44.9%	55.1%			31.6%	68.4%			38.5%	61.5%

ADT ADT 10,938 AADT 10,938

Accurate Counts

978-664-2565

Location : Route 26A
 Location : North of Route 202
 City/State: Gray, ME

Start Time	07-Sep-12 Fri	SB		Hour Totals		NB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		8	79			14	88				
12:15		11	86			15	84				
12:30		5	83			10	92				
12:45		8	107	32	355	8	97	47	361	79	716
01:00		16	78			8	103				
01:15		11	96			8	92				
01:30		12	77			6	106				
01:45		16	92	55	343	11	90	33	391	88	734
02:00		9	94			12	86				
02:15		7	133			7	89				
02:30		5	97			6	102				
02:45		10	103	31	427	5	103	30	380	61	807
03:00		12	89			2	126				
03:15		16	86			6	110				
03:30		19	114			2	127				
03:45		16	113	63	402	6	144	16	507	79	909
04:00		30	105			9	172				
04:15		23	104			8	167				
04:30		30	104			5	168				
04:45		36	95	119	408	15	173	37	680	156	1088
05:00		42	97			10	188				
05:15		74	108			21	189				
05:30		53	102			18	179				
05:45		55	113	224	420	15	170	64	726	288	1146
06:00		72	91			33	151				
06:15		133	88			48	136				
06:30		161	72			67	102				
06:45		168	57	534	308	89	95	237	484	771	792
07:00		139	44			90	89				
07:15		121	57			64	82				
07:30		211	49			96	76				
07:45		180	38	651	188	68	71	318	318	969	506
08:00		106	66			71	79				
08:15		105	52			57	67				
08:30		107	32			61	76				
08:45		99	35	417	185	68	61	257	283	674	468
09:00		93	31			69	47				
09:15		95	32			54	63				
09:30		76	41			81	58				
09:45		85	34	349	138	62	51	266	219	615	357
10:00		73	25			71	50				
10:15		86	31			66	44				
10:30		96	35			86	40				
10:45		102	30	357	121	93	39	316	173	673	294
11:00		74	21			81	27				
11:15		92	15			88	38				
11:30		78	8			76	31				
11:45		94	15	338	59	87	23	332	119	670	178
Total		3170	3354			1953	4641			5123	7995
Percent		48.6%	51.4%			29.6%	70.4%			39.1%	60.9%

Accurate Counts
978-664-2565

Location : Route 26A
Location : North of Route 202
City/State: Gray, ME

Start Time	08-Sep-12 Sat	SB		Hour Totals		NB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		16	101			24	91				
12:15		11	108			24	90				
12:30		16	93			9	97				
12:45		13	83	56	385	11	92	68	370	124	755
01:00		21	89			16	92				
01:15		8	110			9	93				
01:30		10	94			7	92				
01:45		1	92	40	385	12	82	44	359	84	744
02:00		5	110			6	98				
02:15		7	111			5	84				
02:30		7	101			10	77				
02:45		11	104	30	426	6	84	27	343	57	769
03:00		6	96			4	80				
03:15		8	78			3	89				
03:30		5	78			4	76				
03:45		10	97	29	349	5	113	16	358	45	707
04:00		14	84			5	88				
04:15		14	69			5	93				
04:30		11	64			2	82				
04:45		14	114	53	331	8	106	20	369	73	700
05:00		29	92			6	79				
05:15		29	91			7	81				
05:30		31	93			8	98				
05:45		18	72	107	348	4	59	25	317	132	665
06:00		27	75			12	71				
06:15		35	68			19	75				
06:30		67	55			28	68				
06:45		44	53	173	251	37	63	96	277	269	528
07:00		47	43			29	53				
07:15		58	42			17	51				
07:30		58	31			31	59				
07:45		52	41	215	157	42	54	119	217	334	374
08:00		50	46			39	58				
08:15		55	42			49	41				
08:30		65	34			70	54				
08:45		75	36	245	158	83	35	241	188	486	346
09:00		77	27			114	49				
09:15		84	32			71	53				
09:30		103	24			83	39				
09:45		82	40	346	123	98	27	366	168	712	291
10:00		85	24			84	23				
10:15		96	36			89	25				
10:30		110	18			106	18				
10:45		108	15	399	93	94	11	373	77	772	170
11:00		98	13			113	17				
11:15		113	13			77	13				
11:30		111	11			95	15				
11:45		97	17	419	54	93	11	378	56	797	110
Total		2112	3060			1773	3099			3885	6159
Percent		40.8%	59.2%			36.4%	63.6%			38.7%	61.3%

APPENDIX B – DHV ADJUSTMENT FACTORS

Seasonal Adjustment Factor - DHV

	Source	Date	Period	¹ Group	¹ Count		¹ 6th Highest		*DHV Factor
					Date	Factor	Week	Factor	
Route 202 (Gray Rd) / Route 26A (Gray By-Pass)	AC	9/6/2012	AM/PM	I + II	0.89	0.85	0.85	1.05	
Route 202 (Gray Rd) / I-95 On/Off Ramps (Exit 63)	AC	9/6/2012	AM/PM	I + II	0.89	0.85	0.85	1.05	
Route 202 (Gray Rd) / Center Rd	AC	9/6/2012	AM/PM	I + II	0.89	0.85	0.85	1.05	
Route 202 (Gray Rd) / Route 26 (Yarmouth Rd) / Main St	AC	9/6/2012	AM/PM	I	0.89	0.87	0.87	1.02	
Main St / Brown St / Route 26 (Shaker Rd)	AC	9/6/2012	AM/PM	I	0.89	0.87	0.87	1.02	
Route 202 (Gray Rd) West of I-95 On/Off Ramps (Exit 63)	AC	9/6/2012	24 HR	II	0.88	0.84	0.84	1.05	
Route 26A (Gray By-Pass) North of Route 202 (Gray Rd)	AC	9/6/2012	24 HR	II	0.88	0.84	0.84	1.05	

¹Taken from 2011.1 MaineDOT Transportation Count Book

* DHV calculated by dividing the 6th highest week factor of 2011 by the factor of the corresponding week in 2011 to the week the data was collected in 2012 (First full week of September)

Use 1.05 DHV Factor across all intersections

APPENDIX C – OPERATIONAL ANALYSIS

Signalized Intersection Level of Service Tables

2012 No Build Summary

	2012 No Build Weekday Morning			2012 No Build Weekday Evening			2012 No Build Saturday		
	v/c*	Delay**	LOS***	v/c	Delay	LOS	v/c	Delay	LOS
	Route 202 & Route 26A (Gray Bypass)								
EB Left Turns	0.55	51	D	0.64	54	D	0.45	44	D
EB Through/Right Movements	0.98	61	E	0.74	33	C	0.64	27	C
WB Left Turns	0.11	18	B	0.10	16	B	0.06	16	B
WB Through Movements	0.28	32	C	0.67	37	D	0.51	32	C
WB Right Turns	0.14	5	A	0.53	10	A	0.22	6	A
NB Left/Through Movements	0.09	52	D	0.22	53	D	0.09	49	D
NB Right Turns	0.17	20	C	0.18	19	B	0.18	18	B
SB Left /Through Movements	0.97	69	E	0.53	42	D	0.54	35	D
<u>SB Right Turns</u>	<u>0.18</u>	<u>6</u>	<u>A</u>	<u>0.28</u>	<u>7</u>	<u>A</u>	<u>0.28</u>	<u>6</u>	<u>A</u>
Overall	0.95	62	E	0.66	30	C	0.61	27	C
Route 202 & Exit 63 Ramps									
EB Left/Through Movements	0.25	21	C	0.65	43	D	0.44	20	C
EB Right Turns	0.97	46	D	0.55	8	A	0.48	5	A
WB Left Turns	0.95	65	E	0.60	49	D	0.50	30	C
WB Through/Right Movements	0.16	2	A	0.61	28	C	0.39	9	A
NB Left Turns	0.84	99	F	0.75	30	C	0.53	28	C
NB Left/Through Movements	0.93	118	F	0.77	32	A	0.55	29	C
NB Right Turns	0.23	3	A	0.55	9	A	0.19	2	A
<u>SB Movements</u>	<u>0</u>	<u>0</u>	<u>A</u>	<u>0</u>	<u>0</u>	<u>A</u>	<u>0.01</u>	<u>0</u>	<u>A</u>
Overall	0.95	48	D	0.70	26	C	0.49	16	B
Route 202 & Yarmouth Rd/Portland Rd									
EB Left Turns	0.51	37	D	0.68	38	D	0.51	31	C
EB Through/Right Movements	0.68	44	D	0.56	34	C	0.65	34	C
WB Movements	0.71	47	D	0.85	55	D	0.65	37	D
NB Left Turns	0.56	52	D	0.55	53	D	0.57	45	D
NB Through/Right Movements	0.24	13	B	0.69	29	C	0.50	19	B
SB Left/Through Movements	0.50	27	C	0.54	26	C	0.60	26	C
<u>SB Right Turns</u>	<u>0.55</u>	<u>7</u>	<u>A</u>	<u>0.51</u>	<u>6</u>	<u>A</u>	<u>0.50</u>	<u>4</u>	<u>A</u>
Overall	0.60	32	C	0.73	32	C	0.63	24	C
Route 202 & Shaker Rd/Brown St									
EB Left/Through Movements	0.69	46	D	0.94	76	E	0.84	48	D
EB Right Turns	0.51	17	B	0.20	4	A	0.27	5	A
WB Movements	0.75	47	D	0.64	36	D	0.50	24	C
NB Left Turns	0.58	55	E	0.83	50	D	0.69	40	D
NB Through/Right Movements	0.30	4	A	0.64	9	A	0.48	6	A
SB Left/Through Movements	0.33	16	B	0.43	26	C	0.48	24	C
<u>SB Right Turns</u>	<u>0.15</u>	<u>8</u>	<u>A</u>	<u>0.22</u>	<u>11</u>	<u>B</u>	<u>0.19</u>	<u>8</u>	<u>A</u>
Overall	0.47	22	C	0.76	26	C	0.63	20	C

*= Volume to Capacity Ratio.

**=Delay in seconds per vehicle.

***=Level of Service.

Signalized Intersection Level of Service Tables

Alternative 1 (Do Nothing) Summary

	2032 Weekday Morning			2032 Weekday Evening			2032 Saturday		
	v/c*	Delay**	LOS***	v/c	Delay	LOS	v/c	Delay	LOS
	Route 202 & Route 26A (Gray Bypass)								
EB Left Turns	0.62	52	D	0.77	65	E	0.58	52	D
EB Through/Right Movements	1.2	134	F	0.91	49	D	0.81	39	D
WB Left Turns	0.14	18	B	0.17	20	B	0.12	17	B
WB Through Movements	0.35	34	C	0.83	47	D	0.58	36	D
WB Right Turns	0.17	6	A	0.64	12	B	0.27	7	A
NB Left/Through Movements	0.09	52	D	0.30	57	E	0.14	54	D
NB Right Turns	0.21	19	B	0.21	18	B	0.22	18	B
SB Left /Through Movements	1.19	136	F	0.63	46	D	0.70	44	D
<u>SB Right Turns</u>	<u>0.22</u>	<u>6</u>	<u>A</u>	<u>0.33</u>	<u>6</u>	<u>A</u>	<u>0.33</u>	<u>6</u>	<u>A</u>
Overall	1.15	118	F	0.81	40	D	0.74	33	C
Route 202 & Exit 63 Ramps									
EB Left/Through Movements	0.29	20	C	0.83	53	D	0.52	22	C
EB Right Turns	1.19	123	F	0.62	8	A	0.54	5	A
WB Left Turns	1.19	138	F	0.80	64	E	0.64	35	C
WB Through/Right Movements	0.2	2	A	0.80	38	D	0.48	10	A
NB Left Turns	1.13	172	F	0.86	38	D	0.63	32	C
NB Left/Through Movements	1.23	203	F	0.89	42	D	0.66	33	C
NB Right Turns	0.28	3	A	0.66	12	B	0.24	5	A
<u>SB Movements</u>	<u>0</u>	<u>0</u>	<u>A</u>	<u>0</u>	<u>0</u>	<u>A</u>	<u>0.01</u>	<u>0</u>	<u>A</u>
Overall	1.21	107	F	0.85	34	C	0.57	18	B
Route 202 & Yarmouth Rd/Portland Rd									
EB Left Turns	0.58	38	D	0.71	36	D	0.57	31	C
EB Through/Right Movements	0.77	50	D	0.60	32	C	0.73	37	D
WB Movements	0.76	46	D	0.94	66	E	0.69	37	D
NB Left Turns	0.68	59	E	0.67	61	E	0.69	53	D
NB Through/Right Movements	0.31	16	B	0.98	61	E	0.67	25	C
SB Left/Through Movements	0.74	39	D	1.73	366	F	0.95	59	E
<u>SB Right Turns</u>	<u>0.72</u>	<u>12</u>	<u>B</u>	<u>0.65</u>	<u>8</u>	<u>A</u>	<u>0.63</u>	<u>6</u>	<u>A</u>
Overall	0.74	35	C	1.11	86	F	0.79	31	C
Route 202 & Shaker Rd/Brown St									
EB Left/Through Movements	0.78	51	D	0.94	70	E	0.90	53	D
EB Right Turns	0.58	19	B	0.22	6	A	0.30	7	A
WB Movements	0.92	66	E	0.65	34	C	0.57	25	C
NB Left Turns	0.63	45	D	0.91	68	E	0.81	46	D
NB Through/Right Movements	0.38	4	A	0.87	69	E	0.64	12	B
SB Left/Through Movements	0.46	20	B	0.72	37	D	0.72	32	C
<u>SB Right Turns</u>	<u>0.20</u>	<u>10</u>	<u>B</u>	<u>0.35</u>	<u>15</u>	<u>B</u>	<u>0.27</u>	<u>10</u>	<u>A</u>
Overall	0.59	25	C	0.89	30	C	0.81	24	C

*= Volume to Capacity Ratio.

**=Delay in seconds per vehicle.

***=Level of Service.

Signalized Intersection Level of Service Tables

Alternative 2 (Existing Ramps Improvements) Summary

	2032 Weekday Morning			2032 Weekday			2032 Saturday		
	v/c*	Delay**	LOS***	v/c	Delay	LOS	v/c	Delay	LOS
Route 202 & Route 26A (Gray Bypass)									
EB Left Turns	0.66	49	D	0.88	63	E	0.60	38	D
EB Through/Right Movements	0.63	26	C	0.46	15	B	0.41	16	B
WB Left Turns	0.25	54	D	0.22	41	D	0.21	38	D
WB Through Movements	0.30	20	B	0.63	18	B	0.47	18	B
WB Right Turns	0.34	21	C	0.89	31	C	0.43	19	B
NB Left/Through Movements	0.12	49	D	0.27	37	D	0.17	40	D
NB Right Turns	0.02	49	D	0.03	35	D	0.03	39	D
SB Left Turns	0.79	46	D	0.70	49	D	0.60	38	D
SB Left /Through Movements	0.77	44	D	0.59	40	D	0.56	36	D
<u>SB Right Turns</u>	<u>0.09</u>	<u>29</u>	<u>C</u>	<u>0.11</u>	<u>33</u>	<u>C</u>	<u>0.13</u>	<u>31</u>	<u>C</u>
Overall	0.64	33	C	0.78	28	C	0.50	24	C
Route 202 & Exit 63 Ramps									
EB Through Movements	0.24	11	B	0.57	21	C	0.33	7	A
EB Right Turns	0.98	46	D	0.25	21	C	0.28	11	B
WB Left Turns	0.98	66	E	0.52	39	D	0.48	34	C
WB Through Movements	0.20	2	A	0.69	30	C	0.42	8	A
NB Left Turns	0.80	60	E	0.79	25	C	0.62	33	C
<u>NB Right Turns</u>	<u>0.15</u>	<u>24</u>	<u>C</u>	<u>0.75</u>	<u>16</u>	<u>B</u>	<u>0.14</u>	<u>28</u>	<u>C</u>
Overall	0.95	41	D	0.72	24	C	0.47	17	B
Route 202 & Yarmouth Rd/Portland Rd									
EB Left Turns	0.60	32	C	1.00	64	E	0.72	46	D
EB Through/Right Movements	0.79	44	D	0.82	44	D	0.91	71	E
WB Movements	0.78	51	D	0.87	47	D	0.73	41	D
NB Left Turns	0.66	55	D	0.56	40	D	0.76	55	E
NB Through/Right Movements	0.29	15	B	0.86	35	D	0.66	24	C
SB Left/Through Movements	0.66	30	C	1.03	70	E	0.95	52	D
<u>SB Right Turns</u>	<u>0.53</u>	<u>34</u>	<u>C</u>	<u>0.30</u>	<u>14</u>	<u>B</u>	<u>0.30</u>	<u>28</u>	<u>C</u>
Overall	0.72	35	C	0.96	46	D	0.88	42	D
Route 202 & Shaker Rd/Brown St									
EB Left/Through Movements	0.73	47	D	0.89	51	D	0.89	49	D
EB Right Turns	0.52	25	C	0.19	9	A	0.29	11	B
WB Movements	0.87	62	E	0.61	27	C	0.57	26	C
NB Left Turns	0.64	35	C	1.06	71	E	0.87	45	D
NB Through/Right Movements	0.38	6	A	0.89	13	B	0.63	7	A
SB Left/Through Movements	0.45	20	B	0.73	34	C	0.66	30	C
<u>SB Right Turns</u>	<u>0.15</u>	<u>17</u>	<u>B</u>	<u>0.21</u>	<u>25</u>	<u>C</u>	<u>0.17</u>	<u>23</u>	<u>C</u>
Overall	0.60	26	C	0.92	31	C	0.77	25	C

*= Volume to Capacity Ratio.

**=Delay in seconds per vehicle.

***=Level of Service.

Signalized Intersection Level of Service Tables

Alternative 3 (New Ramps Improvements) Summary

	2032 Weekday Morning			2032 Weekday			2032 Saturday		
	v/c*	Delay**	LOS***	v/c	Delay	LOS	v/c	Delay	LOS
Route 202 & Route 26A (Gray Bypass)									
EB Left Turns	0.41	29	C	0.92	82	F	0.68	45	D
EB Through Movements	0.94	59	E	0.71	27	C	0.64	24	C
EB Right Turns	0.60	21	C	0.09	7	A	0.11	8	A
WB Left Turns	0.94	56	E	0.64	56	E	0.58	42	D
WB Through Movements	0.70	40	D	0.95	38	D	0.74	26	C
WB Right Turns	0.22	16	B	0.58	9	A	0.27	9	A
NB Left Turns	0.31	37	D	0.78	66	E	0.38	40	D
NB Through/Right Movements	0.18	35	C	0.98	103	F	0.20	38	D
SB Left Turns	0.61	36	D	0.46	48	D	0.65	46	D
<u>SB Through/Right Movements</u>	<u>0.84</u>	<u>41</u>	<u>D</u>	<u>0.58</u>	<u>47</u>	<u>D</u>	<u>0.51</u>	<u>38</u>	<u>D</u>
Overall	0.80	41	D	0.90	42	D	0.64	29	C
Route 202 & Exit 63 Ramps									
EB Left/Through Movements	0.26	5	A	0.51	17	B	0.36	15	B
EB Right Turns	0.13	13	B	0.09	1	A	0.09	3	A
WB Left Turns	0.44	39	D	0.15	48	D	0.21	35	D
WB Through/Right Movements	0.61	5	A	0.77	26	C	0.60	16	B
NB Left Turns	0.35	35	C	0.76	39	D	0.59	38	D
NB Left/Through Movements	0.37	35	C	0.79	41	D	0.61	39	D
NB Right Turns	0.12	20	C	0.60	26	C	0.11	25	C
<u>SB Movements</u>	<u>0</u>	<u>0</u>	<u>A</u>	<u>0</u>	<u>52</u>	<u>D</u>	<u>0</u>	<u>45</u>	<u>D</u>
Overall	0.57	12	B	0.75	27	C	0.58	18	B
Route 202 & Yarmouth Rd/Portland Rd									
EB Left Turns	0.52	24	C	0.84	48	D	0.55	36	D
EB Through/Right Movements	0.68	31	C	0.70	45	D	0.70	43	D
WB Movements	0.68	36	D	0.92	64	E	0.68	38	D
NB Left Turns	0.55	40	D	0.66	56	E	0.67	48	D
NB Through/Right Movements	0.34	16	B	0.86	38	D	0.65	23	C
SB Left/Through Movements	0.92	48	D	0.96	57	E	0.91	41	D
<u>SB Right Turns</u>	<u>0.60</u>	<u>38</u>	<u>D</u>	<u>0.30</u>	<u>21</u>	<u>C</u>	<u>0.30</u>	<u>21</u>	<u>C</u>
Overall	0.74	34	C	0.92	45	D	0.77	35	C
Route 202 & Shaker Rd/Brown St									
EB Left/Through Movements	0.64	33	C	0.93	68	E	0.90	54	D
EB Right Turns	0.51	16	B	0.20	10	B	0.29	11	B
WB Movements	0.72	36	D	0.67	36	D	0.59	28	C
NB Left Turns	0.61	30	C	0.92	47	D	0.85	44	D
NB Through/Right Movements	0.41	5	A	0.86	14	B	0.63	7	A
SB Left/Through Movements	0.50	20	C	0.70	39	D	0.65	31	C
<u>SB Right Turns</u>	<u>0.16</u>	<u>16</u>	<u>B</u>	<u>0.25</u>	<u>31</u>	<u>C</u>	<u>0.18</u>	<u>24</u>	<u>C</u>
Overall	0.59	20	C	0.89	32	C	0.77	27	C

*= Volume to Capacity Ratio.

**=Delay in seconds per vehicle.

***=Level of Service.

Unsignalized Intersection Level of Service Tables

Existing Conditions

	2012 No Build AM			2012 No Build PM		
	<u>Demand*</u>	<u>Delay**</u>	<u>LOS***</u>	<u>Demand</u>	<u>Delay</u>	<u>LOS</u>
Route 202 & Central Rd						
WB Movements	690	1	A	635	1	A
NB Movements	80	21	C	50	18	C
	2012 No Build SAT					
	<u>Demand</u>	<u>Delay</u>	<u>LOS</u>			
WB Movements	590	1	A			
NB Movements	50	17	C			

* Demand in vehicles per hour.

** Delay in seconds per vehicle.

*** Level of service.

Alternative 1 - Do Nothing

	2032 Weekday Morning			2032 Weekday Evening		
	<u>Demand*</u>	<u>Delay**</u>	<u>LOS***</u>	<u>Demand</u>	<u>Delay</u>	<u>LOS</u>
Route 202 & Central Rd						
WB Movements	850	1	A	780	2	A
NB Movements	100	36	E	65	26	D
	2032 Saturday					
	<u>Demand</u>	<u>Delay</u>	<u>LOS</u>			
WB Movements	720	1	A			
NB Movements	60	21	C			

* Demand in vehicles per hour.

** Delay in seconds per vehicle.

*** Level of service.

Unsignalized Intersection Level of Service Tables

Alternative 2 - Existing Ramp Improvements

	2032 Weekday Morning			2032 Weekday Evening		
	<u>Demand*</u>	<u>Delay**</u>	<u>LOS***</u>	<u>Demand</u>	<u>Delay</u>	<u>LOS</u>
Route 202 & Central Rd						
WB Movements	850	1	A	780	2	A
NB Movements	100	36	E	65	27	D
2032 Saturday						
	<u>Demand</u>	<u>Delay</u>	<u>LOS</u>			
WB Movements	720	1	A			
NB Movements	60	21	C			

* Demand in vehicles per hour.

** Delay in seconds per vehicle.

*** Level of service.

Alternative 3 - New Ramp Improvements

	2032 Weekday Morning			2032 Weekday Evening		
	<u>Demand*</u>	<u>Delay**</u>	<u>LOS***</u>	<u>Demand</u>	<u>Delay</u>	<u>LOS</u>
Route 202 & Central Rd						
WB Movements	850	1	A	780	2	A
NB Movements	100	58	F	65	26	D
2032 Saturday						
	<u>Demand</u>	<u>Delay</u>	<u>LOS</u>			
WB Movements	720	1	A			
NB Movements	60	22	C			

* Demand in vehicles per hour.

** Delay in seconds per vehicle.

*** Level of service.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Configurations	↘	↗	↘	↕	↗	↖	↗	↖	↗
Volume (vph)	135	660	20	250	140	5	20	5	115
Lane Group Flow (vph)	153	761	22	269	151	14	28	571	126
Turn Type	Prot		pm+pt		pt+ov		Prot		Prot
Protected Phases	7	4	3	8	8 1	2	2	1	1
Permitted Phases			8						
Detector Phase	7	4	3	8	8 1	2	2	1	1
Switch Phase									
Minimum Initial (s)	5.0	15.0	5.0	5.0		5.0	5.0	15.0	15.0
Minimum Split (s)	16.0	22.0	16.0	16.0		16.0	16.0	22.0	22.0
Total Split (s)	27.0	50.0	19.0	42.0	84.0	22.0	22.0	42.0	42.0
Total Split (%)	20.3%	37.6%	14.3%	31.6%	63.2%	16.5%	16.5%	31.6%	31.6%
Yellow Time (s)	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lead	Lag	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None		None	None	None	None
Act Effct Green (s)	17.6	46.8	42.1	32.7	73.2	9.6	9.6	38.7	38.7
Actuated g/C Ratio	0.16	0.43	0.39	0.30	0.67	0.09	0.09	0.36	0.36
v/c Ratio	0.55	0.98	0.11	0.28	0.14	0.09	0.17	0.97	0.18
Control Delay	51.4	61.2	17.8	31.7	5.2	51.9	20.4	68.9	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.4	61.2	17.8	31.7	5.2	51.9	20.4	68.9	5.9
LOS	D	E	B	C	A	D	C	E	A
Approach Delay		59.6		22.0		30.9		57.5	
Approach LOS		E		C		C		E	
Queue Length 50th (ft)	110	~656	8	81	24	10	0	~489	0
Queue Length 95th (ft)	173	#898	23	126	48	25	19	#736	44
Internal Link Dist (ft)		734		1299		72		767	
Turn Bay Length (ft)	200		200		175		35		650
Base Capacity (vph)	370	777	276	1155	1134	300	284	586	694
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.98	0.08	0.23	0.13	0.05	0.10	0.97	0.18

Intersection Summary

Cycle Length: 133
 Actuated Cycle Length: 108.9
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 50.4
 Intersection Capacity Utilization 85.0%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service E

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

Queues

1: Route 202 & Route 26A (Gray Bypass)

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Route 202 & Route 26A (Gray Bypass)

 ø2	 ø1	 ø3	 ø4
22 s	42 s	19 s	50 s
		 ø7	 ø8
		27 s	42 s

HCM Signalized Intersection Capacity Analysis
 1: Route 202 & Route 26A (Gray Bypass)

Synchro 7 Report
 3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↘		↙	↕	↗		↕	↗		↕	↗
Volume (vph)	135	660	10	20	250	140	5	5	20	515	5	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	16	12	12	12	11	11	16
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1719	1806		1572	3252	1649		1782	1553		1651	1727
Flt Permitted	0.95	1.00		0.11	1.00	1.00		0.98	1.00		0.95	1.00
Satd. Flow (perm)	1719	1806		185	3252	1649		1782	1553		1651	1727
Peak-hour factor, PHF	0.88	0.88	0.88	0.93	0.93	0.93	0.72	0.72	0.72	0.91	0.91	0.91
Adj. Flow (vph)	153	750	11	22	269	151	7	7	28	566	5	126
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	26	0	0	84
Lane Group Flow (vph)	153	760	0	22	269	151	0	14	2	0	571	42
Heavy Vehicles (%)	5%	5%	5%	11%	11%	11%	4%	4%	4%	6%	6%	6%
Turn Type	Prot			pm+pt		pt+ov	Split			Prot	Split	Prot
Protected Phases	7	4		3	8	8 1	2	2	2	1	1	1
Permitted Phases				8								
Actuated Green, G (s)	14.6	43.7		36.5	32.8	68.4		3.9	3.9		35.6	35.6
Effective Green, g (s)	17.6	46.7		42.5	35.8	74.4		6.9	6.9		38.6	38.6
Actuated g/C Ratio	0.15	0.41		0.37	0.31	0.65		0.06	0.06		0.34	0.34
Clearance Time (s)	7.0	7.0		7.0	7.0			7.0	7.0		7.0	7.0
Vehicle Extension (s)	3.0	4.0		3.0	4.0			3.0	3.0		4.0	4.0
Lane Grp Cap (vph)	263	734		149	1013	1068		107	93		555	580
v/s Ratio Prot	c0.09	c0.42		0.01	0.08	0.09		c0.01	0.00		c0.35	0.02
v/s Ratio Perm				0.05								
v/c Ratio	0.58	1.04		0.15	0.27	0.14		0.13	0.02		1.03	0.07
Uniform Delay, d1	45.2	34.1		27.6	29.7	7.9		51.2	50.8		38.2	26.0
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	3.3	42.9		0.5	0.2	0.1		0.6	0.1		45.8	0.1
Delay (s)	48.5	77.0		28.1	29.9	7.9		51.7	50.9		83.9	26.0
Level of Service	D	E		C	C	A		D	D		F	C
Approach Delay (s)		72.2			22.3			51.2			73.5	
Approach LOS		E			C			D			E	

Intersection Summary			
HCM Average Control Delay	61.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	114.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues
2: Route 202 & Gray Graveyard



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR
Lane Configurations	↔↔	↗	↖	↔	↖	↔	↗
Volume (vph)	365	830	510	215	195	1	155
Lane Group Flow (vph)	384	874	593	250	109	111	174
Turn Type		Prot	Prot		Perm		pt+ov
Protected Phases	2	2	1	1 2		3	3 1
Permitted Phases					3		
Detector Phase	2	2	1	1 2	3	3	3 1
Switch Phase							
Minimum Initial (s)	6.0	6.0	5.0		3.0	3.0	
Minimum Split (s)	16.0	16.0	16.0		16.0	16.0	
Total Split (s)	58.0	58.0	45.0	103.0	17.0	17.0	62.0
Total Split (%)	48.3%	48.3%	37.5%	85.8%	14.2%	14.2%	51.7%
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	3.5	3.5	3.7		3.5	3.5	
Lost Time Adjust (s)	-4.5	-4.5	-4.7	-4.7	-4.5	-4.5	-4.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?							
Recall Mode	None	None	None		None	None	
Act Effct Green (s)	53.9	53.9	41.0	98.9	13.0	13.0	58.0
Actuated g/C Ratio	0.45	0.45	0.34	0.82	0.11	0.11	0.48
v/c Ratio	0.25	0.97	0.95	0.16	0.84	0.93	0.23
Control Delay	21.0	45.6	64.5	2.4	99.3	117.7	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.0	45.6	64.5	2.4	99.3	117.7	3.3
LOS	C	D	E	A	F	F	A
Approach Delay	38.1			46.1		62.1	
Approach LOS	D			D		E	
Queue Length 50th (ft)	94	489	445	30	88	91	0
Queue Length 95th (ft)	130	#795	#621	43	#197	#209	36
Internal Link Dist (ft)	1299			605		270	
Turn Bay Length (ft)		350	205		145		
Base Capacity (vph)	1548	901	625	1538	129	120	769
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.97	0.95	0.16	0.84	0.93	0.23

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.9

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 44.6

Intersection LOS: D

Intersection Capacity Utilization 86.3%

ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Route 202 & Gray Graveyard

 ø1	 ø2	 ø3
45 s	58 s	17 s

HCM Signalized Intersection Capacity Analysis
2: Route 202 & Gray Graveyard

Synchro 7 Report
3/25/2013

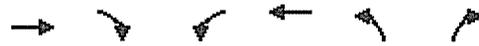


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗	↖	↔		↖	↕	↗		↕	
Volume (vph)	0	365	830	510	215	0	195	1	155	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	13	12	12	12	11	12	12	12	12
Grade (%)		0%			-4%			0%			0%	
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0			
Lane Util. Factor		0.95	1.00	1.00	1.00		0.95	0.95	1.00			
Frt		1.00	0.85	1.00	1.00		1.00	1.00	0.85			
Flt Protected		1.00	1.00	0.95	1.00		0.95	0.95	1.00			
Satd. Flow (prot)		3438	1641	1829	1863		1491	1446	1404			
Flt Permitted		1.00	1.00	0.95	1.00		0.76	0.73	1.00			
Satd. Flow (perm)		3438	1641	1829	1863		1188	1105	1404			
Peak-hour factor, PHF	0.95	0.95	0.95	0.86	0.86	0.86	0.89	0.89	0.89	0.25	0.25	0.25
Adj. Flow (vph)	0	384	874	593	250	0	219	1	174	0	0	0
RTOR Reduction (vph)	0	0	163	0	0	0	0	0	90	0	0	0
Lane Group Flow (vph)	0	384	711	593	250	0	109	111	84	0	0	0
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	15%	15%	15%	0%	0%	0%
Turn Type	Perm		Prot	Prot			Perm		pt+ov	Perm		
Protected Phases		2	2	1	12			3	3 1		3	
Permitted Phases	2						3			3		
Actuated Green, G (s)		49.4	49.4	36.3	94.4		8.5	8.5	53.3			
Effective Green, g (s)		53.9	53.9	41.0	99.1		13.0	13.0	57.8			
Actuated g/C Ratio		0.45	0.45	0.34	0.83		0.11	0.11	0.48			
Clearance Time (s)		8.5	8.5	8.7			8.5	8.5				
Vehicle Extension (s)		3.0	3.0	3.0			3.0	3.0				
Lane Grp Cap (vph)		1546	738	625	1540		129	120	677			
v/s Ratio Prot		0.11	c0.43	c0.32	0.13				0.06			
v/s Ratio Perm							0.09	c0.10				
v/c Ratio		0.25	0.96	0.95	0.16		0.84	0.93	0.12			
Uniform Delay, d1		20.4	32.0	38.4	2.1		52.5	53.0	17.1			
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00			
Incremental Delay, d2		0.1	24.3	23.8	0.0		37.0	58.8	0.1			
Delay (s)		20.5	56.3	62.2	2.1		89.4	111.8	17.2			
Level of Service		C	E	E	A		F	F	B			
Approach Delay (s)		45.4			44.4			63.8			0.0	
Approach LOS		D			D			E			A	

Intersection Summary			
HCM Average Control Delay	48.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	119.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 3: Route 202 & Central Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↓	↓	↓
Volume (veh/h)	455	20	20	670	35	45
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.86	0.86	0.78	0.78
Hourly flow rate (vph)	479	21	23	779	45	58
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	685			172		
pX, platoon unblocked			0.97		0.91	0.97
vC, conflicting volume			500		1315	250
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			425		1178	168
tC, single (s)			4.2		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		73	93
cM capacity (veh/h)			1084		167	828

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	319	181	802	103
Volume Left	0	0	23	45
Volume Right	0	21	0	58
cSH	1700	1700	1084	381
Volume to Capacity	0.19	0.11	0.02	0.27
Queue Length 95th (ft)	0	0	2	27
Control Delay (s)	0.0	0.0	0.6	20.5
Lane LOS			A	C
Approach Delay (s)	0.0		0.6	20.5
Approach LOS				C

Intersection Summary			
Average Delay		1.8	
Intersection Capacity Utilization		61.4%	ICU Level of Service B
Analysis Period (min)		15	

Queues
4: Route 202 & Main Street



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Volume (vph)	290	165	150	80	180	20	335	460
Lane Group Flow (vph)	302	219	240	94	241	0	413	535
Turn Type	Split			Prot		Perm		Perm
Protected Phases	4	4	3	5	2		6	
Permitted Phases						6		6
Detector Phase	4	4	3	5	2	6	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	6.0	3.0	5.0	5.0	5.0	5.0
Minimum Split (s)	16.0	16.0	18.0	10.0	21.0	16.0	16.0	16.0
Total Split (s)	19.0	19.0	28.0	13.0	43.0	30.0	30.0	30.0
Total Split (%)	21.1%	21.1%	31.1%	14.4%	47.8%	33.3%	33.3%	33.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)	14.3	14.3	15.2	8.8	48.6		37.7	37.7
Actuated g/C Ratio	0.16	0.16	0.17	0.10	0.54		0.42	0.42
v/c Ratio	0.51	0.68	0.71	0.56	0.24		0.50	0.55
Control Delay	37.1	43.9	46.5	51.8	13.1		26.3	7.1
Queue Delay	0.1	0.0	0.0	0.0	0.0		1.0	0.3
Total Delay	37.2	43.9	46.5	51.8	13.1		27.3	7.4
LOS	D	D	D	D	B		C	A
Approach Delay		40.0	46.5		23.9		16.1	
Approach LOS		D	D		C		B	
Queue Length 50th (ft)	80	110	129	51	66		219	77
Queue Length 95th (ft)	115	178	169	96	127		236	39
Internal Link Dist (ft)		92	183		238		223	
Turn Bay Length (ft)				90				
Base Capacity (vph)	670	363	530	182	1018		822	967
Starvation Cap Reductn	0	0	0	0	0		194	99
Spillback Cap Reductn	34	0	0	0	0		0	0
Storage Cap Reductn	0	0	0	0	0		0	0
Reduced v/c Ratio	0.47	0.60	0.45	0.52	0.24		0.66	0.62

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 17 (19%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 27.0

Intersection LOS: C

Intersection Capacity Utilization 64.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 4: Route 202 & Main Street

 ø2 43 s		 ø3 28 s		 ø4 19 s	
 ø5 13 s		 ø6 30 s			

HCM Signalized Intersection Capacity Analysis
4: Route 202 & Main Street

Synchro 7 Report
3/25/2013

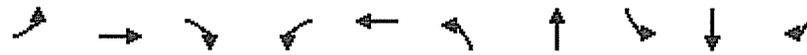


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↖			↕		↖	↗			↖	↗
Volume (vph)	290	165	45	35	150	10	80	180	25	20	335	460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	16	16	12	14	14	15	15	16
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	1.00			1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.97			0.99		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00			0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)	3744	1966			1981		1703	1877			2004	1566
Flt Permitted	0.95	1.00			0.99		0.95	1.00			0.98	1.00
Satd. Flow (perm)	3744	1966			1981		1703	1877			1963	1566
Peak-hour factor, PHF	0.96	0.96	0.96	0.81	0.81	0.81	0.85	0.85	0.85	0.86	0.86	0.86
Adj. Flow (vph)	302	172	47	43	185	12	94	212	29	23	390	535
RTOR Reduction (vph)	0	11	0	0	2	0	0	5	0	0	0	316
Lane Group Flow (vph)	302	208	0	0	238	0	94	236	0	0	413	219
Heavy Vehicles (%)	6%	6%	6%	7%	7%	7%	6%	6%	6%	4%	4%	4%
Parking (#/hr)												2
Turn Type	Split			Split			Prot			Perm		Perm
Protected Phases	4	4		3	3		5	2				6
Permitted Phases										6		6
Actuated Green, G (s)	14.3	14.3			15.2		7.7	48.5			36.8	36.8
Effective Green, g (s)	14.3	14.3			15.2		7.7	48.5			36.8	36.8
Actuated g/C Ratio	0.16	0.16			0.17		0.09	0.54			0.41	0.41
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)	2.5	2.5			2.0		2.5	3.5			3.5	3.5
Lane Grp Cap (vph)	595	312			335		146	1011			803	640
v/s Ratio Prot	0.08	c0.11			c0.12		c0.06	0.13				
v/s Ratio Perm											c0.21	0.14
v/c Ratio	0.51	0.67			0.71		0.64	0.23			0.51	0.34
Uniform Delay, d1	34.6	35.6			35.3		39.8	10.9			19.9	18.3
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.03	1.89
Incremental Delay, d2	0.5	4.8			5.5		8.3	0.5			2.2	1.4
Delay (s)	35.1	40.4			40.8		48.1	11.5			22.8	35.9
Level of Service	D	D			D		D	B			C	D
Approach Delay (s)		37.3			40.8			21.8			30.2	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	31.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
5: Shaker Road & Main Street



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↖	↗		↕	↗
Volume (vph)	55	85	305	55	95	130	325	10	500	110
Lane Group Flow (vph)	0	173	377	0	226	143	384	0	573	124
Turn Type	Perm		pm+ov	Perm		Prot		Perm		Perm
Protected Phases		4	5		8	5	2		6	
Permitted Phases	4		4	8				6		6
Detector Phase	4	4	5	8	8	5	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	8.0	5.0	5.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	33.0	33.0	16.0	30.0	30.0	16.0	26.0	30.0	30.0	30.0
Total Split (s)	34.0	34.0	26.0	34.0	34.0	26.0	56.0	30.0	30.0	30.0
Total Split (%)	37.8%	37.8%	28.9%	37.8%	37.8%	28.9%	62.2%	33.3%	33.3%	33.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	0.0	0.0	-1.0	0.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	3.0	4.0	4.0
Lead/Lag			Lead			Lead		Lag	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		17.7	34.9		17.7	13.2	64.3		47.1	47.1
Actuated g/C Ratio		0.20	0.39		0.20	0.15	0.71		0.52	0.52
v/c Ratio		0.69	0.51		0.75	0.58	0.30		0.33	0.15
Control Delay		46.4	17.2		46.6	55.4	3.2		15.4	7.6
Queue Delay		0.0	0.0		0.0	0.0	0.5		0.1	0.0
Total Delay		46.4	17.2		46.7	55.4	3.7		15.5	7.6
LOS		D	B		D	E	A		B	A
Approach Delay		26.4			46.7		17.7		14.1	
Approach LOS		C			D		B		B	
Queue Length 50th (ft)		94	127		118	88	17		90	12
Queue Length 95th (ft)		119	113		141	86	191		185	55
Internal Link Dist (ft)		258			295		223		212	
Turn Bay Length (ft)										60
Base Capacity (vph)		426	897		502	408	1286		1720	850
Starvation Cap Reductn		0	0		0	0	494		0	0
Spillback Cap Reductn		0	6		1	0	0		235	0
Storage Cap Reductn		0	0		0	0	0		0	0
Reduced v/c Ratio		0.41	0.42		0.45	0.35	0.48		0.39	0.15

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 17 (19%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 22.1
 Intersection Capacity Utilization 59.3%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

Queues
 5: Shaker Road & Main Street

Splits and Phases: 5: Shaker Road & Main Street

 ø2 56 s		 ø4 34 s	
 ø5 26 s		 ø6 30 s	
		 ø8 34 s	

HCM Signalized Intersection Capacity Analysis
5: Shaker Road & Main Street

Synchro 7 Report
3/25/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	85	305	55	95	30	130	325	25	10	500	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	16	16	16	12	13	13	11	12	12
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00			0.95	1.00
Frt		1.00	0.85		0.98		1.00	0.99			1.00	0.85
Flt Protected		0.98	1.00		0.98		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1792	1760		1993		1671	1799			3468	1553
Flt Permitted		0.70	1.00		0.73		0.95	1.00			0.95	1.00
Satd. Flow (perm)		1280	1760		1481		1671	1799			3288	1553
Peak-hour factor, PHF	0.81	0.81	0.81	0.80	0.80	0.80	0.91	0.91	0.91	0.89	0.89	0.89
Adj. Flow (vph)	68	105	377	69	119	38	143	357	27	11	562	124
RTOR Reduction (vph)	0	0	54	0	10	0	0	2	0	0	0	38
Lane Group Flow (vph)	0	173	323	0	216	0	143	382	0	0	573	86
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	8%	8%	8%	4%	4%	4%
Turn Type	Perm		pm+ov	Perm			Prot			Perm		Perm
Protected Phases		4	5		8		5	2			6	
Permitted Phases	4		4	8						6		6
Actuated Green, G (s)		17.7	30.9		17.7		13.2	64.3			47.1	47.1
Effective Green, g (s)		17.7	30.9		17.7		13.2	64.3			47.1	47.1
Actuated g/C Ratio		0.20	0.34		0.20		0.15	0.71			0.52	0.52
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		252	682		291		245	1285			1721	813
v/s Ratio Prot			0.07				c0.09	0.21				
v/s Ratio Perm		0.14	0.11		c0.15						c0.17	0.06
v/c Ratio		0.69	0.47		0.74		0.58	0.30			0.33	0.11
Uniform Delay, d1		33.6	23.2		34.0		35.8	4.7			12.4	10.8
Progression Factor		1.00	1.00		1.00		1.32	0.45			1.00	1.00
Incremental Delay, d2		7.5	0.5		9.8		3.3	0.6			0.5	0.3
Delay (s)		41.1	23.7		43.9		50.6	2.7			12.9	11.1
Level of Service		D	C		D		D	A			B	B
Approach Delay (s)		29.2			43.9			15.7			12.6	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM Average Control Delay	21.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Queues
1: Route 202 & Route 26A (Gray Bypass)



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Configurations									
Volume (vph)	180	555	25	680	485	15	25	10	145
Lane Group Flow (vph)	205	648	27	731	522	42	35	225	159
Turn Type	Prot		pm+pt		pt+ov		Prot		Prot
Protected Phases	7	4	3	8	18	2	2	1	1
Permitted Phases			8						
Detector Phase	7	4	3	8	18	2	2	1	1
Switch Phase									
Minimum Initial (s)	5.0	15.0	5.0	5.0		5.0	5.0	15.0	15.0
Minimum Split (s)	16.0	22.0	16.0	16.0		16.0	16.0	22.0	22.0
Total Split (s)	27.0	50.0	19.0	42.0	84.0	22.0	22.0	42.0	42.0
Total Split (%)	20.3%	37.6%	14.3%	31.6%	63.2%	16.5%	16.5%	31.6%	31.6%
Yellow Time (s)	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lead	Lag	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None		None	None	None	None
Act Effect Green (s)	19.9	52.7	45.8	36.0	64.7	11.4	11.4	27.5	27.5
Actuated g/C Ratio	0.18	0.49	0.42	0.33	0.60	0.11	0.11	0.26	0.26
v/c Ratio	0.64	0.74	0.10	0.67	0.53	0.22	0.18	0.53	0.28
Control Delay	54.3	33.4	16.2	37.2	9.9	53.1	18.6	41.7	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.3	33.4	16.2	37.2	9.9	53.1	18.6	41.7	6.7
LOS	D	C	B	D	A	D	B	D	A
Approach Delay		38.4		25.7		37.4		27.2	
Approach LOS		D		C		D		C	
Queue Length 50th (ft)	139	404	8	242	127	29	0	146	0
Queue Length 95th (ft)	244	#729	28	371	186	56	21	236	51
Internal Link Dist (ft)		734		1299		72		767	
Turn Bay Length (ft)	200		200		175		35		650
Base Capacity (vph)	383	881	363	1197	1191	311	300	610	737
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.74	0.07	0.61	0.44	0.14	0.12	0.37	0.22

Intersection Summary

Cycle Length: 133
 Actuated Cycle Length: 107.8
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 30.4
 Intersection Capacity Utilization 62.3%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

1: Route 202 & Route 26A (Gray Bypass)

Splits and Phases: 1: Route 202 & Route 26A (Gray Bypass)

 ø2	 ø1	 ø3	 ø4
22 s	42 s	19 s	50 s
		 ø7	 ø8
		27 s	42 s

HCM Signalized Intersection Capacity Analysis
1: Route 202 & Route 26A (Gray Bypass)

Synchro 7 Report
3/25/2013



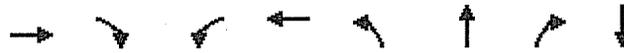
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗		↘	↖	↗		↖	↗		↖	↗
Volume (vph)	180	555	15	25	680	485	15	15	25	195	10	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	16	12	12	12	11	11	16
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1719	1802		1572	3252	1649		1782	1553		1654	1727
Flt Permitted	0.95	1.00		0.24	1.00	1.00		0.98	1.00		0.95	1.00
Satd. Flow (perm)	1719	1802		402	3252	1649		1782	1553		1654	1727
Peak-hour factor, PHF	0.88	0.88	0.88	0.93	0.93	0.93	0.72	0.72	0.72	0.91	0.91	0.91
Adj. Flow (vph)	205	631	17	27	731	522	21	21	35	214	11	159
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	32	0	0	120
Lane Group Flow (vph)	205	647	0	27	731	522	0	42	3	0	225	39
Heavy Vehicles (%)	5%	5%	5%	11%	11%	11%	4%	4%	4%	6%	6%	6%
Turn Type	Prot			pm+pt		pt+ov	Split			Prot	Split	Prot
Protected Phases	7	4		3	8	18	2	2	2	1	1	1
Permitted Phases				8								
Actuated Green, G (s)	16.8	49.5		40.3	36.5	60.8		6.6	6.6		24.3	24.3
Effective Green, g (s)	19.8	52.5		46.3	39.5	66.8		9.6	9.6		27.3	27.3
Actuated g/C Ratio	0.18	0.47		0.41	0.35	0.60		0.09	0.09		0.24	0.24
Clearance Time (s)	7.0	7.0		7.0	7.0			7.0	7.0		7.0	7.0
Vehicle Extension (s)	3.0	4.0		3.0	4.0			3.0	3.0		4.0	4.0
Lane Grp Cap (vph)	303	843		237	1145	982		152	133		402	420
v/s Ratio Prot	c0.12	c0.36		0.01	0.22	0.32		c0.02	0.00		c0.14	0.02
v/s Ratio Perm				0.04								
v/c Ratio	0.68	0.77		0.11	0.64	0.53		0.28	0.02		0.56	0.09
Uniform Delay, d1	43.2	24.8		21.0	30.4	13.4		48.0	47.0		37.2	32.9
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	5.9	4.5		0.2	1.3	0.7		1.0	0.1		2.1	0.1
Delay (s)	49.1	29.3		21.2	31.7	14.1		49.0	47.1		39.3	33.0
Level of Service	D	C		C	C	B		D	D		D	C
Approach Delay (s)		34.0			24.3			48.1			36.7	
Approach LOS		C			C			D			D	

Intersection Summary

HCM Average Control Delay	30.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	112.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
2: Route 202 & Gray Graveyard

Synchro 7 Report
3/25/2013



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Configurations	↕↕	↗	↖	↔	↖	↕	↗	↕↔
Volume (vph)	455	320	170	425	765	0	490	0
Lane Group Flow (vph)	479	337	198	494	430	430	551	4
Turn Type		Prot	Prot		Perm		pt+ov	
Protected Phases	2	2	1	1 2		3	3 1	3
Permitted Phases					3			
Detector Phase	2	2	1	1 2	3	3	3 1	3
Switch Phase								
Minimum Initial (s)	6.0	6.0	5.0		3.0	3.0		3.0
Minimum Split (s)	16.0	16.0	16.0		16.0	16.0		16.0
Total Split (s)	26.0	26.0	22.0	48.0	62.0	62.0	84.0	62.0
Total Split (%)	23.6%	23.6%	20.0%	43.6%	56.4%	56.4%	76.4%	56.4%
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0		5.0
All-Red Time (s)	3.5	3.5	3.7		3.5	3.5		3.5
Lost Time Adjust (s)	-4.5	-4.5	-4.7	-4.7	-4.5	-4.5	-4.5	-4.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Recall Mode	None	None	None		None	None		None
Act Effct Green (s)	21.6	21.6	18.2	43.8	49.3	49.3	71.5	49.3
Actuated g/C Ratio	0.21	0.21	0.18	0.43	0.49	0.49	0.71	0.49
v/c Ratio	0.65	0.55	0.60	0.61	0.75	0.77	0.55	0.00
Control Delay	42.7	7.9	49.3	28.1	29.7	31.6	8.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.7	7.9	49.3	28.1	29.7	31.6	8.7	0.0
LOS	D	A	D	C	C	C	A	A
Approach Delay	28.4			34.1		22.1		0.0
Approach LOS	C			C		C		A
Queue Length 50th (ft)	161	0	129	268	227	231	136	0
Queue Length 95th (ft)	225	77	201	374	352	363	207	0
Internal Link Dist (ft)	1299			605		270		46
Turn Bay Length (ft)		350	205		145			
Base Capacity (vph)	757	624	329	820	688	665	1013	1045
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.54	0.60	0.60	0.63	0.65	0.54	0.00

Intersection Summary

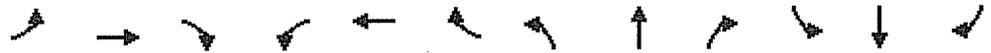
Cycle Length: 110
 Actuated Cycle Length: 101.2
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 26.7
 Intersection LOS: C
 Intersection Capacity Utilization 72.8%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 2: Route 202 & Gray Graveyard

 ø1	 ø2	 ø3
22 s	26 s	62 s

HCM Signalized Intersection Capacity Analysis
2: Route 202 & Gray Graveyard

Synchro 7 Report
3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗	↖	↔		↖	↕	↗		↕↕	
Volume (vph)	0	455	320	170	425	0	765	0	490	0	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	13	12	12	12	11	12	12	12	12
Grade (%)		0%			-4%			0%			0%	
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0	
Lane Util. Factor		0.95	1.00	1.00	1.00		0.95	0.95	1.00		1.00	
Frt		1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.86	
Flt Protected		1.00	1.00	0.95	1.00		0.95	0.95	1.00		1.00	
Satd. Flow (prot)		3438	1641	1829	1863		1491	1441	1404		1644	
Flt Permitted		1.00	1.00	0.95	1.00		0.76	0.76	1.00		1.00	
Satd. Flow (perm)		3438	1641	1829	1863		1185	1146	1404		1644	
Peak-hour factor, PHF	0.95	0.95	0.95	0.86	0.86	0.86	0.89	0.89	0.89	0.25	0.25	0.25
Adj. Flow (vph)	0	479	337	198	494	0	860	0	551	0	0	4
RTOR Reduction (vph)	0	0	265	0	0	0	0	0	13	0	2	0
Lane Group Flow (vph)	0	479	72	198	494	0	430	430	538	0	2	0
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	15%	15%	15%	0%	0%	0%
Turn Type	Perm		Prot	Prot			Perm		pt+ov	Perm		
Protected Phases		2	2	1	1 2			3	3 1			3
Permitted Phases	2						3			3		
Actuated Green, G (s)		17.0	17.0	13.5	39.2		44.7	44.7	66.7			44.7
Effective Green, g (s)		21.5	21.5	18.2	43.9		49.2	49.2	71.2			49.2
Actuated g/C Ratio		0.21	0.21	0.18	0.44		0.49	0.49	0.71			0.49
Clearance Time (s)		8.5	8.5	8.7			8.5	8.5				8.5
Vehicle Extension (s)		3.0	3.0	3.0			3.0	3.0				3.0
Lane Grp Cap (vph)		733	350	330	811		578	559	991			802
v/s Ratio Prot		0.14	0.04	0.11	c0.27				0.38			0.00
v/s Ratio Perm							0.36	c0.38				
v/c Ratio		0.65	0.21	0.60	0.61		0.74	0.77	0.54			0.00
Uniform Delay, d1		36.3	32.7	38.0	21.9		20.8	21.2	7.1			13.3
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00			1.00
Incremental Delay, d2		2.1	0.3	2.9	1.3		5.2	6.3	0.6			0.0
Delay (s)		38.4	33.0	40.9	23.2		25.9	27.5	7.7			13.3
Level of Service		D	C	D	C		C	C	A			B
Approach Delay (s)		36.2			28.3			19.3				13.3
Approach LOS		D			C			B				B

Intersection Summary			
HCM Average Control Delay	26.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	100.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 3: Route 202 & Central Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↑	↑
Volume (veh/h)	765	45	25	610	15	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.86	0.86	0.78	0.78
Hourly flow rate (vph)	805	47	29	709	19	45
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	685			172		
pX, platoon unblocked				0.92	0.87	0.92
vC, conflicting volume				853	1596	426
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				677	1286	216
iC, single (s)				4.2	6.8	6.9
iC, 2 stage (s)						
iF (s)				2.2	3.5	3.3
p0 queue free %				96	86	94
cM capacity (veh/h)				829	134	735

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	537	316	738	64
Volume Left	0	0	29	19
Volume Right	0	47	0	45
cSH	1700	1700	829	445
Volume to Capacity	0.32	0.19	0.04	0.14
Queue Length 95th (ft)	0	0	3	12
Control Delay (s)	0.0	0.0	0.9	18.1
Lane LOS			A	C
Approach Delay (s)	0.0		0.9	18.1
Approach LOS				C

Intersection Summary			
Average Delay			1.1
Intersection Capacity Utilization	62.4%		ICU Level of Service B
Analysis Period (min)			15

Queues
4: Route 202 & Main Street



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Volume (vph)	555	170	225	80	435	10	275	330
Lane Group Flow (vph)	578	255	365	94	565	0	332	384
Turn Type	Split			Prot		Perm		Perm
Protected Phases	4	4	3	5	2		6	
Permitted Phases						6		6
Detector Phase	4	4	3	5	2	6	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	6.0	3.0	5.0	5.0	5.0	5.0
Minimum Split (s)	16.0	16.0	18.0	10.0	21.0	16.0	16.0	16.0
Total Split (s)	34.0	34.0	27.0	13.0	34.0	21.0	21.0	21.0
Total Split (%)	35.8%	35.8%	28.4%	13.7%	35.8%	22.1%	22.1%	22.1%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effect Green (s)	21.4	21.4	20.4	9.5	41.2		29.7	29.7
Actuated g/C Ratio	0.23	0.23	0.21	0.10	0.43		0.31	0.31
v/c Ratio	0.68	0.56	0.85	0.55	0.69		0.54	0.51
Control Delay	37.6	33.5	54.6	52.6	29.4		25.7	5.7
Queue Delay	0.1	0.0	0.0	0.0	0.0		0.5	0.2
Total Delay	37.7	33.5	54.6	52.6	29.4		26.2	5.9
LOS	D	C	D	D	C		C	A
Approach Delay		36.4	54.6		32.7		15.3	
Approach LOS		D	D		C		B	
Queue Length 50th (ft)	165	124	206	55	272		186	113
Queue Length 95th (ft)	201	183	266	98	#461		#320	0
Internal Link Dist (ft)		92	183		238		223	
Turn Bay Length (ft)				90				
Base Capacity (vph)	1182	628	482	183	821		613	753
Starvation Cap Reductn	0	0	0	0	0		65	55
Spillback Cap Reductn	80	0	0	0	0		0	0
Storage Cap Reductn	0	0	0	0	0		0	0
Reduced v/c Ratio	0.52	0.41	0.76	0.51	0.69		0.61	0.55

Intersection Summary

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 17 (18%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 32.2

Intersection LOS: C

Intersection Capacity Utilization 85.6%

ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Route 202 & Main Street

↑ ø2	↙ ø3	↘ ø4
34 s	27 s	34 s
↙ ø5	↓ ø6	
13 s	21 s	

HCM Signalized Intersection Capacity Analysis
4: Route 202 & Main Street

Synchro 7 Report
3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙↘	↕			↕		↙	↕			↕	↘↙
Volume (vph)	555	170	75	50	225	20	80	435	45	10	275	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	16	16	12	14	14	15	15	16
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	1.00			1.00		1.00	1.00			1.00	1.00
Flt	1.00	0.95			0.99		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00			0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)	3744	1938			1977		1703	1885			2006	1566
Flt Permitted	0.95	1.00			0.99		0.95	1.00			0.98	1.00
Satd. Flow (perm)	3744	1938			1977		1703	1885			1962	1566
Peak-hour factor, PHF	0.96	0.96	0.96	0.81	0.81	0.81	0.85	0.85	0.85	0.86	0.86	0.86
Adj. Flow (vph)	578	177	78	62	278	25	94	512	53	12	320	384
RTOR Reduction (vph)	0	19	0	0	3	0	0	3	0	0	0	267
Lane Group Flow (vph)	578	236	0	0	362	0	94	562	0	0	332	117
Heavy Vehicles (%)	6%	6%	6%	7%	7%	7%	6%	6%	6%	4%	4%	4%
Parking (#/hr)												2
Turn Type	Split			Split			Prot			Perm		Perm
Protected Phases	4	4		3	3		5	2			6	
Permitted Phases										6		6
Actuated Green, G (s)	21.4	21.4			20.4		8.3	41.2			28.9	28.9
Effective Green, g (s)	21.4	21.4			20.4		8.3	41.2			28.9	28.9
Actuated g/C Ratio	0.23	0.23			0.21		0.09	0.43			0.30	0.30
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)	2.5	2.5			2.0		2.5	3.5			3.5	3.5
Lane Grp Cap (vph)	843	437			425		149	817			597	476
v/s Ratio Prot	c0.15	0.12			c0.18		0.06	c0.30				
v/s Ratio Perm											0.17	0.07
v/c Ratio	0.69	0.54			0.85		0.63	0.69			0.56	0.25
Uniform Delay, d1	33.7	32.5			35.8		41.9	21.7			27.7	24.9
Progression Factor	1.00	1.00			1.00		1.00	1.00			0.64	0.84
Incremental Delay, d2	2.1	1.1			14.6		7.4	4.7			3.5	1.2
Delay (s)	35.8	33.5			50.4		49.3	26.4			21.2	22.1
Level of Service	D	C			D		D	C			C	C
Approach Delay (s)		35.1			50.4			29.7			21.7	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	32.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
5: Shaker Road & Main Street



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↖	↗		↕	↖	↗		↕	↗
Volume (vph)	100	100	165	40	140	310	660	25	410	125
Lane Group Flow (vph)	0	246	204	0	275	341	758	0	489	140
Turn Type	Perm		pm+ov	Perm		Prot		Perm		Perm
Protected Phases		4	5		8	5	2		6	
Permitted Phases	4		4	8				6		6
Detector Phase	4	4	5	8	8	5	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	8.0	5.0	5.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	33.0	33.0	16.0	30.0	30.0	16.0	26.0	30.0	30.0	30.0
Total Split (s)	34.0	34.0	31.0	34.0	34.0	31.0	61.0	30.0	30.0	30.0
Total Split (%)	35.8%	35.8%	32.6%	35.8%	35.8%	32.6%	64.2%	31.6%	31.6%	31.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	0.0	0.0	-1.0	0.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	3.0	4.0	4.0
Lead/Lag			Lead			Lead		Lag	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		24.5	51.9		24.5	23.4	62.5		35.1	35.1
Actuated g/C Ratio		0.26	0.55		0.26	0.25	0.66		0.37	0.37
v/c Ratio		0.94	0.20		0.64	0.83	0.64		0.43	0.22
Control Delay		76.4	3.9		35.9	48.6	7.4		26.3	10.7
Queue Delay		0.0	0.0		0.0	1.5	1.6		0.0	0.0
Total Delay		76.4	3.9		35.9	50.2	8.9		26.4	10.7
LOS		E	A		D	D	A		C	B
Approach Delay		43.5			35.9		21.7		22.9	
Approach LOS		D			D		C		C	
Queue Length 50th (ft)		143	22		138	117	67		119	17
Queue Length 95th (ft)		#204	35		178	m301	383		184	64
Internal Link Dist (ft)		258			295		223		212	
Turn Bay Length (ft)										60
Base Capacity (vph)		321	1079		528	477	1189		1142	635
Starvation Cap Reductn		0	0		0	42	250		0	0
Spillback Cap Reductn		0	2		0	0	0		48	0
Storage Cap Reductn		0	0		0	0	0		0	0
Reduced v/c Ratio		0.77	0.19		0.52	0.78	0.81		0.45	0.22

Intersection Summary

Cycle Length: 95
 Actuated Cycle Length: 95
 Offset: 17 (18%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 27.6
 Intersection Capacity Utilization 83.2%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.

Queues
 5: Shaker Road & Main Street

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Shaker Road & Main Street

 ø2 61 s		 ø4 34 s	
 ø5 31 s		 ø6 30 s	
		 ø8 34 s	

HCM Signalized Intersection Capacity Analysis
5: Shaker Road & Main Street

Synchro 7 Report
3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↕		↙	↘			↖	↗
Volume (vph)	100	100	165	40	140	40	310	660	30	25	410	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	16	16	16	12	13	13	11	12	12
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00			0.95	1.00
Frt		1.00	0.85		0.98		1.00	0.99			1.00	0.85
Flt Protected		0.98	1.00		0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1782	1760		2001		1671	1806			3461	1553
Flt Permitted		0.56	1.00		0.82		0.95	1.00			0.89	1.00
Satd. Flow (perm)		1018	1760		1648		1671	1806			3085	1553
Peak-hour factor, PHF	0.81	0.81	0.81	0.80	0.80	0.80	0.91	0.91	0.91	0.89	0.89	0.89
Adj. Flow (vph)	123	123	204	50	175	50	341	725	33	28	461	140
RTOR Reduction (vph)	0	0	59	0	9	0	0	1	0	0	0	61
Lane Group Flow (vph)	0	246	145	0	266	0	341	757	0	0	489	79
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	8%	8%	8%	4%	4%	4%
Turn Type	Perm		pm+ov	Perm			Prot			Perm		Perm
Protected Phases		4	5		8		5	2			6	
Permitted Phases	4		4	8						6		6
Actuated Green, G (s)		24.5	47.9		24.5		23.4	62.5			35.1	35.1
Effective Green, g (s)		24.5	47.9		24.5		23.4	62.5			35.1	35.1
Actuated g/C Ratio		0.26	0.50		0.26		0.25	0.66			0.37	0.37
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		263	962		425		412	1188			1140	574
v/s Ratio Prot			0.04				c0.20	c0.42				
v/s Ratio Perm		c0.24	0.05		0.16						0.16	0.05
v/c Ratio		0.94	0.15		0.63		0.83	0.64			0.43	0.14
Uniform Delay, d1		34.5	12.6		31.2		33.9	9.6			22.4	19.9
Progression Factor		1.00	1.00		1.00		1.02	0.47			1.00	1.00
Incremental Delay, d2		38.1	0.1		2.9		10.7	2.1			1.2	0.5
Delay (s)		72.6	12.7		34.1		45.2	6.6			23.6	20.4
Level of Service		E	B		C		D	A			C	C
Approach Delay (s)		45.4			34.1			18.6			22.9	
Approach LOS		D			C			B			C	

Intersection Summary

HCM Average Control Delay	26.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Queues
1: Route 202 & Route 26A (Gray Bypass)



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Configurations									
Volume (vph)	135	515	20	495	225	5	30	15	180
Lane Group Flow (vph)	148	577	22	532	242	18	37	282	188
Turn Type	Prot		pm+pt		pt+ov		Prot		Prot
Protected Phases	7	4	3	8	8 1	2	2	1	1
Permitted Phases			8						
Detector Phase	7	4	3	8	8 1	2	2	1	1
Switch Phase									
Minimum Initial (s)	5.0	15.0	5.0	5.0		5.0	5.0	15.0	15.0
Minimum Split (s)	16.0	22.0	16.0	16.0		16.0	16.0	22.0	22.0
Total Split (s)	27.0	50.0	19.0	42.0	84.0	22.0	22.0	42.0	42.0
Total Split (%)	20.3%	37.6%	14.3%	31.6%	63.2%	16.5%	16.5%	31.6%	31.6%
Yellow Time (s)	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lead	Lag	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None		None	None	None	None
Act Effct Green (s)	17.2	44.6	37.2	27.4	57.8	10.3	10.3	28.1	28.1
Actuated g/C Ratio	0.18	0.48	0.40	0.29	0.62	0.11	0.11	0.30	0.30
v/c Ratio	0.45	0.64	0.06	0.51	0.22	0.09	0.18	0.54	0.28
Control Delay	43.9	27.2	15.7	31.5	6.0	49.3	18.4	35.0	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.9	27.2	15.7	31.5	6.0	49.3	18.4	35.0	5.8
LOS	D	C	B	C	A	D	B	D	A
Approach Delay		30.6		23.3		28.5		23.3	
Approach LOS		C		C		C		C	
Queue Length 50th (ft)	83	254	7	149	38	10	0	147	0
Queue Length 95th (ft)	176	555	23	246	73	34	29	280	53
Internal Link Dist (ft)		734		1299		72		767	
Turn Bay Length (ft)	200		200		175		35		650
Base Capacity (vph)	481	1024	460	1575	1423	388	370	766	903
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.56	0.05	0.34	0.17	0.05	0.10	0.37	0.21

Intersection Summary

Cycle Length: 133
 Actuated Cycle Length: 93
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 26.0
 Intersection Capacity Utilization 63.5%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

Queues
 1: Route 202 & Route 26A (Gray Bypass)

Splits and Phases: 1: Route 202 & Route 26A (Gray Bypass)

 02	 01	 03	 04
22 s	42 s	19 s	50 s
		 07	 08
		27 s	42 s

HCM Signalized Intersection Capacity Analysis
 1: Route 202 & Route 26A (Gray Bypass)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↖↖	↖		↖	↖		↖	↖
Volume (vph)	135	515	10	20	495	225	10	5	30	255	15	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	16	12	12	12	11	11	16
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97	1.00		0.95	1.00
Satd. Flow (prot)	1787	1876		1711	3539	1794		1839	1615		1720	1794
Flt Permitted	0.95	1.00		0.30	1.00	1.00		0.97	1.00		0.95	1.00
Satd. Flow (perm)	1787	1876		544	3539	1794		1839	1615		1720	1794
Peak-hour factor, PHF	0.91	0.91	0.91	0.93	0.93	0.93	0.82	0.82	0.82	0.96	0.96	0.96
Adj. Flow (vph)	148	566	11	22	532	242	12	6	37	266	16	188
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	35	0	0	136
Lane Group Flow (vph)	148	576	0	22	532	242	0	18	2	0	282	52
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	2%	2%	2%
Turn Type	Prot			pm+pt		pt+ov	Split		Prot	Split		Prot
Protected Phases	7	4		3	8	8 1	2	2	2	1	1	1
Permitted Phases				8								
Actuated Green, G (s)	13.9	41.3		31.8	29.6	54.4		3.7	3.7		24.8	24.8
Effective Green, g (s)	16.9	44.3		37.8	32.6	60.4		6.7	6.7		27.8	27.8
Actuated g/C Ratio	0.17	0.44		0.38	0.33	0.60		0.07	0.07		0.28	0.28
Clearance Time (s)	7.0	7.0		7.0	7.0			7.0	7.0		7.0	7.0
Vehicle Extension (s)	3.0	4.0		3.0	4.0			3.0	3.0		4.0	4.0
Lane Grp Cap (vph)	302	831		266	1154	1084		123	108		478	499
v/s Ratio Prot	c0.08	c0.31		0.00	0.15	0.13		c0.01	0.00		c0.16	0.03
v/s Ratio Perm				0.03								
v/c Ratio	0.49	0.69		0.08	0.46	0.22		0.15	0.02		0.59	0.10
Uniform Delay, d1	37.6	22.4		20.2	26.7	9.1		44.0	43.6		31.2	26.8
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	1.3	2.7		0.1	0.4	0.1		0.6	0.1		2.2	0.1
Delay (s)	38.9	25.1		20.3	27.1	9.2		44.5	43.7		33.4	27.0
Level of Service	D	C		C	C	A		D	D		C	C
Approach Delay (s)		27.9			21.5			43.9			30.8	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM Average Control Delay	26.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
2: Route 202 & Gray Graveyard



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Configurations		↔↕	↗	↖	↔	↖	↔	↗	↔↕
Volume (vph)	1	440	360	190	395	345	0	160	0
Lane Group Flow (vph)	0	469	383	216	450	191	192	178	4
Turn Type	Perm		Prot	Prot		Perm		pt+ov	
Protected Phases		2	2	1	1 2		3	3 1	3
Permitted Phases	2					3			
Detector Phase	2	2	2	1	1 2	3	3	3 1	3
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	5.0		3.0	3.0		3.0
Minimum Split (s)	16.0	16.0	16.0	16.0		16.0	16.0		16.0
Total Split (s)	29.0	29.0	29.0	20.0	49.0	26.0	26.0	46.0	26.0
Total Split (%)	38.7%	38.7%	38.7%	26.7%	65.3%	34.7%	34.7%	61.3%	34.7%
Yellow Time (s)	5.0	5.0	5.0	5.0		5.0	5.0		5.0
All-Red Time (s)	3.5	3.5	3.5	3.7		3.5	3.5		3.5
Lost Time Adjust (s)	-1.0	-4.5	-4.5	-4.7	-4.7	-4.5	-4.5	-4.5	-4.5
Total Lost Time (s)	7.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead					
Lead-Lag Optimize?									
Recall Mode	None	None	None	None		None	None		None
Act Effct Green (s)		21.5	21.5	15.6	41.2	18.8	18.8	38.5	18.8
Actuated g/C Ratio		0.32	0.32	0.23	0.60	-0.28	0.28	0.57	0.28
v/c Ratio		0.44	0.48	0.50	0.39	0.53	0.55	0.19	0.01
Control Delay		20.4	4.5	29.5	8.6	27.7	28.6	2.1	0.0
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		20.4	4.5	29.5	8.6	27.7	28.6	2.1	0.0
LOS		C	A	C	A	C	C	A	A
Approach Delay		13.3			15.4		19.9		0.0
Approach LOS		B			B		B		A
Queue Length 50th (ft)		86	0	85	96	73	74	1	0
Queue Length 95th (ft)		127	55	152	150	142	144	25	0
Internal Link Dist (ft)		1299			605		270		46
Turn Bay Length (ft)			350	205		145			
Base Capacity (vph)		1259	870	445	1247	430	416	953	819
Starvation Cap Reductn		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.37	0.44	0.49	0.36	0.44	0.46	0.19	0.00

Intersection Summary
 Cycle Length: 75
 Actuated Cycle Length: 68.1
 Natural Cycle: 50
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.55
 Intersection Signal Delay: 15.7
 Intersection Capacity Utilization 59.3%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 2: Route 202 & Gray Graveyard

 ø1	 ø2	 ø3
20 s	29 s	26 s

HCM Signalized Intersection Capacity Analysis

2: Route 202 & Gray Graveyard

Synchro 7 Report

3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗	↖	↔		↖	↕	↗		↕↕	
Volume (vph)	1	440	360	190	395	1	345	0	160	0	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	13	12	12	12	11	12	12	12	12
Grade (%)		0%			-4%			0%			0%	
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0	
Lane Util. Factor		0.95	1.00	1.00	1.00		0.95	0.95	1.00		1.00	
Frt		1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.86	
Flt Protected		1.00	1.00	0.95	1.00		0.95	0.95	1.00		1.00	
Satd. Flow (prot)		3539	1689	1865	1899		1649	1594	1553		1644	
Flt Permitted		0.95	1.00	0.95	1.00		0.76	0.76	1.00		1.00	
Satd. Flow (perm)		3376	1689	1865	1899		1311	1267	1553		1644	
Peak-hour factor, PHF	0.94	0.94	0.94	0.88	0.88	0.88	0.90	0.90	0.90	0.25	0.25	0.25
Adj. Flow (vph)	1	468	383	216	449	1	383	0	178	0	0	4
RTOR Reduction (vph)	0	0	262	0	0	0	0	0	76	0	3	0
Lane Group Flow (vph)	0	469	121	216	450	0	191	192	102	0	1	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	0%	0%	0%
Turn Type	Perm		Prot	Prot			Perm		pt+ov	Perm		
Protected Phases		2	2	1	12			3	3 1		3	
Permitted Phases	2						3			3		
Actuated Green, G (s)		16.9	16.9	10.9	36.5		14.2	14.2	33.6		14.2	
Effective Green, g (s)		21.4	21.4	15.6	41.2		18.7	18.7	38.1		18.7	
Actuated g/C Ratio		0.32	0.32	0.23	0.61		0.28	0.28	0.56		0.28	
Clearance Time (s)		8.5	8.5	8.7			8.5	8.5			8.5	
Vehicle Extension (s)		3.0	3.0	3.0			3.0	3.0			3.0	
Lane Grp Cap (vph)		1067	534	430	1156		362	350	874		454	
v/s Ratio Prot			0.07	c0.12	0.24				0.07		0.00	
v/s Ratio Perm		c0.14					0.15	c0.15				
v/c Ratio		0.44	0.23	0.50	0.39		0.53	0.55	0.12		0.00	
Uniform Delay, d1		18.4	17.1	22.7	6.8		20.8	20.9	6.9		17.7	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.3	0.2	0.9	0.2		1.4	1.8	0.1		0.0	
Delay (s)		18.7	17.3	23.6	7.0		22.1	22.7	7.0		17.7	
Level of Service		B	B	C	A		C	C	A		B	
Approach Delay (s)		18.0			12.4			17.5			17.7	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	16.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	67.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 3: Route 202 & Central Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↓	↘	↙
Volume (veh/h)	520	30	35	555	20	30
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.88	0.88	0.75	0.75
Hourly flow rate (vph)	565	33	40	631	27	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	685			172		
pX, platoon unblocked				0.96	0.93	0.96
vC, conflicting volume				598	1292	299
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				495	1111	184
tC, single (s)				4.1	6.8	6.9
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				96	86	95
cM capacity (veh/h)				1021	184	800

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	377	221	670	67
Volume Left	0	0	40	27
Volume Right	0	33	0	40
cSH	1700	1700	1021	461
Volume to Capacity	0.22	0.13	0.04	0.14
Queue Length 95th (ft)	0	0	3	13
Control Delay (s)	0.0	0.0	1.0	17.0
Lane LOS			A	C
Approach Delay (s)	0.0		1.0	17.0
Approach LOS				C

Intersection Summary			
Average Delay		1.4	
Intersection Capacity Utilization		59.8%	ICU Level of Service B
Analysis Period (min)		15	

Queues
4: Route 202 & Main Street



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Volume (vph)	325	155	140	105	365	15	325	345
Lane Group Flow (vph)	392	271	248	121	472	0	395	401
Turn Type	Split			Prot		Perm		Perm
Protected Phases	4	4	3	5	2		6	
Permitted Phases						6		6
Detector Phase	4	4	3	5	2	6	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	6.0	3.0	5.0	5.0	5.0	5.0
Minimum Split (s)	16.0	16.0	18.0	10.0	21.0	16.0	16.0	16.0
Total Split (s)	20.0	20.0	27.0	13.0	33.0	20.0	20.0	20.0
Total Split (%)	25.0%	25.0%	33.8%	16.3%	41.3%	25.0%	25.0%	25.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)	15.9	15.9	14.6	9.4	37.5		26.3	26.3
Actuated g/C Ratio	0.20	0.20	0.18	0.12	0.47		0.33	0.33
v/c Ratio	0.51	0.65	0.65	0.57	0.50		0.60	0.50
Control Delay	30.3	33.5	37.1	44.6	18.9		26.0	4.0
Queue Delay	0.2	0.0	0.0	0.0	0.0		0.3	0.1
Total Delay	30.5	33.5	37.1	44.6	18.9		26.4	4.1
LOS	C	C	D	D	B		C	A
Approach Delay		31.7	37.1		24.1		15.2	
Approach LOS		C	D		C		B	
Queue Length 50th (ft)	89	112	114	57	157		171	0
Queue Length 95th (ft)	113	162	152	#116	276		#348	7
Internal Link Dist (ft)		92	183		238		223	
Turn Bay Length (ft)				90				
Base Capacity (vph)	854	462	604	223	940		661	799
Starvation Cap Reductn	0	0	0	0	0		43	43
Spillback Cap Reductn	77	0	0	0	0		0	0
Storage Cap Reductn	0	0	0	0	0		0	0
Reduced v/c Ratio	0.50	0.59	0.41	0.54	0.50		0.64	0.53

Intersection Summary
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 17 (21%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay: 24.6
 Intersection LOS: C
 Intersection Capacity Utilization 76.4%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.

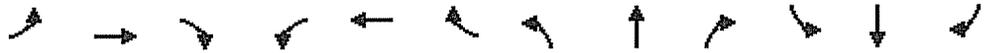
Queue shown is maximum after two cycles.

Splits and Phases: 4: Route 202 & Main Street

 ø2		 ø3		 ø4	
33 s		27 s		20 s	
 ø5		 ø6			
13 s		20 s			

HCM Signalized Intersection Capacity Analysis
4: Route 202 & Main Street

Synchro 7 Report
3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔			↕		↔	↔			↕	↕
Volume (vph)	325	155	70	45	140	15	105	365	45	15	325	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	16	16	12	14	14	15	15	16
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	1.00			1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.95			0.99		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00			0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)	3891	2013			2086		1805	1993			2065	1613
Flt Permitted	0.95	1.00			0.99		0.95	1.00			0.97	1.00
Satd. Flow (perm)	3891	2013			2086		1805	1993			2014	1613
Peak-hour factor, PHF	0.83	0.83	0.83	0.81	0.81	0.81	0.87	0.87	0.87	0.86	0.86	0.86
Adj. Flow (vph)	392	187	84	56	173	19	121	420	52	17	378	401
RTOR Reduction (vph)	0	20	0	0	4	0	0	5	0	0	0	274
Lane Group Flow (vph)	392	251	0	0	244	0	121	467	0	0	395	127
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Parking (#/hr)												2
Turn Type	Split			Split			Prot			Perm		Perm
Protected Phases	4	4		3	3		5	2			6	
Permitted Phases										6		6
Actuated Green, G (s)	15.9	15.9			14.6		8.1	37.5			25.4	25.4
Effective Green, g (s)	15.9	15.9			14.6		8.1	37.5			25.4	25.4
Actuated g/C Ratio	0.20	0.20			0.18		0.10	0.47			0.32	0.32
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	773	400			381		183	934			639	512
v/s Ratio Prot	0.10	c0.12			c0.12		c0.07	0.23				
v/s Ratio Perm											c0.20	0.08
v/c Ratio	0.51	0.63			0.64		0.66	0.50			0.62	0.25
Uniform Delay, d1	28.6	29.3			30.3		34.6	14.7			23.2	20.2
Progression Factor	1.00	1.00			1.00		1.00	1.00			0.69	0.54
Incremental Delay, d2	0.5	3.1			3.6		8.6	1.9			4.2	1.1
Delay (s)	29.1	32.4			33.9		43.3	16.7			20.3	12.1
Level of Service	C	C			C		D	B			C	B
Approach Delay (s)		30.4			33.9			22.1			16.1	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM Average Control Delay	23.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
5: Shaker Road & Main Street



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↖	↗		↕	↗
Volume (vph)	140	90	235	50	95	235	450	25	450	100
Lane Group Flow (vph)	0	281	287	0	231	273	570	0	539	114
Turn Type	Perm		pm+ov	Perm		Prot		Perm		Perm
Protected Phases		4	5		8	5	2		6	
Permitted Phases	4		4	8				6		6
Detector Phase	4	4	5	8	8	5	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	8.0	5.0	5.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	33.0	33.0	16.0	30.0	30.0	16.0	26.0	30.0	30.0	30.0
Total Split (s)	34.0	34.0	16.0	34.0	34.0	16.0	46.0	30.0	30.0	30.0
Total Split (%)	42.5%	42.5%	20.0%	42.5%	42.5%	20.0%	57.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	0.0	0.0	-1.0	0.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	3.0	4.0	4.0
Lead/Lag			Lead			Lead		Lag	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		22.8	44.6		22.8	17.8	49.2		27.4	27.4
Actuated g/C Ratio		0.28	0.56		0.28	0.22	0.62		0.34	0.34
v/c Ratio		0.84	0.27		0.50	0.69	0.48		0.48	0.19
Control Delay		47.6	4.7		24.4	39.9	5.5		23.5	7.8
Queue Delay		0.0	0.0		0.0	0.0	0.7		0.1	0.0
Total Delay		47.6	4.7		24.4	39.9	6.1		23.6	7.8
LOS		D	A		C	D	A		C	A
Approach Delay		25.9			24.4		17.1		20.8	
Approach LOS		C			C		B		C	
Queue Length 50th (ft)		130	30		86	82	35		116	8
Queue Length 95th (ft)		173	57		114	#282	213		156	41
Internal Link Dist (ft)		258			295		223		212	
Turn Bay Length (ft)										60
Base Capacity (vph)		441	1080		598	397	1185		1160	629
Starvation Cap Reductn		0	0		0	0	298		0	0
Spillback Cap Reductn		0	4		0	0	0		100	0
Storage Cap Reductn		0	0		0	0	0		0	0
Reduced v/c Ratio		0.64	0.27		0.39	0.69	0.64		0.51	0.18

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 17 (21%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 21.1
 Intersection Capacity Utilization 74.7%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.

Queues
5: Shaker Road & Main Street

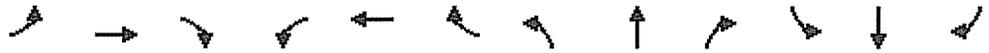
Queue shown is maximum after two cycles.

Splits and Phases: 5: Shaker Road & Main Street

 ø2	 ø4
46 s	34 s
 ø5	 ø6
16 s	30 s
	 ø8
	34 s

HCM Signalized Intersection Capacity Analysis
5: Shaker Road & Main Street

Synchro 7 Report
3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↕		↖	↗			↖↗	↖↗
Volume (vph)	140	90	235	50	95	40	235	450	40	25	450	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	16	16	16	12	13	13	11	12	12
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00			0.95	1.00
Flt		1.00	0.85		0.97		1.00	0.99			1.00	0.85
Flt Protected		0.97	1.00		0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1844	1830		2042		1787	1920			3565	1599
Flt Permitted		0.62	1.00		0.75		0.95	1.00			0.91	1.00
Satd. Flow (perm)		1176	1830		1560		1787	1920			3253	1599
Peak-hour factor, PHF	0.82	0.82	0.82	0.80	0.80	0.80	0.86	0.86	0.86	0.88	0.88	0.88
Adj. Flow (vph)	171	110	287	62	119	50	273	523	47	28	511	114
RTOR Reduction (vph)	0	0	67	0	14	0	0	3	0	0	0	60
Lane Group Flow (vph)	0	281	220	0	217	0	273	567	0	0	539	54
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Perm		pm+ov	Perm			Prot			Perm		Perm
Protected Phases		4	5		8		5	2			6	
Permitted Phases	4		4	8						6		6
Actuated Green, G (s)		22.8	40.6		22.8		17.8	49.2			27.4	27.4
Effective Green, g (s)		22.8	40.6		22.8		17.8	49.2			27.4	27.4
Actuated g/C Ratio		0.29	0.51		0.29		0.22	0.62			0.34	0.34
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		335	1020		445		398	1181			1114	548
v/s Ratio Prot			0.05				c0.15	c0.30				
v/s Ratio Perm		c0.24	0.07		0.14						0.17	0.03
v/c Ratio		0.84	0.22		0.49		0.69	0.48			0.48	0.10
Uniform Delay, d1		26.9	10.9		23.7		28.5	8.4			20.7	17.9
Progression Factor		1.00	1.00		1.00		0.99	0.43			1.00	1.00
Incremental Delay, d2		16.6	0.1		0.8		4.4	1.3			1.5	0.4
Delay (s)		43.4	11.0		24.6		32.5	4.8			22.2	18.3
Level of Service		D	B		C		C	A			C	B
Approach Delay (s)		27.0			24.6			13.8			21.5	
Approach LOS		C			C			B			C	

Intersection Summary

HCM Average Control Delay	20.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Queues
1: Route 202 & Route 26A (Gray Bypass)



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Configurations	↖	↗	↖	↕	↗	↖	↗	↖	↗
Volume (vph)	165	805	25	305	175	5	25	5	140
Lane Group Flow (vph)	188	932	27	328	188	14	35	697	154
Turn Type	Prot		pm+pt		pt+ov		Prot		Prot
Protected Phases	7	4	3	8	8 1	2	2	1	1
Permitted Phases			8						
Detector Phase	7	4	3	8	8 1	2	2	1	1
Switch Phase									
Minimum Initial (s)	5.0	15.0	5.0	5.0		5.0	5.0	15.0	15.0
Minimum Split (s)	16.0	22.0	16.0	16.0		16.0	16.0	22.0	22.0
Total Split (s)	27.0	50.0	19.0	42.0	84.0	22.0	22.0	42.0	42.0
Total Split (%)	20.3%	37.6%	14.3%	31.6%	63.2%	16.5%	16.5%	31.6%	31.6%
Yellow Time (s)	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lead	Lag	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None		None	None	None	None
Act Effect Green (s)	19.4	46.8	40.7	31.1	71.6	9.7	9.7	38.7	38.7
Actuated g/C Ratio	0.18	0.43	0.37	0.29	0.66	0.09	0.09	0.35	0.35
v/c Ratio	0.62	1.20	0.14	0.35	0.17	0.09	0.21	1.19	0.22
Control Delay	52.4	133.8	18.3	33.8	5.8	52.0	19.4	135.7	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.4	133.8	18.3	33.8	5.8	52.0	19.4	135.7	5.6
LOS	D	F	B	C	A	D	B	F	A
Approach Delay		120.1		23.3		28.7		112.2	
Approach LOS		F		C		C		F	
Queue Length 50th (ft)	135	~936	10	104	34	10	0	~692	0
Queue Length 95th (ft)	211	#1197	27	153	58	25	21	#960	49
Internal Link Dist (ft)		734		1299		72		767	
Turn Bay Length (ft)	200		200		175		35		650
Base Capacity (vph)	369	775	275	1153	1116	299	290	585	712
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	1.20	0.10	0.28	0.17	0.05	0.12	1.19	0.22

Intersection Summary

Cycle Length: 133
 Actuated Cycle Length: 109.1
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.20
 Intersection Signal Delay: 95.2
 Intersection Capacity Utilization 99.3%
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

Queues

1: Route 202 & Route 26A (Gray Bypass)

3/25/2013

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Route 202 & Route 26A (Gray Bypass)

 ø2	 ø1	 ø3	 ø4
22 s	42 s	19 s	50 s
		 ø7	 ø8
		27 s	42 s

HCM Signalized Intersection Capacity Analysis
 1: Route 202 & Route 26A (Gray Bypass)

Synchro 7 Report
 3/25/2013

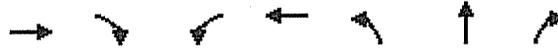


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↘		↙	↕	↗		↕	↗		↕	↗
Volume (vph)	165	805	15	25	305	175	5	5	25	630	5	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	16	12	12	12	11	11	16
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1719	1805		1572	3252	1649		1782	1553		1651	1727
Flt Permitted	0.95	1.00		0.12	1.00	1.00		0.98	1.00		0.95	1.00
Satd. Flow (perm)	1719	1805		192	3252	1649		1782	1553		1651	1727
Peak-hour factor, PHF	0.88	0.88	0.88	0.93	0.93	0.93	0.72	0.72	0.72	0.91	0.91	0.91
Adj. Flow (vph)	188	915	17	27	328	188	7	7	35	692	5	154
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	33	0	0	102
Lane Group Flow (vph)	188	931	0	27	328	188	0	14	2	0	697	52
Heavy Vehicles (%)	5%	5%	5%	11%	11%	11%	4%	4%	4%	6%	6%	6%
Turn Type	Prot			pm+pt		pt+ov	Split		Prot	Split		Prot
Protected Phases	7	4		3	8	8 1	2	2	2	1	1	1
Permitted Phases				8								
Actuated Green, G (s)	16.3	43.8		35.3	31.4	67.0		4.0	4.0		35.6	35.6
Effective Green, g (s)	19.3	46.8		41.3	34.4	73.0		7.0	7.0		38.6	38.6
Actuated g/C Ratio	0.17	0.41		0.36	0.30	0.63		0.06	0.06		0.33	0.33
Clearance Time (s)	7.0	7.0		7.0	7.0			7.0	7.0		7.0	7.0
Vehicle Extension (s)	3.0	4.0		3.0	4.0			3.0	3.0		4.0	4.0
Lane Grp Cap (vph)	288	733		151	970	1044		108	94		553	578
v/s Ratio Prot	c0.11	c0.52		0.01	0.10	0.11		c0.01	0.00		c0.42	0.03
v/s Ratio Perm				0.05								
v/c Ratio	0.65	1.27		0.18	0.34	0.18		0.13	0.02		1.26	0.09
Uniform Delay, d1	44.9	34.2		28.2	31.6	8.8		51.3	50.9		38.3	26.3
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	5.2	132.4		0.6	0.3	0.1		0.5	0.1		131.2	0.1
Delay (s)	50.1	166.7		28.8	31.9	8.9		51.8	51.0		169.6	26.4
Level of Service	D	F		C	C	A		D	D		F	C
Approach Delay (s)		147.1			23.7			51.3			143.7	
Approach LOS		F			C			D			F	

Intersection Summary

HCM Average Control Delay	118.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	115.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	99.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues
2: Route 202 & Gray Graveyard



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR
Lane Configurations	↕↕	↕	↕	↕	↕	↕	↕
Volume (vph)	445	1015	625	265	240	1	190
Lane Group Flow (vph)	468	1068	727	308	135	136	213
Turn Type		Prot	Prot		Perm		pt+ov
Protected Phases	2	2	1	1 2		3	3 1
Permitted Phases					3		
Detector Phase	2	2	1	1 2	3	3	3 1
Switch Phase							
Minimum Initial (s)	6.0	6.0	5.0		3.0	3.0	
Minimum Split (s)	16.0	16.0	16.0		16.0	16.0	
Total Split (s)	60.0	60.0	44.0	104.0	16.0	16.0	60.0
Total Split (%)	50.0%	50.0%	36.7%	86.7%	13.3%	13.3%	50.0%
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	3.5	3.5	3.7		3.5	3.5	
Lost Time Adjust (s)	-4.5	-4.5	-4.7	-4.7	-4.5	-4.5	-4.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?							
Recall Mode	None	None	None		None	None	
Act Effct Green (s)	56.0	56.0	40.0	100.0	12.0	12.0	56.0
Actuated g/C Ratio	0.47	0.47	0.33	0.83	0.10	0.10	0.47
v/c Ratio	0.29	1.19	1.19	0.20	1.13	1.23	0.28
Control Delay	20.4	123.2	138.2	2.3	171.7	203.2	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.4	123.2	138.2	2.3	171.7	203.2	3.4
LOS	C	F	F	A	F	F	A
Approach Delay	91.9			97.7		106.5	
Approach LOS	F			F		F	
Queue Length 50th (ft)	114	~899	~680	36	~128	~136	0
Queue Length 95th (ft)	153	#1158	#853	50	#262	#269	40
Internal Link Dist (ft)	1299			605		270	
Turn Bay Length (ft)		350	205		145		
Base Capacity (vph)	1604	894	610	1553	119	111	769
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	1.19	1.19	0.20	1.13	1.23	0.28

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.23

Intersection Signal Delay: 96.2

Intersection LOS: F

Intersection Capacity Utilization 104.1%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: Route 202 & Gray Graveyard

 ø1 44 s	 ø2 60 s	 ø3 16 s
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HCM Signalized Intersection Capacity Analysis
2: Route 202 & Gray Graveyard

Synchro 7 Report
3/25/2013

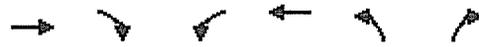


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗	↖	↔		↖	↕	↗		↕	
Volume (vph)	0	445	1015	625	265	0	240	1	190	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	13	12	12	12	11	12	12	12	12
Grade (%)		0%			-4%			0%			0%	
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0			
Lane Util. Factor		0.95	1.00	1.00	1.00		0.95	0.95	1.00			
Frt		1.00	0.85	1.00	1.00		1.00	1.00	0.85			
Flt Protected		1.00	1.00	0.95	1.00		0.95	0.95	1.00			
Satd. Flow (prot)		3438	1641	1829	1863		1491	1446	1404			
Flt Permitted		1.00	1.00	0.95	1.00		0.76	0.73	1.00			
Satd. Flow (perm)		3438	1641	1829	1863		1188	1104	1404			
Peak-hour factor, PHF	0.95	0.95	0.95	0.86	0.86	0.86	0.89	0.89	0.89	0.25	0.25	0.25
Adj. Flow (vph)	0	468	1068	727	308	0	270	1	213	0	0	0
RTOR Reduction (vph)	0	0	128	0	0	0	0	0	114	0	0	0
Lane Group Flow (vph)	0	468	940	727	308	0	135	136	99	0	0	0
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	15%	15%	15%	0%	0%	0%
Turn Type	Perm		Prot	Prot			Perm		pt+ov	Perm		
Protected Phases		2	2	1	1 2			3	3 1		3	
Permitted Phases	2						3			3		
Actuated Green, G (s)		51.5	51.5	35.3	95.5		7.5	7.5	51.3			
Effective Green, g (s)		56.0	56.0	40.0	100.2		12.0	12.0	55.8			
Actuated g/C Ratio		0.47	0.47	0.33	0.84		0.10	0.10	0.46			
Clearance Time (s)		8.5	8.5	8.7			8.5	8.5				
Vehicle Extension (s)		3.0	3.0	3.0			3.0	3.0				
Lane Grp Cap (vph)		1604	766	610	1556		119	110	653			
v/s Ratio Prot		0.14	c0.57	c0.40	0.17				0.07			
v/s Ratio Perm							0.11	c0.12				
v/c Ratio		0.29	1.23	1.19	0.20		1.13	1.24	0.15			
Uniform Delay, d1		19.8	32.0	40.0	2.0		54.0	54.0	18.5			
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00			
Incremental Delay, d2		0.1	113.6	101.8	0.1		123.2	162.4	0.1			
Delay (s)		19.9	145.6	141.8	2.0		177.2	216.4	18.6			
Level of Service		B	F	F	A		F	F	B			
Approach Delay (s)		107.3			100.2		118.4				0.0	
Approach LOS		F			F		F				A	

Intersection Summary		
HCM Average Control Delay	106.7	HCM Level of Service F
HCM Volume to Capacity ratio	1.21	
Actuated Cycle Length (s)	120.0	Sum of lost time (s) 12.0
Intersection Capacity Utilization	104.1%	ICU Level of Service G
Analysis Period (min)	15	

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 3: Route 202 & Central Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↑	↑
Volume (veh/h)	555	25	25	825	45	55
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.86	0.86	0.78	0.78
Hourly flow rate (vph)	584	26	29	959	58	71
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	685			172		
pX, platoon unblocked			0.95		0.89	0.95
vC, conflicting volume			611		1615	305
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			488		1424	167
tC, single (s)			4.2		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		48	91
cM capacity (veh/h)			1006		112	812

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	389	221	988	128
Volume Left	0	0	29	58
Volume Right	0	26	0	71
cSH	1700	1700	1006	248
Volume to Capacity	0.23	0.13	0.03	0.52
Queue Length 95th (ft)	0	0	2	68
Control Delay (s)	0.0	0.0	0.8	35.7
Lane LOS			A	E
Approach Delay (s)	0.0		0.8	35.7
Approach LOS				E

Intersection Summary				
Average Delay			3.1	
Intersection Capacity Utilization		73.6%		ICU Level of Service D
Analysis Period (min)		15		

Queues
4: Route 202 & Main Street



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Volume (vph)	355	200	185	100	220	25	410	565
Lane Group Flow (vph)	370	265	303	118	294	0	506	657
Turn Type	Split			Prot		Perm		Perm
Protected Phases	4	4	3	5	2		6	
Permitted Phases						6		6
Detector Phase	4	4	3	5	2	6	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	6.0	3.0	5.0	5.0	5.0	5.0
Minimum Split (s)	16.0	16.0	18.0	10.0	21.0	16.0	16.0	16.0
Total Split (s)	19.0	19.0	28.0	13.0	43.0	30.0	30.0	30.0
Total Split (%)	21.1%	21.1%	31.1%	14.4%	47.8%	33.3%	33.3%	33.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)	15.3	15.3	17.9	9.2	44.8		31.5	31.5
Actuated g/C Ratio	0.17	0.17	0.20	0.10	0.50		0.35	0.35
v/c Ratio	0.58	0.77	0.76	0.68	0.31		0.74	0.72
Control Delay	38.1	49.5	46.0	59.4	15.6		36.0	11.5
Queue Delay	0.2	0.0	0.0	0.0	0.0		2.8	0.4
Total Delay	38.2	49.5	46.0	59.4	15.6		38.8	11.9
LOS	D	D	D	E	B		D	B
Approach Delay		42.9	46.0		28.2		23.6	
Approach LOS		D	D		C		C	
Queue Length 50th (ft)	97	134	162	64	97		293	124
Queue Length 95th (ft)	146	#260	201	#133	155		#407	68
Internal Link Dist (ft)		92	183		238		223	
Turn Bay Length (ft)				90				
Base Capacity (vph)	676	366	530	182	939		683	916
Starvation Cap Reductn	0	0	0	0	0		91	41
Spillback Cap Reductn	30	0	0	0	0		0	0
Storage Cap Reductn	0	0	0	0	0		0	0
Reduced v/c Ratio	0.57	0.72	0.57	0.65	0.31		0.85	0.75

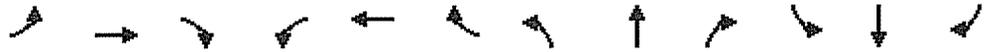
Intersection Summary
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 17 (19%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 31.9
 Intersection Capacity Utilization 76.7%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Route 202 & Main Street

 ø2 43 s		 ø3 28 s		 ø4 19 s	
 ø5 13 s		 ø6 30 s			

HCM Signalized Intersection Capacity Analysis
4: Route 202 & Main Street

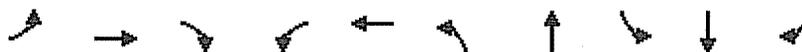


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑		↔	↔		↑	↑			↑	↑
Volume (vph)	355	200	55	45	185	15	100	220	30	25	410	565
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	16	16	12	14	14	15	15	16
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	1.00			1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.97			0.99		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00			0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)	3744	1966			1977		1703	1878			2004	1566
Flt Permitted	0.95	1.00			0.99		0.95	1.00			0.97	1.00
Satd. Flow (perm)	3744	1966			1977		1703	1878			1949	1566
Peak-hour factor, PHF	0.96	0.96	0.96	0.81	0.81	0.81	0.85	0.85	0.85	0.86	0.86	0.86
Adj. Flow (vph)	370	208	57	56	228	19	118	259	35	29	477	657
RTOR Reduction (vph)	0	11	0	0	3	0	0	5	0	0	0	367
Lane Group Flow (vph)	370	254	0	0	300	0	118	289	0	0	506	290
Heavy Vehicles (%)	6%	6%	6%	7%	7%	7%	6%	6%	6%	4%	4%	4%
Parking (#/hr)												2
Turn Type	Split			Split			Prot			Perm		Perm
Protected Phases	4	4		3	3		5	2			6	
Permitted Phases										6		6
Actuated Green, G (s)	15.3	15.3			17.9		9.2	44.8			31.6	31.6
Effective Green, g (s)	15.3	15.3			17.9		9.2	44.8			31.6	31.6
Actuated g/C Ratio	0.17	0.17			0.20		0.10	0.50			0.35	0.35
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)	2.5	2.5			2.0		2.5	3.5			3.5	3.5
Lane Grp Cap (vph)	636	334			393		174	935			684	550
v/s Ratio Prot	0.10	c0.13			c0.15		c0.07	0.15				
v/s Ratio Perm											c0.26	0.19
v/c Ratio	0.58	0.76			0.76		0.68	0.31			0.74	0.53
Uniform Delay, d1	34.4	35.6			34.0		39.0	13.4			25.6	23.3
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.02	1.40
Incremental Delay, d2	1.1	9.4			7.7		9.1	0.9			6.3	3.2
Delay (s)	35.5	45.0			41.7		48.1	14.3			32.4	35.8
Level of Service	D	D			D		D	B			C	D
Approach Delay (s)		39.5			41.7			24.0			34.3	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	34.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
5: Shaker Road & Main Street



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↖	↕		↕	↗
Volume (vph)	70	105	375	70	115	160	400	15	610	135
Lane Group Flow (vph)	0	216	463	0	282	176	473	0	702	152
Turn Type	Perm		pm+ov	Perm		Prot		Perm		Perm
Protected Phases		4	5		8	5	2		6	
Permitted Phases	4		4	8				6		6
Detector Phase	4	4	5	8	8	5	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	8.0	5.0	5.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	33.0	33.0	16.0	30.0	30.0	16.0	26.0	30.0	30.0	30.0
Total Split (s)	34.0	34.0	26.0	34.0	34.0	26.0	56.0	30.0	30.0	30.0
Total Split (%)	37.8%	37.8%	28.9%	37.8%	37.8%	28.9%	62.2%	33.3%	33.3%	33.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	0.0	0.0	-1.0	0.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	3.0	4.0	4.0
Lead/Lag			Lead			Lead		Lag	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		20.5	39.5		20.5	15.0	61.5		42.5	42.5
Actuated g/C Ratio		0.23	0.44		0.23	0.17	0.68		0.47	0.47
v/c Ratio		0.78	0.58		0.92	0.63	0.38		0.46	0.20
Control Delay		51.1	18.8		66.2	45.2	3.4		19.6	10.3
Queue Delay		0.0	0.1		0.0	0.2	0.7		0.3	0.0
Total Delay		51.1	18.9		66.2	45.4	4.1		19.9	10.3
LOS		D	B		E	D	A		B	B
Approach Delay		29.1			66.2		15.3		18.2	
Approach LOS		C			E		B		B	
Queue Length 50th (ft)		116	175		152	73	27		133	22
Queue Length 95th (ft)		152	152		187	75	58		243	75
Internal Link Dist (ft)		258			295		223		212	
Turn Bay Length (ft)										60
Base Capacity (vph)		406	930		444	408	1233		1542	775
Starvation Cap Reductn		0	0		0	23	424		0	0
Spillback Cap Reductn		0	59		2	0	0		331	0
Storage Cap Reductn		0	0		0	0	0		0	0
Reduced v/c Ratio		0.53	0.53		0.64	0.46	0.58		0.58	0.20

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 17 (19%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 25.9
 Intersection Capacity Utilization 69.2%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service C

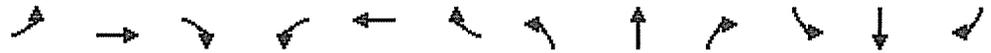
Queues
 5: Shaker Road & Main Street

Splits and Phases: 5: Shaker Road & Main Street

 ø2 56 s		 ø4 34 s	
 ø5 26 s	 ø6 30 s	 ø8 34 s	

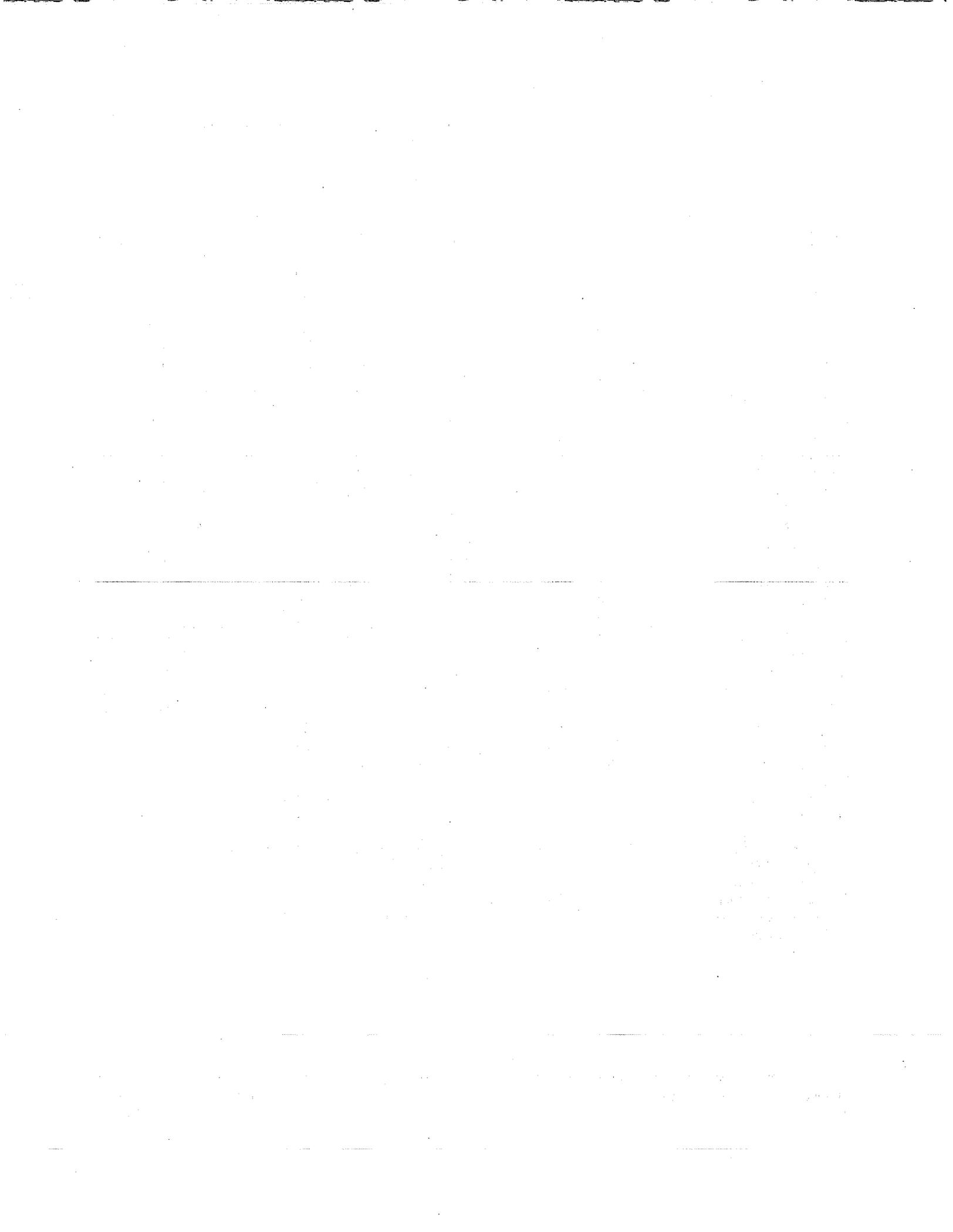
HCM Signalized Intersection Capacity Analysis
5: Shaker Road & Main Street

Synchro 7 Report
3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔		↖	↗			↖↗	↖↗
Volume (vph)	70	105	375	70	115	40	160	400	30	15	610	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	16	16	16	12	13	13	11	12	12
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00			0.95	1.00
Frt		1.00	0.85		0.98		1.00	0.99			1.00	0.85
Flt Protected		0.98	1.00		0.98		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1791	1760		1990		1671	1799			3467	1553
Flt Permitted		0.67	1.00		0.65		0.95	1.00			0.94	1.00
Satd. Flow (perm)		1216	1760		1305		1671	1799			3264	1553
Peak-hour factor, PHF	0.81	0.81	0.81	0.80	0.80	0.80	0.91	0.91	0.91	0.89	0.89	0.89
Adj. Flow (vph)	86	130	463	88	144	50	176	440	33	17	685	152
RTOR Reduction (vph)	0	0	27	0	10	0	0	2	0	0	0	42
Lane Group Flow (vph)	0	216	436	0	272	0	176	471	0	0	702	110
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	8%	8%	8%	4%	4%	4%
Turn Type	Perm		pm+ov	Perm			Prot			Perm		Perm
Protected Phases		4	5		8		5	2			6	
Permitted Phases	4		4	8						6		6
Actuated Green, G (s)		20.5	35.5		20.5		15.0	61.5			42.5	42.5
Effective Green, g (s)		20.5	35.5		20.5		15.0	61.5			42.5	42.5
Actuated g/C Ratio		0.23	0.39		0.23		0.17	0.68			0.47	0.47
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		277	772		297		279	1229			1541	733
v/s Ratio Prot			c0.09				0.11	0.26				
v/s Ratio Perm		0.18	0.15		c0.21						c0.22	0.07
v/c Ratio		0.78	0.56		0.92		0.63	0.38			0.46	0.15
Uniform Delay, d1		32.6	21.2		33.9		34.9	6.1			16.0	13.5
Progression Factor		1.00	1.00		1.00		1.05	0.35			1.00	1.00
Incremental Delay, d2		13.0	1.0		31.0		4.2	0.8			1.0	0.4
Delay (s)		45.6	22.2		64.9		40.9	3.0			16.9	13.9
Level of Service		D	C		E		D	A			B	B
Approach Delay (s)		29.6			64.9			13.3			16.4	
Approach LOS		C			E			B			B	

Intersection Summary			
HCM Average Control Delay	24.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Queues
1: Route 202 & Route 26A (Gray Bypass)



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Configurations	↖	↗	↖	↕	↗	↖	↗	↖	↗
Volume (vph)	220	680	30	830	595	20	30	15	180
Lane Group Flow (vph)	250	796	32	892	640	56	42	280	198
Turn Type	Prot		pm+pt		pt+ov		Prot		Prot
Protected Phases	7	4	3	8	18	2	2	1	1
Permitted Phases			8						
Detector Phase	7	4	3	8	18	2	2	1	1
Switch Phase									
Minimum Initial (s)	5.0	15.0	5.0	5.0		5.0	5.0	15.0	15.0
Minimum Split (s)	16.0	22.0	16.0	16.0		16.0	16.0	22.0	22.0
Total Split (s)	27.0	50.0	19.0	42.0	84.0	22.0	22.0	42.0	42.0
Total Split (%)	20.3%	37.6%	14.3%	31.6%	63.2%	16.5%	16.5%	31.6%	31.6%
Yellow Time (s)	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lead	Lag	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None		None	None	None	None
Act Effct Green (s)	22.0	56.6	48.4	38.5	70.9	12.3	12.3	31.4	31.4
Actuated g/C Ratio	0.19	0.48	0.41	0.33	0.61	0.11	0.11	0.27	0.27
v/c Ratio	0.77	0.91	0.17	0.83	0.64	0.30	0.21	0.63	0.33
Control Delay	64.8	48.7	19.5	46.9	12.4	56.6	17.6	45.8	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.8	48.7	19.5	46.9	12.4	56.6	17.6	45.8	6.2
LOS	E	D	B	D	B	E	B	D	A
Approach Delay		52.5		32.2		39.9		29.4	
Approach LOS		D		C		D		C	
Queue Length 50th (ft)	191	~696	12	355	182	42	0	195	0
Queue Length 95th (ft)	#334	#1019	32	#523	252	69	22	300	57
Internal Link Dist (ft)		734		1299		72		767	
Turn Bay Length (ft)	200		200		175		35		650
Base Capacity (vph)	346	872	259	1082	1097	281	280	551	707
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.91	0.12	0.82	0.58	0.20	0.15	0.51	0.28

Intersection Summary

Cycle Length: 133
 Actuated Cycle Length: 117
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 38.7
 Intersection Capacity Utilization 71.9%
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

Queues

1: Route 202 & Route 26A (Gray Bypass)

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Route 202 & Route 26A (Gray Bypass)

 ø2	 ø1	 ø3	 ø4
22 s	42 s	19 s	50 s
		 ø7	 ø8
		27 s	42 s

HCM Signalized Intersection Capacity Analysis
 1: Route 202 & Route 26A (Gray Bypass)

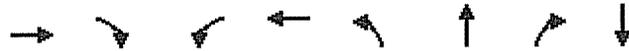
Synchro 7 Report
 3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗↗	↗		↖	↗		↖	↗
Volume (vph)	220	680	20	30	830	595	20	20	30	240	15	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	16	12	12	12	11	11	16
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1719	1802		1572	3252	1649		1782	1553		1655	1727
Flt Permitted	0.95	1.00		0.10	1.00	1.00		0.98	1.00		0.95	1.00
Satd. Flow (perm)	1719	1802		159	3252	1649		1782	1553		1655	1727
Peak-hour factor, PHF	0.88	0.88	0.88	0.93	0.93	0.93	0.72	0.72	0.72	0.91	0.91	0.91
Adj. Flow (vph)	250	773	23	32	892	640	28	28	42	264	16	198
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	38	0	0	147
Lane Group Flow (vph)	250	795	0	32	892	640	0	56	4	0	280	51
Heavy Vehicles (%)	5%	5%	5%	11%	11%	11%	4%	4%	4%	6%	6%	6%
Turn Type	Prot			pm+pt		pt+ov	Split		Prot	Split		Prot
Protected Phases	7	4		3	8	18	2	2	2	1	1	1
Permitted Phases				8								
Actuated Green, G (s)	18.9	53.5		42.8	38.7	67.0		7.6	7.6		28.3	28.3
Effective Green, g (s)	21.9	56.5		48.8	41.7	73.0		10.6	10.6		31.3	31.3
Actuated g/C Ratio	0.18	0.47		0.40	0.34	0.60		0.09	0.09		0.26	0.26
Clearance Time (s)	7.0	7.0		7.0	7.0			7.0	7.0		7.0	7.0
Vehicle Extension (s)	3.0	4.0		3.0	4.0			3.0	3.0		4.0	4.0
Lane Grp Cap (vph)	310	838		146	1116	991		155	135		426	445
v/s Ratio Prot	c0.15	c0.44		0.01	0.27	0.39		c0.03	0.00		c0.17	0.03
v/s Ratio Perm				0.08								
v/c Ratio	0.81	0.95		0.22	0.80	0.65		0.36	0.03		0.66	0.11
Uniform Delay, d1	47.8	31.1		26.8	36.1	15.8		52.3	50.7		40.3	34.5
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	14.2	19.7		0.8	4.3	1.6		1.4	0.1		4.0	0.2
Delay (s)	61.9	50.9		27.6	40.4	17.4		53.7	50.8		44.3	34.7
Level of Service	E	D		C	D	B		D	D		D	C
Approach Delay (s)		53.5			30.8			52.5			40.3	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM Average Control Delay	40.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	121.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
2: Route 202 & Gray Graveyard



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Configurations	↔↑	↗	↖	↔	↖	↔	↗	↔
Volume (vph)	555	395	210	520	935	0	600	0
Lane Group Flow (vph)	584	416	244	605	525	526	674	4
Turn Type		Prot	Prot		Perm		pt+ov	
Protected Phases	2	2	1	1 2		3	3 1	3
Permitted Phases					3			
Detector Phase	2	2	1	1 2	3	3	3 1	3
Switch Phase								
Minimum Initial (s)	6.0	6.0	5.0		3.0	3.0		3.0
Minimum Split (s)	16.0	16.0	16.0		16.0	16.0		16.0
Total Split (s)	26.0	26.0	22.0	48.0	62.0	62.0	84.0	62.0
Total Split (%)	23.6%	23.6%	20.0%	43.6%	56.4%	56.4%	76.4%	56.4%
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0		5.0
All-Red Time (s)	3.5	3.5	3.7		3.5	3.5		3.5
Lost Time Adjust (s)	-4.5	-4.5	-4.7	-4.7	-4.5	-4.5	-4.5	-4.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Recall Mode	None	None	None		None	None		None
Act Effct Green (s)	22.0	22.0	18.0	44.1	55.8	55.8	77.9	55.8
Actuated g/C Ratio	0.20	0.20	0.17	0.41	0.52	0.52	0.72	0.52
v/c Ratio	0.83	0.62	0.80	0.80	0.86	0.89	0.66	0.00
Control Delay	53.2	8.4	64.1	37.9	38.1	42.3	11.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.2	8.4	64.1	37.9	38.1	42.3	11.5	0.0
LOS	D	A	E	D	D	D	B	A
Approach Delay	34.5			45.4		29.0		0.0
Approach LOS	C			D		C		A
Queue Length 50th (ft)	211	0	168	374	316	327	208	0
Queue Length 95th (ft)	#299	86	#274	488	#537	#554	315	0
Internal Link Dist (ft)	1299			605		270		46
Turn Bay Length (ft)		350	205		145			
Base Capacity (vph)	702	666	305	761	638	617	1019	954
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.62	0.80	0.80	0.82	0.85	0.66	0.00

Intersection Summary
 Cycle Length: 110
 Actuated Cycle Length: 107.9
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 34.4
 Intersection LOS: C
 Intersection Capacity Utilization 85.3%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: Route 202 & Gray Graveyard

 ø1	 ø2	 ø3
22 s	26 s	62 s

HCM Signalized Intersection Capacity Analysis
2: Route 202 & Gray Graveyard

Synchro 7 Report
3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↗	↖	↔		↖	↗	↔		↔↔	
Volume (vph)	0	555	395	210	520	0	935	0	600	0	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	13	12	12	12	11	12	12	12	12
Grade (%)		0%			-4%			0%			0%	
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0	
Lane Util. Factor		0.95	1.00	1.00	1.00		0.95	0.95	1.00		1.00	
Frt		1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.86	
Flt Protected		1.00	1.00	0.95	1.00		0.95	0.95	1.00		1.00	
Satd. Flow (prot)		3438	1641	1829	1863		1491	1441	1404		1644	
Flt Permitted		1.00	1.00	0.95	1.00		0.76	0.76	1.00		1.00	
Satd. Flow (perm)		3438	1641	1829	1863		1185	1146	1404		1644	
Peak-hour factor, PHF	0.95	0.95	0.95	0.86	0.86	0.86	0.89	0.89	0.89	0.25	0.25	0.25
Adj. Flow (vph)	0	584	416	244	605	0	1051	0	674	0	0	4
RTOR Reduction (vph)	0	0	331	0	0	0	0	0	6	0	2	0
Lane Group Flow (vph)	0	584	85	244	605	0	525	526	668	0	2	0
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	15%	15%	15%	0%	0%	0%
Turn Type	Perm		Prot	Prot			Perm		pt+ov	Perm		
Protected Phases		2	2	1	1 2			3	3 1		3	
Permitted Phases	2						3			3		
Actuated Green, G (s)		17.5	17.5	13.3	39.5		51.3	51.3	73.1		51.3	
Effective Green, g (s)		22.0	22.0	18.0	44.2		55.8	55.8	77.6		55.8	
Actuated g/C Ratio		0.20	0.20	0.17	0.41		0.52	0.52	0.72		0.52	
Clearance Time (s)		8.5	8.5	8.7			8.5	8.5			8.5	
Vehicle Extension (s)		3.0	3.0	3.0			3.0	3.0			3.0	
Lane Grp Cap (vph)		702	335	305	764		613	593	1011		851	
v/s Ratio Prot		0.17	0.05	0.13	c0.32				0.48		0.00	
v/s Ratio Perm							0.44	c0.46				
v/c Ratio		0.83	0.25	0.80	0.79		0.86	0.89	0.66		0.00	
Uniform Delay, d1		41.1	36.0	43.2	27.8		22.5	23.2	8.1		12.6	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		8.3	0.4	13.9	5.6		11.3	14.9	1.6		0.0	
Delay (s)		49.5	36.4	57.1	33.4		33.9	38.1	9.7		12.6	
Level of Service		D	D	E	C		C	D	A		B	
Approach Delay (s)		44.0			40.2			25.7			12.6	
Approach LOS		D			D			C			B	

Intersection Summary		
HCM Average Control Delay	34.3	HCM Level of Service C
HCM Volume to Capacity ratio	0.85	
Actuated Cycle Length (s)	107.8	Sum of lost time (s) 8.0
Intersection Capacity Utilization	85.3%	ICU Level of Service E
Analysis Period (min)	15	

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 3: Route 202 & Central Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↖	↗
Volume (veh/h)	935	55	35	745	20	45
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.86	0.86	0.78	0.78
Hourly flow rate (vph)	984	58	41	866	26	58
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	685			172		
pX, platoon unblocked				0.88	0.85	0.88
vC, conflicting volume				1042	1961	521
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				777	1515	185
tC, single (s)				4.2	6.8	6.9
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				94	72	92
cM capacity (veh/h)				724	90	733

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	656	386	907	83
Volume Left	0	0	41	26
Volume Right	0	58	0	58
cSH	1700	1700	724	293
Volume to Capacity	0.39	0.23	0.06	0.28
Queue Length 95th (ft)	0	0	4	29
Control Delay (s)	0.0	0.0	1.6	25.7
Lane LOS			A	D
Approach Delay (s)	0.0		1.6	25.7
Approach LOS				D

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	77.7%		ICU Level of Service D
Analysis Period (min)	15		

Queues
4: Route 202 & Main Street



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↖	↔	↖	↖		↖	↖
Volume (vph)	675	210	275	100	530	15	335	405
Lane Group Flow (vph)	703	318	445	118	689	0	407	471
Turn Type	Split			Prot		Perm		Perm
Protected Phases	4	4	3	5	2		6	
Permitted Phases						6		6
Detector Phase	4	4	3	5	2	6	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	6.0	3.0	5.0	5.0	5.0	5.0
Minimum Split (s)	16.0	16.0	18.0	10.0	21.0	16.0	16.0	16.0
Total Split (s)	34.0	34.0	27.0	13.0	34.0	21.0	21.0	21.0
Total Split (%)	35.8%	35.8%	28.4%	13.7%	35.8%	22.1%	22.1%	22.1%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)	25.1	25.1	22.5	9.8	35.4		21.6	21.6
Actuated g/C Ratio	0.26	0.26	0.24	0.10	0.37		0.23	0.23
v/c Ratio	0.71	0.60	0.94	0.67	0.98		1.73	0.65
Control Delay	35.5	32.4	66.3	61.2	60.6		366.2	7.2
Queue Delay	0.9	0.0	0.0	0.0	0.0		0.0	0.6
Total Delay	36.3	32.4	66.3	61.2	60.6		366.2	7.8
LOS	D	C	E	E	E		F	A
Approach Delay		35.1	66.3		60.7		173.9	
Approach LOS		D	E		E		F	
Queue Length 50th (ft)	195	153	261	68	~416		~383	0
Queue Length 95th (ft)	240	225	#370	#143	#651		#535	35
Internal Link Dist (ft)		92	183		238		223	
Turn Bay Length (ft)				90				
Base Capacity (vph)	1182	628	482	181	706		235	720
Starvation Cap Reductn	0	0	0	0	0		0	61
Spillback Cap Reductn	222	0	0	0	0		0	0
Storage Cap Reductn	0	0	0	0	0		0	0
Reduced v/c Ratio	0.73	0.51	0.92	0.65	0.98		1.73	0.71

Intersection Summary
 Cycle Length: 95
 Actuated Cycle Length: 95
 Offset: 17 (18%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.73
 Intersection Signal Delay: 84.7
 Intersection LOS: F
 Intersection Capacity Utilization 101.6%
 ICU Level of Service G
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.

Queues
4: Route 202 & Main Street

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Route 202 & Main Street

↑ ø2	↙ ø3	↘ ø4
34 s	27 s	34 s
↙ ø5	↓ ø6	
13 s	21 s	

HCM Signalized Intersection Capacity Analysis
4: Route 202 & Main Street

Synchro 7 Report
3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	↔
Volume (vph)	675	210	95	60	275	25	100	530	55	15	335	405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	16	16	12	14	14	15	15	16
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	1.00			1.00		1.00	1.00			1.00	1.00
Fr _t	1.00	0.95			0.99		1.00	0.99			1.00	0.85
Fl _t Protected	0.95	1.00			0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)	3744	1937			1977		1703	1885			2005	1566
Fl _t Permitted	0.95	1.00			0.99		0.95	1.00			0.51	1.00
Satd. Flow (perm)	3744	1937			1977		1703	1885			1035	1566
Peak-hour factor, PHF	0.96	0.96	0.96	0.81	0.81	0.81	0.85	0.85	0.85	0.86	0.86	0.86
Adj. Flow (vph)	703	219	99	74	340	31	118	624	65	17	390	471
RTOR Reduction (vph)	0	18	0	0	3	0	0	4	0	0	0	364
Lane Group Flow (vph)	703	300	0	0	442	0	118	685	0	0	407	107
Heavy Vehicles (%)	6%	6%	6%	7%	7%	7%	6%	6%	6%	4%	4%	4%
Parking (#/hr)												2
Turn Type	Split			Split			Prot			Perm		Perm
Protected Phases	4	4		3	3		5	2				6
Permitted Phases										6		6
Actuated Green, G (s)	25.1	25.1			22.5		9.8	35.4			21.6	21.6
Effective Green, g (s)	25.1	25.1			22.5		9.8	35.4			21.6	21.6
Actuated g/C Ratio	0.26	0.26			0.24		0.10	0.37			0.23	0.23
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)	2.5	2.5			2.0		2.5	3.5			3.5	3.5
Lane Grp Cap (vph)	989	512			468		176	702			235	356
v/s Ratio Prot	c0.19	0.15			c0.22		0.07	c0.36				
v/s Ratio Perm											c0.39	0.07
v/c Ratio	0.71	0.59			0.94		0.67	0.98			1.73	0.30
Uniform Delay, d1	31.7	30.4			35.6		41.0	29.4			36.7	30.4
Progression Factor	1.00	1.00			1.00		1.00	1.00			0.66	0.87
Incremental Delay, d2	2.3	1.4			27.7		8.8	28.6			343.9	1.8
Delay (s)	33.9	31.8			63.3		49.8	58.0			368.2	28.4
Level of Service	C	C			E		D	E			F	C
Approach Delay (s)		33.3			63.3			56.8			185.9	
Approach LOS		C			E			E			F	

Intersection Summary			
HCM Average Control Delay	86.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	101.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Queues
5: Shaker Road & Main Street



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↖	↕		↕	↗
Volume (vph)	125	125	205	50	170	380	805	30	500	155
Lane Group Flow (vph)	0	308	253	0	336	418	929	0	596	174
Turn Type	Perm		pm+ov	Perm		Prot		Perm		Perm
Protected Phases		4	5		8	5	2		6	
Permitted Phases	4		4	8				6		6
Detector Phase	4	4	5	8	8	5	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	8.0	5.0	5.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	33.0	33.0	16.0	30.0	30.0	16.0	26.0	30.0	30.0	30.0
Total Split (s)	34.0	34.0	31.0	34.0	34.0	31.0	61.0	30.0	30.0	30.0
Total Split (%)	35.8%	35.8%	32.6%	35.8%	35.8%	32.6%	64.2%	31.6%	31.6%	31.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	0.0	0.0	-1.0	0.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	3.0	4.0	4.0
Lead/Lag			Lead			Lead		Lag	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		30.7	60.7		30.7	26.0	56.3		26.3	26.3
Actuated g/C Ratio		0.32	0.64		0.32	0.27	0.59		0.28	0.28
v/c Ratio		0.94	0.22		0.65	0.91	0.87		0.72	0.35
Control Delay		69.5	5.5		33.6	48.9	15.1		37.1	14.9
Queue Delay		0.0	0.0		0.0	19.3	53.6		0.1	0.0
Total Delay		69.5	5.5		33.6	68.2	68.6		37.2	14.9
LOS		E	A		C	E	E		D	B
Approach Delay		40.6			33.6		68.5		32.2	
Approach LOS		D			C		E		C	
Queue Length 50th (ft)		179	39		166	262	372		173	35
Queue Length 95th (ft)		#295	61		225	m#336	m439		230	88
Internal Link Dist (ft)		258			295		223		212	
Turn Bay Length (ft)										60
Base Capacity (vph)		329	1168		517	475	1085		849	511
Starvation Cap Reductn		0	0		0	61	250		0	0
Spillback Cap Reductn		0	0		0	0	0		9	0
Storage Cap Reductn		0	0		0	0	0		0	0
Reduced v/c Ratio		0.94	0.22		0.65	1.01	1.11		0.71	0.34

Intersection Summary

Cycle Length: 95
 Actuated Cycle Length: 95
 Offset: 17 (18%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 50.1
 Intersection Capacity Utilization 101.1%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.

Intersection LOS: D
 ICU Level of Service G

Queues
 5: Shaker Road & Main Street

Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Shaker Road & Main Street

 ø2 61 s		 ø4 34 s	
 ø5 31 s		 ø6 30 s	
		 ø8 34 s	

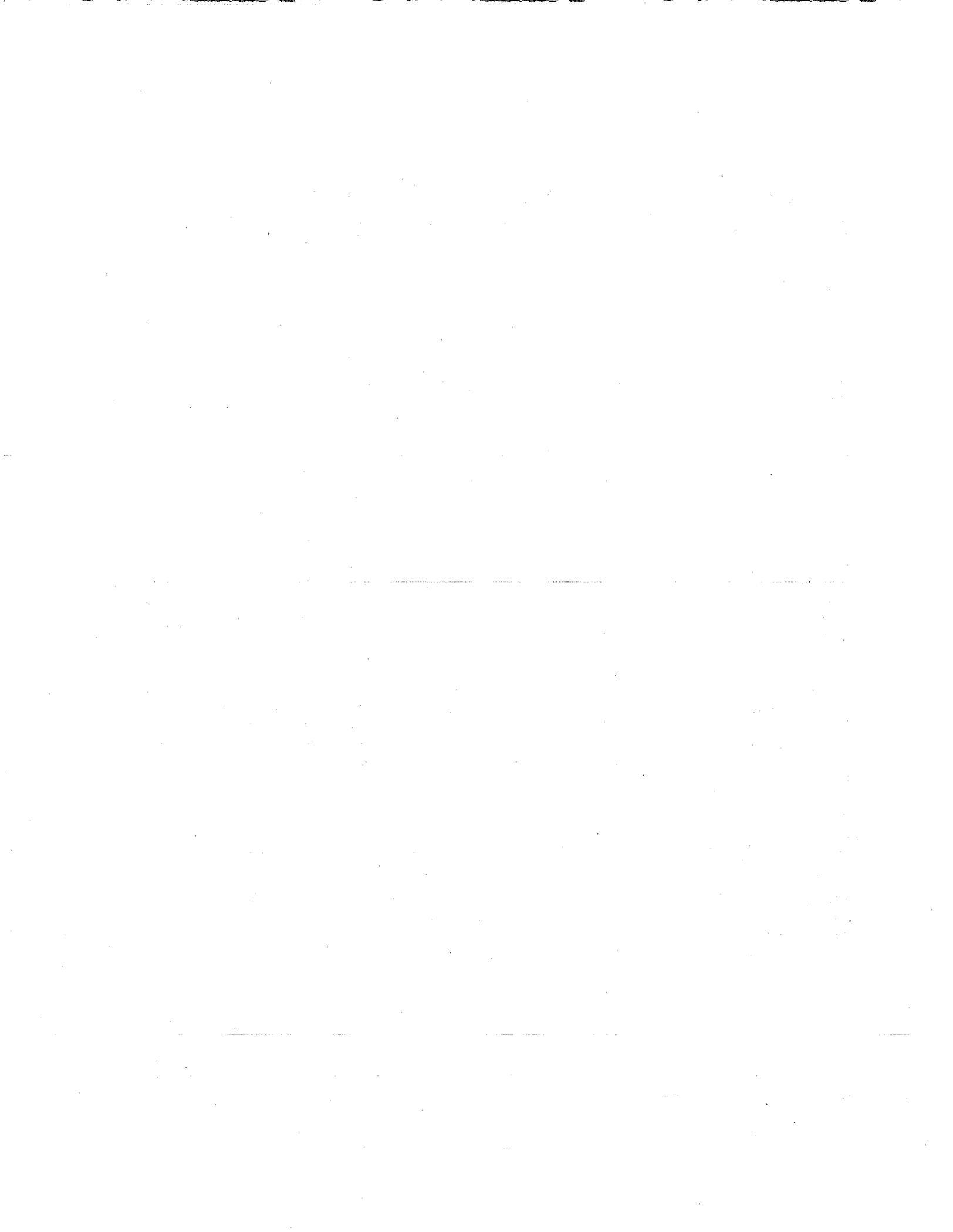
HCM Signalized Intersection Capacity Analysis
5: Shaker Road & Main Street

Synchro 7 Report
3/25/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	125	205	50	170	50	380	805	40	30	500	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	16	16	16	12	13	13	11	12	12
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00			0.95	1.00
Frt		1.00	0.85		0.98		1.00	0.99			1.00	0.85
Flt Protected		0.98	1.00		0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1782	1760		2000		1671	1805			3461	1553
Flt Permitted		0.56	1.00		0.78		0.95	1.00			0.86	1.00
Satd. Flow (perm)		1018	1760		1571		1671	1805			2990	1553
Peak-hour factor, PHF	0.81	0.81	0.81	0.80	0.80	0.80	0.91	0.91	0.91	0.89	0.89	0.89
Adj. Flow (vph)	154	154	253	62	212	62	418	885	44	34	562	174
RTOR Reduction (vph)	0	0	28	0	9	0	0	2	0	0	0	71
Lane Group Flow (vph)	0	308	225	0	327	0	418	927	0	0	596	103
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	8%	8%	8%	4%	4%	4%
Turn Type	Perm		pm+ov	Perm			Prot			Perm		Perm
Protected Phases		4	5		8		5	2			6	
Permitted Phases	4		4	8						6		6
Actuated Green, G (s)		30.7	56.7		30.7		26.0	56.3			26.3	26.3
Effective Green, g (s)		30.7	56.7		30.7		26.0	56.3			26.3	26.3
Actuated g/C Ratio		0.32	0.60		0.32		0.27	0.59			0.28	0.28
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		329	1125		508		457	1070			828	430
v/s Ratio Prot			0.05				0.25	c0.51				
v/s Ratio Perm		c0.30	0.07		0.21						0.20	0.07
v/c Ratio		0.94	0.20		0.64		0.91	0.87			0.72	0.24
Uniform Delay, d1		31.2	8.8		27.5		33.4	16.2			31.0	26.6
Progression Factor		1.00	1.00		1.00		0.90	0.49			1.00	1.00
Incremental Delay, d2		33.1	0.1		2.8		15.5	6.0			5.4	1.3
Delay (s)		64.3	8.9		30.3		45.7	14.0			36.4	27.9
Level of Service		E	A		C		D	B			D	C
Approach Delay (s)		39.3			30.3			23.8			34.5	
Approach LOS		D			C			C			C	

Intersection Summary

HCM Average Control Delay	30.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	101.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Queues
1: Route 202 & Route 26A (Gray Bypass)



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Configurations	↔	→	↔	↕	↔	↑	↔	↓	↔
Volume (vph)	165	630	25	605	275	5	35	20	220
Lane Group Flow (vph)	181	708	27	651	296	24	43	349	229
Turn Type	Prot		pm+pt		pt+ov		Prot		Prot
Protected Phases	7	4	3	8	8 1	2	2	1	1
Permitted Phases			8						
Detector Phase	7	4	3	8	8 1	2	2	1	1
Switch Phase									
Minimum Initial (s)	5.0	15.0	5.0	5.0		5.0	5.0	15.0	15.0
Minimum Split (s)	16.0	22.0	16.0	16.0		16.0	16.0	22.0	22.0
Total Split (s)	27.0	50.0	19.0	42.0	84.0	22.0	22.0	42.0	42.0
Total Split (%)	20.3%	37.6%	14.3%	31.6%	63.2%	16.5%	16.5%	31.6%	31.6%
Yellow Time (s)	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lead	Lag	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None		None	None	None	None
Act Effct Green (s)	19.0	50.3	44.3	34.6	67.3	10.3	10.3	31.5	31.5
Actuated g/C Ratio	0.18	0.46	0.41	0.32	0.62	0.10	0.10	0.29	0.29
v/c Ratio	0.58	0.81	0.12	0.58	0.27	0.14	0.22	0.70	0.33
Control Delay	52.3	38.7	17.3	35.8	6.5	53.6	18.4	44.3	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.3	38.7	17.3	35.8	6.5	53.6	18.4	44.3	5.6
LOS	D	D	B	D	A	D	B	D	A
Approach Delay		41.5		26.4		31.0		29.0	
Approach LOS		D		C		C		C	
Queue Length 50th (ft)	126	509	10	220	55	17	0	229	0
Queue Length 95th (ft)	216	#819	26	308	90	43	30	364	59
Internal Link Dist (ft)		734		1299		72		767	
Turn Bay Length (ft)	200		200		175		35		650
Base Capacity (vph)	396	871	328	1294	1292	317	315	629	801
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.81	0.08	0.50	0.23	0.08	0.14	0.55	0.29

Intersection Summary

Cycle Length: 133
 Actuated Cycle Length: 108.4
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 32.5
 Intersection Capacity Utilization 73.4%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

1: Route 202 & Route 26A (Gray Bypass)

Splits and Phases: 1: Route 202 & Route 26A (Gray Bypass)

 ø2	 ø1	 ø3	 ø4
22 s	42 s	19 s	50 s
		 ø7	 ø8
		27 s	42 s

HCM Signalized Intersection Capacity Analysis
 1: Route 202 & Route 26A (Gray Bypass)

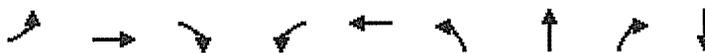
Synchro 7 Report
 3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↖↖	↗		↖	↗		↖	↗
Volume (vph)	165	630	15	25	605	275	15	5	35	315	20	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	16	12	12	12	11	11	16
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96	1.00		0.96	1.00
Satd. Flow (prot)	1787	1875		1711	3539	1794		1831	1615		1720	1794
Flt Permitted	0.95	1.00		0.14	1.00	1.00		0.96	1.00		0.96	1.00
Satd. Flow (perm)	1787	1875		254	3539	1794		1831	1615		1720	1794
Peak-hour factor, PHF	0.91	0.91	0.91	0.93	0.93	0.93	0.82	0.82	0.82	0.96	0.96	0.96
Adj. Flow (vph)	181	692	16	27	651	296	18	6	43	328	21	229
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	40	0	0	165
Lane Group Flow (vph)	181	707	0	27	651	296	0	24	3	0	349	64
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	2%	2%	2%
Turn Type	Prot			pm+pt		pt+ov	Split		Prot	Split		Prot
Protected Phases	7	4		3	8	8 1	2	2	2	1	1	1
Permitted Phases				8								
Actuated Green, G (s)	15.8	47.2		38.8	35.1	63.5		5.6	5.6		28.4	28.4
Effective Green, g (s)	18.8	50.2		44.8	38.1	69.5		8.6	8.6		31.4	31.4
Actuated g/C Ratio	0.17	0.44		0.40	0.34	0.62		0.08	0.08		0.28	0.28
Clearance Time (s)	7.0	7.0		7.0	7.0			7.0	7.0		7.0	7.0
Vehicle Extension (s)	3.0	4.0		3.0	4.0			3.0	3.0		4.0	4.0
Lane Grp Cap (vph)	298	834		187	1194	1104		139	123		478	499
v/s Ratio Prot	c0.10	c0.38		0.01	0.18	0.16		c0.01	0.00		c0.20	0.04
v/s Ratio Perm				0.05								
v/c Ratio	0.61	0.85		0.14	0.55	0.27		0.17	0.03		0.73	0.13
Uniform Delay, d1	43.6	28.0		23.6	30.4	10.0		48.8	48.3		36.9	30.5
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	3.5	8.3		0.4	0.6	0.2		0.6	0.1		6.0	0.2
Delay (s)	47.1	36.3		24.0	31.0	10.2		49.4	48.4		42.9	30.7
Level of Service	D	D		C	C	B		D	D		D	C
Approach Delay (s)		38.5			24.5			48.7			38.1	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM Average Control Delay	33.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	112.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues
2: Route 202 & Gray Graveyard



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Configurations		↔↗	↗	↖	↖↗	↖	↖	↗	↔↖
Volume (vph)	1	540	440	235	485	420	0	195	0
Lane Group Flow (vph)	0	575	468	267	552	233	234	217	4
Turn Type	Perm		Prot	Prot		Perm		pt+ov	
Protected Phases		2	2	1	12		3	31	3
Permitted Phases	2					3			
Detector Phase	2	2	2	1	12	3	3	31	3
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	5.0		3.0	3.0		3.0
Minimum Split (s)	16.0	16.0	16.0	16.0		16.0	16.0		16.0
Total Split (s)	29.0	29.0	29.0	20.0	49.0	26.0	26.0	46.0	26.0
Total Split (%)	38.7%	38.7%	38.7%	26.7%	65.3%	34.7%	34.7%	61.3%	34.7%
Yellow Time (s)	5.0	5.0	5.0	5.0		5.0	5.0		5.0
All-Red Time (s)	3.5	3.5	3.5	3.7		3.5	3.5		3.5
Lost Time Adjust (s)	-1.0	-4.5	-4.5	-4.7	-4.7	-4.5	-4.5	-4.5	-4.5
Total Lost Time (s)	7.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead					
Lead-Lag Optimize?									
Recall Mode	None	None	None	None		None	None		None
Act Effct Green (s)		23.4	23.4	15.9	43.4	20.1	20.1	40.1	20.1
Actuated g/C Ratio		0.33	0.33	0.22	0.61	0.28	0.28	0.56	0.28
v/c Ratio		0.52	0.54	0.64	0.48	0.63	0.66	0.24	0.01
Control Delay		21.8	4.7	34.8	9.9	31.7	33.0	4.9	0.0
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		21.8	4.7	34.8	9.9	31.7	33.0	4.9	0.0
LOS		C	A	C	A	C	C	A	A
Approach Delay		14.1			18.0		23.6		0.0
Approach LOS		B			B		C		A
Queue Length 50th (ft)		111	0	115	130	97	98	21	0
Queue Length 95th (ft)		158	60	#188	194	174	177	52	0
Internal Link Dist (ft)		1299			605		270		46
Turn Bay Length (ft)			350	205		145			
Base Capacity (vph)		1189	898	420	1179	406	393	913	739
Starvation Cap Reductn		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.48	0.52	0.64	0.47	0.57	0.60	0.24	0.01

Intersection Summary
 Cycle Length: 75
 Actuated Cycle Length: 71.6
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 17.9
 Intersection LOS: B
 Intersection Capacity Utilization 68.8%
 ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: Route 202 & Gray Graveyard

 ø1	 ø2	 ø3
20 s	29 s	26 s

HCM Signalized Intersection Capacity Analysis
2: Route 202 & Gray Graveyard

Synchro 7 Report
3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗	↖	↘	↙	↖	↕	↗		↕	
Volume (vph)	1	540	440	235	485	1	420	0	195	0	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	13	12	12	12	11	12	12	12	12
Grade (%)		0%			-4%			0%			0%	
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0	
Lane Util. Factor		0.95	1.00	1.00	1.00		0.95	0.95	1.00		1.00	
Frt		1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.86	
Flt Protected		1.00	1.00	0.95	1.00		0.95	0.95	1.00		1.00	
Satd. Flow (prot)		3539	1689	1865	1899		1649	1594	1553		1644	
Flt Permitted		0.95	1.00	0.95	1.00		0.76	0.76	1.00		1.00	
Satd. Flow (perm)		3376	1689	1865	1899		1311	1267	1553		1644	
Peak-hour factor, PHF	0.94	0.94	0.94	0.88	0.88	0.88	0.90	0.90	0.90	0.25	0.25	0.25
Adj. Flow (vph)	1	574	468	267	551	1	467	0	217	0	0	4
RTOR Reduction (vph)	0	0	315	0	0	0	0	0	50	0	3	0
Lane Group Flow (vph)	0	575	153	267	552	0	233	234	167	0	1	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	0%	0%	0%
Turn Type	Perm		Prot	Prot			Perm		pt+ov	Perm		
Protected Phases		2	2	1	12			3	3 1		3	
Permitted Phases	2						3			3		
Actuated Green, G (s)		18.9	18.9	11.2	38.8		15.6	15.6	35.3		15.6	
Effective Green, g (s)		23.4	23.4	15.9	43.5		20.1	20.1	39.8		20.1	
Actuated g/C Ratio		0.33	0.33	0.22	0.61		0.28	0.28	0.56		0.28	
Clearance Time (s)		8.5	8.5	8.7			8.5	8.5			8.5	
Vehicle Extension (s)		3.0	3.0	3.0			3.0	3.0			3.0	
Lane Grp Cap (vph)		1106	554	415	1157		369	357	866		463	
v/s Ratio Prot			0.09	c0.14	c0.29				0.11		0.00	
v/s Ratio Perm		0.17					0.18	c0.18				
v/c Ratio		0.52	0.28	0.64	0.48		0.63	0.66	0.19		0.00	
Uniform Delay, d1		19.4	17.7	25.2	7.7		22.4	22.6	7.8		18.4	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.4	0.3	3.4	0.3		3.5	4.3	0.1		0.0	
Delay (s)		19.9	18.0	28.6	8.0		25.9	26.9	7.9		18.4	
Level of Service		B	B	C	A		C	C	A		B	
Approach Delay (s)		19.0			14.7			20.5			18.4	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM Average Control Delay	18.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	71.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
3: Route 202 & Central Road

Synchro 7 Report
3/25/2013



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↑	↑
Volume (veh/h)	640	35	45	675	25	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.88	0.88	0.75	0.75
Hourly flow rate (vph)	696	38	51	767	33	47
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	685			172		
pX, platoon unblocked			0.92		0.93	0.92
vC, conflicting volume			734		1584	367
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			525		1249	124
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		77	94
cM capacity (veh/h)			950		147	833

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	464	270	818	80
Volume Left	0	0	51	33
Volume Right	0	38	0	47
cSH	1700	1700	950	353
Volume to Capacity	0.27	0.16	0.05	0.23
Queue Length 95th (ft)	0	0	4	21
Control Delay (s)	0.0	0.0	1.4	20.8
Lane LOS			A	C
Approach Delay (s)	0.0		1.4	20.8
Approach LOS				C

Intersection Summary			
Average Delay		1.7	
Intersection Capacity Utilization		70.2%	ICU Level of Service C
Analysis Period (min)		15	

Queues
4: Route 202 & Main Street



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Volume (vph)	400	190	170	130	445	20	400	420
Lane Group Flow (vph)	482	331	303	149	574	0	488	488
Turn Type	Split			Prot		Perm		Perm
Protected Phases	4	4	3	5	2		6	
Permitted Phases						6		6
Detector Phase	4	4	3	5	2	6	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	6.0	3.0	5.0	5.0	5.0	5.0
Minimum Split (s)	16.0	16.0	18.0	10.0	21.0	16.0	16.0	16.0
Total Split (s)	20.0	20.0	27.0	13.0	33.0	20.0	20.0	20.0
Total Split (%)	25.0%	25.0%	33.8%	16.3%	41.3%	25.0%	25.0%	25.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)	17.3	17.3	16.6	9.5	34.1		20.6	20.6
Actuated g/C Ratio	0.22	0.22	0.21	0.12	0.43		0.26	0.26
v/c Ratio	0.57	0.73	0.69	0.69	0.67		0.95	0.63
Control Delay	30.8	37.3	36.9	52.8	25.0		56.0	5.4
Queue Delay	0.6	0.0	0.0	0.0	0.0		2.8	0.3
Total Delay	31.4	37.3	36.9	52.8	25.0		58.9	5.7
LOS	C	D	D	D	C		E	A
Approach Delay		33.8	36.9		30.7		32.3	
Approach LOS		C	D		C		C	
Queue Length 50th (ft)	105	135	138	71	236		~312	0
Queue Length 95th (ft)	145	211	176	#154	#355		#441	19
Internal Link Dist (ft)		92	183		238		223	
Turn Bay Length (ft)				90				
Base Capacity (vph)	880	475	604	220	856		511	778
Starvation Cap Reductn	0	0	0	0	0		9	46
Spillback Cap Reductn	141	0	0	0	0		0	0
Storage Cap Reductn	0	0	0	0	0		0	0
Reduced v/c Ratio	0.65	0.70	0.50	0.68	0.67		0.97	0.67

Intersection Summary
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 17 (21%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 32.8
 Intersection Capacity Utilization 90.6%
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.

Queues
 4: Route 202 & Main Street

Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 4: Route 202 & Main Street

↑ ø2	↙ ø3	↘ ø4
33 s	27 s	20 s
↖ ø5	↓ ø6	
13 s	20 s	

HCM Signalized Intersection Capacity Analysis
4: Route 202 & Main Street

Synchro 7 Report
3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↖			↕		↖	↗			↕	↗↖
Volume (vph)	400	190	85	55	170	20	130	445	55	20	400	420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	16	16	12	14	14	15	15	16
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	1.00			1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.95			0.99		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00			0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)	3891	2014			2085		1805	1993			2064	1613
Flt Permitted	0.95	1.00			0.99		0.95	1.00			0.96	1.00
Satd. Flow (perm)	3891	2014			2085		1805	1993			1985	1613
Peak-hour factor, PHF	0.83	0.83	0.83	0.81	0.81	0.81	0.87	0.87	0.87	0.86	0.86	0.86
Adj. Flow (vph)	482	229	102	68	210	25	149	511	63	23	465	488
RTOR Reduction (vph)	0	20	0	0	5	0	0	5	0	0	0	362
Lane Group Flow (vph)	482	311	0	0	298	0	149	569	0	0	488	126
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Parking (#/hr)												2
Turn Type	Split			Split			Prot			Perm		Perm
Protected Phases	4	4		3	3		5	2			6	
Permitted Phases										6		6
Actuated Green, G (s)	17.3	17.3			16.6		9.5	34.1			20.6	20.6
Effective Green, g (s)	17.3	17.3			16.6		9.5	34.1			20.6	20.6
Actuated g/C Ratio	0.22	0.22			0.21		0.12	0.43			0.26	0.26
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	841	436			433		214	850			511	415
v/s Ratio Prot	0.12	c0.15			c0.14		0.08	c0.29				
v/s Ratio Perm											c0.25	0.08
v/c Ratio	0.57	0.71			0.69		0.70	0.67			0.95	0.30
Uniform Delay, d1	28.0	29.1			29.3		33.9	18.4			29.2	23.9
Progression Factor	1.00	1.00			1.00		1.00	1.00			0.70	0.62
Incremental Delay, d2	0.9	5.5			4.5		9.4	4.2			27.5	1.6
Delay (s)	29.0	34.5			33.8		43.3	22.6			47.9	16.5
Level of Service	C	C			C		D	C			D	B
Approach Delay (s)		31.3			33.8			26.9			32.2	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	30.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	90.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
5: Shaker Road & Main Street



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↖	↖		↕	↗
Volume (vph)	170	110	285	60	115	285	550	30	550	125
Lane Group Flow (vph)	0	341	348	0	281	331	698	0	659	142
Turn Type	Perm		pm+ov	Perm		Prot		Perm		Perm
Protected Phases		4	5		8	5	2		6	
Permitted Phases	4		4	8				6		6
Detector Phase	4	4	5	8	8	5	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	8.0	5.0	5.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	33.0	33.0	16.0	30.0	30.0	16.0	26.0	30.0	30.0	30.0
Total Split (s)	34.0	34.0	16.0	34.0	34.0	16.0	46.0	30.0	30.0	30.0
Total Split (%)	42.5%	42.5%	20.0%	42.5%	42.5%	20.0%	57.5%	37.5%	37.5%	37.5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	0.0	0.0	-1.0	0.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	3.0	4.0	4.0
Lead/Lag			Lead			Lead		Lag	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		26.6	49.0		26.6	18.4	45.4		23.0	23.0
Actuated g/C Ratio		0.33	0.61		0.33	0.23	0.57		0.29	0.29
v/c Ratio		0.90	0.30		0.57	0.81	0.64		0.72	0.27
Control Delay		53.3	6.8		24.5	46.4	8.7		30.1	9.7
Queue Delay		0.0	0.0		0.0	0.0	3.4		1.8	0.0
Total Delay		53.3	6.8		24.5	46.4	12.1		32.0	9.7
LOS		D	A		C	D	B		C	A
Approach Delay		29.8			24.5		23.1		28.0	
Approach LOS		C			C		C		C	
Queue Length 50th (ft)		152	55		100	177	195		152	18
Queue Length 95th (ft)		#247	91		144	#325	291		196	54
Internal Link Dist (ft)		258			295		223		212	
Turn Bay Length (ft)										60
Base Capacity (vph)		426	1153		553	410	1093		1038	582
Starvation Cap Reductn		0	0		0	0	293		0	0
Spillback Cap Reductn		0	6		1	0	0		224	0
Storage Cap Reductn		0	0		0	0	0		0	0
Reduced v/c Ratio		0.80	0.30		0.51	0.81	0.87		0.81	0.24

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 17 (21%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 26.3
 Intersection Capacity Utilization 89.0%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.

Queues
 5: Shaker Road & Main Street

Queue shown is maximum after two cycles.

Splits and Phases: 5: Shaker Road & Main Street

 ø2 46 s		 ø4 34 s	
 ø5 16 s	 ø6 30 s	 ø8 34 s	

HCM Signalized Intersection Capacity Analysis
5: Shaker Road & Main Street

Synchro 7 Report
3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↕		↙	↘			↕	↗
Volume (vph)	170	110	285	60	115	50	285	550	50	30	550	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	16	16	16	12	13	13	11	12	12
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00			0.95	1.00
Frt		1.00	0.85		0.97		1.00	0.99			1.00	0.85
Flt Protected		0.97	1.00		0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1844	1830		2041		1787	1920			3565	1599
Flt Permitted		0.60	1.00		0.70		0.95	1.00			0.89	1.00
Satd. Flow (perm)		1136	1830		1442		1787	1920			3194	1599
Peak-hour factor, PHF	0.82	0.82	0.82	0.80	0.80	0.80	0.86	0.86	0.86	0.88	0.88	0.88
Adj. Flow (vph)	207	134	348	75	144	62	331	640	58	34	625	142
RTOR Reduction (vph)	0	0	37	0	13	0	0	4	0	0	0	66
Lane Group Flow (vph)	0	341	311	0	268	0	331	694	0	0	659	76
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Perm		pm+ov	Perm			Prot			Perm		Perm
Protected Phases		4	5		8		5	2			6	
Permitted Phases	4		4	8						6		6
Actuated Green, G (s)		26.6	45.0		26.6		18.4	45.4			23.0	23.0
Effective Green, g (s)		26.6	45.0		26.6		18.4	45.4			23.0	23.0
Actuated g/C Ratio		0.33	0.56		0.33		0.23	0.57			0.29	0.29
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		378	1121		479		411	1090			918	460
v/s Ratio Prot			0.06				c0.19	0.36				
v/s Ratio Perm		c0.30	0.11		0.19						c0.21	0.05
v/c Ratio		0.90	0.28		0.56		0.81	0.64			0.72	0.16
Uniform Delay, d1		25.5	9.1		21.9		29.1	11.7			25.6	21.3
Progression Factor		1.00	1.00		1.00		0.90	0.49			1.00	1.00
Incremental Delay, d2		23.9	0.1		1.4		9.0	2.3			4.8	0.8
Delay (s)		49.4	9.2		23.3		35.3	8.0			30.4	22.1
Level of Service		D	A		C		D	A			C	C
Approach Delay (s)		29.1			23.3			16.8			28.9	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM Average Control Delay	23.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Queues
1: Route 202 & Route 26A (Gray Bypass)



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Volume (vph)	165	805	25	305	175	5	25	630	5	140
Lane Group Flow (vph)	188	932	27	328	188	14	35	346	351	154
Turn Type	Prot		Prot		Prot		Prot	Split		Prot
Protected Phases	5	2	1	6	6	4	4	8	8	8
Permitted Phases										
Detector Phase	5	2	1	6	6	4	4	8	8	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Total Split (s)	25.0	40.0	16.0	31.0	31.0	16.0	16.0	38.0	38.0	38.0
Total Split (%)	22.7%	36.4%	14.5%	28.2%	28.2%	14.5%	14.5%	34.5%	34.5%	34.5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?										
Recall Mode	None	C-Min	None	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.66	0.57	0.18	0.28	0.32	0.09	0.20	0.79	0.77	0.25
Control Delay	54.4	27.1	51.3	21.0	23.4	47.0	18.0	49.5	47.4	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.4	27.1	51.3	21.0	23.4	47.0	18.0	49.5	47.4	5.4
Queue Length 50th (ft)	124	302	15	102	112	9	0	229	229	0
Queue Length 95th (ft)	192	387	m35	140	173	23	21	340	340	45
Internal Link Dist (ft)		734		1299		72			767	
Turn Bay Length (ft)	200		200		175		35			650
Base Capacity (vph)	328	1636	171	1167	592	195	201	481	496	652
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.57	0.16	0.28	0.32	0.07	0.17	0.72	0.71	0.24

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 83 (75%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Route 202 & Route 26A (Gray Bypass)

ø1	ø2	ø4	ø8
16 s	40 s	16 s	38 s
ø5	ø6		
25 s	31 s		

HCM Signalized Intersection Capacity Analysis
1: Route 202 & Route 26A (Gray Bypass)

Synchro 7 Report
3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↕	↘	↙	↕	↘		↕	↘	↙	↕	↘
Volume (vph)	165	805	15	25	305	175	5	5	25	630	5	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	16	12	12	12	11	11	16
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	5.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1719	3429		1572	3252	1649		1782	1553	1564	1569	1727
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	0.95	1.00
Satd. Flow (perm)	1719	3429		1572	3252	1649		1782	1553	1564	1569	1727
Peak-hour factor, PHF	0.88	0.88	0.88	0.93	0.93	0.93	0.72	0.72	0.72	0.91	0.91	0.91
Adj. Flow (vph)	188	915	17	27	328	188	7	7	35	692	5	154
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	33	0	0	109
Lane Group Flow (vph)	188	931	0	27	328	188	0	14	2	346	351	45
Heavy Vehicles (%)	5%	5%	5%	11%	11%	11%	4%	4%	4%	6%	6%	6%
Turn Type	Prot			Prot		Prot	Split			Prot	Split	Prot
Protected Phases	5	2		1	6	6	4	4	4	8	8	8
Permitted Phases												
Actuated Green, G (s)	16.1	45.7		5.5	35.1	35.1		4.9	4.9	29.9	29.9	29.9
Effective Green, g (s)	18.1	47.7		7.5	37.1	37.1		6.9	6.9	30.9	31.9	31.9
Actuated g/C Ratio	0.16	0.43		0.07	0.34	0.34		0.06	0.06	0.28	0.29	0.29
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		4.0	4.0	4.0		3.0	3.0	4.0	4.0	4.0
Lane Grp Cap (vph)	283	1487		107	1097	556		112	97	439	455	501
v/s Ratio Prot	c0.11	c0.27		0.02	0.10	0.11		c0.01	0.00	0.22	c0.22	0.03
v/s Ratio Perm												
v/c Ratio	0.66	0.63		0.25	0.30	0.34		0.12	0.02	0.79	0.77	0.09
Uniform Delay, d1	43.1	24.2		48.6	26.9	27.3		48.7	48.4	36.5	35.7	28.5
Progression Factor	1.00	1.00		1.07	0.70	0.72		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.8	2.0		1.6	0.7	1.6		0.5	0.1	9.6	8.4	0.1
Delay (s)	48.9	26.2		53.5	19.5	21.1		49.2	48.5	46.1	44.1	28.6
Level of Service	D	C		D	B	C		D	D	D	D	C
Approach Delay (s)		30.0			21.7			48.7			42.1	
Approach LOS		C			C			D			D	

Intersection Summary		
HCM Average Control Delay	32.6	HCM Level of Service C
HCM Volume to Capacity ratio	0.64	
Actuated Cycle Length (s)	110.0	Sum of lost time (s) 12.0
Intersection Capacity Utilization	61.1%	ICU Level of Service B
Analysis Period (min)	15	
c Critical Lane Group		

Queues
2: Route 202 & Exit 63 Ramps

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘↙	↑	↘↙	↑
Volume (vph)	445	1015	625	265	240	190
Lane Group Flow (vph)	468	1068	727	308	270	213
Turn Type		Prot	Prot			pt+ov
Protected Phases	2	2	1	6	8	8 1
Permitted Phases						
Detector Phase	2	2	1	6	8	8 1
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	8.0	
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	
Total Split (s)	67.0	67.0	27.0	94.0	16.0	43.0
Total Split (%)	60.9%	60.9%	24.5%	85.5%	14.5%	39.1%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	
v/c Ratio	0.24	0.98	0.98	0.20	0.80	0.33
Control Delay	10.7	37.6	67.2	1.9	65.9	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.7	37.6	67.2	1.9	65.9	4.9
Queue Length 50th (ft)	78	719	258	21	97	0
Queue Length 95th (ft)	101	#907	#356	34	#160	48
Internal Link Dist (ft)	1299			605	270	
Turn Bay Length (ft)		350	205		145	
Base Capacity (vph)	1969	1093	745	1524	339	639
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.98	0.98	0.20	0.80	0.33

Intersection Summary

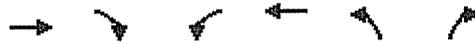
Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 6 (5%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: Route 202 & Exit 63 Ramps

↘ ø1	→ ø2	↘ ø8
27 s	67 s	16 s
← ø6		
94 s		

HCM Signalized Intersection Capacity Analysis
2: Route 202 & Exit 63 Ramps

Synchro 7 Report
3/25/2013



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑↑	↑	↑↑	↑
Volume (vph)	445	1015	625	265	240	190
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Lane Width	12	14	13	12	12	12
Grade (%)	0%			-4%	0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	0.97	1.00	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3438	1641	3549	1863	3045	1404
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3438	1641	3549	1863	3045	1404
Peak-hour factor, PHF	0.95	0.95	0.86	0.86	0.89	0.89
Adj. Flow (vph)	468	1068	727	308	270	213
RTOR Reduction (vph)	0	154	0	0	0	137
Lane Group Flow (vph)	468	914	727	308	270	76
Heavy Vehicles (%)	5%	5%	4%	4%	15%	15%
Turn Type		Prot	Prot			pt+ov
Protected Phases	2	2	1	6	8	8 1
Permitted Phases						
Actuated Green, G (s)	60.7	60.7	21.1	87.8	10.2	37.3
Effective Green, g (s)	62.7	62.7	23.1	89.8	12.2	39.3
Actuated g/C Ratio	0.57	0.57	0.21	0.82	0.11	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)	1960	935	745	1521	338	502
v/s Ratio Prot	0.14	c0.56	c0.20	0.17	c0.09	0.05
v/s Ratio Perm						
v/c Ratio	0.24	0.98	0.98	0.20	0.80	0.15
Uniform Delay, d1	11.8	23.0	43.2	2.2	47.7	24.0
Progression Factor	0.88	1.10	0.99	0.74	1.00	1.00
Incremental Delay, d2	0.2	21.2	22.9	0.2	12.4	0.1
Delay (s)	10.6	46.4	65.7	1.9	60.1	24.2
Level of Service	B	D	E	A	E	C
Approach Delay (s)	35.5			46.7	44.2	
Approach LOS	D			D	D	

Intersection Summary			
HCM Average Control Delay	40.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
2: Route 202 & Gray Graveyard



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	ø4
Lane Configurations	↔↔	↗	↖↖	↖	↖	↖	↗	
Volume (vph)	445	1015	625	265	240	1	190	
Lane Group Flow (vph)	468	1068	727	308	135	136	213	
Turn Type		Prot	Prot		Split		pt+ov	
Protected Phases	2	2	1	6	8	8	8 1	4
Permitted Phases								
Detector Phase	2	2	1	6	8	8	8 1	
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	8.0	8.0		5.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	16.0		16.0
Total Split (s)	52.0	52.0	26.0	78.0	16.0	16.0	42.0	16.0
Total Split (%)	47.3%	47.3%	23.6%	70.9%	14.5%	14.5%	38.2%	15%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Recall Mode	C-Min	C-Min	None	C-Min	None	None		None
v/c Ratio	0.31	1.03	0.76	0.22	0.51	0.53	0.27	
Control Delay	19.1	52.2	41.6	4.3	46.9	47.9	3.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	19.1	52.2	41.6	4.3	46.9	47.9	3.0	
Queue Length 50th (ft)	85	~301	232	41	90	91	0	
Queue Length 95th (ft)	122	#283	#334	71	146	148	37	
Internal Link Dist (ft)	1299			605		270		
Turn Bay Length (ft)		350	205		145			
Base Capacity (vph)	1529	1035	953	1397	264	257	788	
Starvation Cap Reductn	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.31	1.03	0.76	0.22	0.51	0.53	0.27	

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Route 202 & Gray Graveyard

 ø1	 ø2	 ø4	 ø8
26 s	52 s	16 s	16 s
 ø6			
78 s			

HCM Signalized Intersection Capacity Analysis
 2: Route 202 & Gray Graveyard

Synchro 7 Report
 3/25/2013



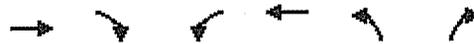
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↗	↖↖	↖		↖	↖	↗		↔	
Volume (vph)	0	445	1015	625	265	0	240	1	190	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	13	12	12	12	11	12	12	12	12
Grade (%)		0%			-4%			0%			0%	
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0			
Lane Util. Factor		0.95	1.00	0.97	1.00		0.95	0.95	1.00			
Flt		1.00	0.85	1.00	1.00		1.00	1.00	0.85			
Flt Protected		1.00	1.00	0.95	1.00		0.95	0.95	1.00			
Satd. Flow (prot)		3438	1641	3549	1863		1491	1446	1404			
Flt Permitted		1.00	1.00	0.95	1.00		0.95	0.95	1.00			
Satd. Flow (perm)		3438	1641	3549	1863		1491	1446	1404			
Peak-hour factor, PHF	0.95	0.95	0.95	0.86	0.86	0.86	0.89	0.89	0.89	0.25	0.25	0.25
Adj. Flow (vph)	0	468	1068	727	308	0	270	1	213	0	0	0
RTOR Reduction (vph)	0	0	304	0	0	0	0	0	110	0	0	0
Lane Group Flow (vph)	0	468	764	727	308	0	135	136	103	0	0	0
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	15%	15%	15%	0%	0%	0%
Turn Type	Perm		Prot	Prot			Split		pt+ov	Split		
Protected Phases		2	2	1	6		8	8	8 1	4	4	
Permitted Phases	2											
Actuated Green, G (s)		47.0	47.0	27.5	80.5		17.5	17.5	51.0			
Effective Green, g (s)		49.0	49.0	29.5	82.5		19.5	19.5	53.0			
Actuated g/C Ratio		0.45	0.45	0.27	0.75		0.18	0.18	0.48			
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)		1531	731	952	1397		264	256	676			
v/s Ratio Prot		0.14	c0.47	c0.20	0.17		0.09	c0.09	0.07			
v/s Ratio Perm												
v/c Ratio		0.31	1.04	0.76	0.22		0.51	0.53	0.15			
Uniform Delay, d1		19.6	30.5	37.0	4.1		40.9	41.1	15.9			
Progression Factor		0.93	1.24	0.97	0.86		1.00	1.00	1.00			
Incremental Delay, d2		0.4	41.7	2.9	0.3		1.7	2.1	0.1			
Delay (s)		18.7	79.5	38.9	3.8		42.6	43.2	16.0			
Level of Service		B	E	D	A		D	D	B			
Approach Delay (s)		61.0			28.5			31.1			0.0	
Approach LOS		E			C			C			A	

Intersection Summary

HCM Average Control Delay	45.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 3: Route 202 & Central Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↔	↔	↔
Volume (veh/h)	555	25	25	825	45	55
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.86	0.86	0.78	0.78
Hourly flow rate (vph)	584	26	29	959	58	71
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	685			172		
pX, platoon unblocked				0.95	0.89	0.95
vC, conflicting volume				611	1615	305
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				491	1428	170
tC, single (s)				4.2	6.8	6.9
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				97	48	91
cM capacity (veh/h)				1004	111	810

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	389	221	988	128
Volume Left	0	0	29	58
Volume Right	0	26	0	71
cSH	1700	1700	1004	246
Volume to Capacity	0.23	0.13	0.03	0.52
Queue Length 95th (ft)	0	0	2	69
Control Delay (s)	0.0	0.0	0.8	36.2
Lane LOS			A	E
Approach Delay (s)	0.0		0.8	36.2
Approach LOS			E	

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

Queues
4: Route 202 & Main Street



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Volume (vph)	355	200	185	100	220	25	410	565
Lane Group Flow (vph)	370	265	303	118	294	0	506	657
Turn Type	Split			Prot		Perm		Perm
Protected Phases	4	4	3	5	2		6	
Permitted Phases						6		6
Detector Phase	4	4	3	5	2	6	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	16.0	16.0	28.0	16.0	24.0	16.0	16.0	16.0
Total Split (s)	22.0	22.0	28.0	16.0	60.0	44.0	44.0	44.0
Total Split (%)	20.0%	20.0%	25.5%	14.5%	54.5%	40.0%	40.0%	40.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio	0.60	0.80	0.78	0.66	0.29		0.66	0.69
Control Delay	35.2	49.3	56.2	65.1	15.4		31.1	10.3
Queue Delay	0.3	0.0	0.0	0.0	0.0		2.8	0.2
Total Delay	35.5	49.3	56.2	65.1	15.4		33.9	10.5
Queue Length 50th (ft)	110	158	199	81	112		340	162
Queue Length 95th (ft)	168	#301	257	#135	158		238	72
Internal Link Dist (ft)		92	183		238		223	
Turn Bay Length (ft)				90				
Base Capacity (vph)	633	341	434	188	1005		761	946
Starvation Cap Reductn	0	0	0	0	0		153	30
Spillback Cap Reductn	44	0	0	0	18		0	0
Storage Cap Reductn	0	0	0	0	0		0	0
Reduced v/c Ratio	0.63	0.78	0.70	0.63	0.30		0.83	0.72

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 73 (66%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 4: Route 202 & Main Street

60 s					28 s		22 s
16 s							44 s

HCM Signalized Intersection Capacity Analysis
4: Route 202 & Main Street

Synchro 7 Report
3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	355	200	55	45	185	15	100	220	30	25	410	565
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	16	16	12	14	14	15	15	16
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	1.00			1.00		1.00	1.00			1.00	1.00
Fr _t	1.00	0.97			0.99		1.00	0.98			1.00	0.85
Fl _t Protected	0.95	1.00			0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)	3744	1966			1977		1703	1878			2004	1566
Fl _t Permitted	0.95	1.00			0.99		0.95	1.00			0.97	1.00
Satd. Flow (perm)	3744	1966			1977		1703	1878			1946	1566
Peak-hour factor, PHF	0.96	0.96	0.96	0.81	0.81	0.81	0.85	0.85	0.85	0.86	0.86	0.86
Adj. Flow (vph)	370	208	57	56	228	19	118	259	35	29	477	657
RTOR Reduction (vph)	0	9	0	0	2	0	0	4	0	0	0	334
Lane Group Flow (vph)	370	256	0	0	301	0	118	290	0	0	506	323
Heavy Vehicles (%)	6%	6%	6%	7%	7%	7%	6%	6%	6%	4%	4%	4%
Parking (#/hr)												2
Turn Type	Split			Split			Prot			Perm		Perm
Protected Phases	4	4		3	3		5	2				6
Permitted Phases										6		6
Actuated Green, G (s)	16.0	16.0			19.4		9.6	56.6			41.0	41.0
Effective Green, g (s)	18.0	18.0			21.4		11.6	58.6			43.0	43.0
Actuated g/C Ratio	0.16	0.16			0.19		0.11	0.53			0.39	0.39
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0			6.0	6.0
Vehicle Extension (s)	2.5	2.5			2.0		2.5	3.5			3.5	3.5
Lane Grp Cap (vph)	613	322			385		180	1000			761	612
v/s Ratio Prot	0.10	c0.13			c0.15		c0.07	0.15				
v/s Ratio Perm											c0.26	0.21
v/c Ratio	0.60	0.79			0.78		0.66	0.29			0.66	0.53
Uniform Delay, d ₁	42.7	44.2			42.1		47.3	14.2			27.6	25.7
Progression Factor	0.72	0.71			1.00		1.00	1.00			0.92	1.21
Incremental Delay, d ₂	1.4	12.0			9.1		7.4	0.7			4.0	2.9
Delay (s)	32.2	43.6			51.2		54.7	14.9			29.5	33.9
Level of Service	C	D			D		D	B			C	C
Approach Delay (s)		36.9			51.2			26.3			32.0	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	34.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
5: Shaker Road & Main Street



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↖	↗		↕	↗
Volume (vph)	70	105	375	70	115	160	400	15	610	135
Lane Group Flow (vph)	0	216	463	0	282	176	473	0	702	152
Turn Type	Perm		pm+ov	Perm		Prot		Perm		Perm
Protected Phases		4	5		8	5	2		6	
Permitted Phases	4		4	8				6		6
Detector Phase	4	4	5	8	8	5	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	8.0	5.0	5.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	35.0	35.0	16.0	37.0	37.0	16.0	24.0	32.0	32.0	32.0
Total Split (s)	40.0	40.0	25.0	40.0	40.0	25.0	70.0	45.0	45.0	45.0
Total Split (%)	36.4%	36.4%	22.7%	36.4%	36.4%	22.7%	63.6%	40.9%	40.9%	40.9%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	5.0	4.0	4.0	5.0	4.0	4.0	4.0	5.0	4.0	4.0
Lead/Lag			Lead			Lead		Lag	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio		0.73	0.55		0.88	0.64	0.38		0.45	0.19
Control Delay		51.6	18.7		64.9	39.8	6.6		22.1	11.5
Queue Delay		0.0	0.3		0.3	0.6	1.0		0.2	0.0
Total Delay		51.6	19.0		65.2	40.4	7.6		22.2	11.5
Queue Length 50th (ft)		140	182		186	66	48		170	30
Queue Length 95th (ft)		179	186		224	m164	396		263	82
Internal Link Dist (ft)		258			295		223		212	
Turn Bay Length (ft)										60
Base Capacity (vph)		397	887		425	324	1230		1564	784
Starvation Cap Reductn		0	0		0	24	491		0	0
Spillback Cap Reductn		0	89		12	0	0		219	0
Storage Cap Reductn		0	0		0	0	0		0	0
Reduced v/c Ratio		0.54	0.58		0.68	0.59	0.64		0.52	0.19

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 81 (74%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Shaker Road & Main Street

↑ ø2	↗ ø4
70 s	40 s
↖ ø5	↖ ø8
25 s	40 s
↓ ø6	
45 s	

HCM Signalized Intersection Capacity Analysis

5: Shaker Road & Main Street

Synchro 7 Report
3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↗		↔		↖	↗			↔↔	↗
Volume (vph)	70	105	375	70	115	40	160	400	30	15	610	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	16	16	16	12	13	13	11	12	12
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00			0.95	1.00
Frt		1.00	0.85		0.98		1.00	0.99			1.00	0.85
Flt Protected		0.98	1.00		0.98		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1791	1760		1990		1671	1799			3467	1553
Flt Permitted		0.66	1.00		0.63		0.95	1.00			0.94	1.00
Satd. Flow (perm)		1212	1760		1279		1671	1799			3257	1553
Peak-hour factor, PHF	0.81	0.81	0.81	0.80	0.80	0.80	0.91	0.91	0.91	0.89	0.89	0.89
Adj. Flow (vph)	86	130	463	88	144	50	176	440	33	17	685	152
RTOR Reduction (vph)	0	0	56	0	8	0	0	2	0	0	0	38
Lane Group Flow (vph)	0	216	407	0	274	0	176	471	0	0	702	114
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	8%	8%	8%	4%	4%	4%
Turn Type	Perm		pm+ov	Perm			Prot			Perm		Perm
Protected Phases		4	5		8		5	2			6	
Permitted Phases	4		4	8						6		6
Actuated Green, G (s)		25.0	41.2		25.0		16.2	73.0			50.8	50.8
Effective Green, g (s)		27.0	45.2		27.0		18.2	75.0			52.8	52.8
Actuated g/C Ratio		0.25	0.41		0.25		0.17	0.68			0.48	0.48
Clearance Time (s)		6.0	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	3.0
Lane Grp Cap (vph)		297	787		314		276	1227			1563	745
v/s Ratio Prot			0.09				c0.11	0.26				
v/s Ratio Perm		0.18	0.15		c0.21						c0.22	0.07
v/c Ratio		0.73	0.52		0.87		0.64	0.38			0.45	0.15
Uniform Delay, d1		38.1	24.2		39.9		42.8	7.5			19.0	16.1
Progression Factor		1.00	1.00		1.00		0.71	0.67			1.00	1.00
Incremental Delay, d2		8.6	0.6		22.5		4.3	0.8			0.9	0.4
Delay (s)		46.7	24.8		62.4		34.8	5.9			19.9	16.5
Level of Service		D	C		E		C	A			B	B
Approach Delay (s)		31.8			62.4			13.7			19.3	
Approach LOS		C			E			B			B	

Intersection Summary			
HCM Average Control Delay	26.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
1: Route 202 & Route 26A (Gray Bypass)



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↖	↕	↖	↕	↖	↖	↕	↖
Volume (vph)	220	680	30	830	595	20	30	240	15	180
Lane Group Flow (vph)	250	796	32	892	640	56	42	140	140	198
Turn Type	Prot		Prot		Prot		Prot	Split		Prot
Protected Phases	5	2	1	6	6	4	4	8	8	8
Permitted Phases										
Detector Phase	5	2	1	6	6	4	4	8	8	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Total Split (s)	17.0	42.0	16.0	41.0	41.0	16.0	16.0	16.0	16.0	16.0
Total Split (%)	18.9%	46.7%	17.8%	45.6%	45.6%	17.8%	17.8%	17.8%	17.8%	17.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-1.0	-3.0	-3.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	3.0	3.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?										
Recall Mode	None	C-Min	None	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.89	0.42	0.16	0.61	0.86	0.23	0.17	0.70	0.59	0.46
Control Delay	70.3	15.5	38.1	18.1	30.8	37.2	13.0	58.3	47.3	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.3	15.5	38.1	18.1	30.8	37.2	13.0	58.3	47.3	9.3
Queue Length 50th (ft)	142	163	17	205	367	29	0	81	78	0
Queue Length 95th (ft)	#275	217	m23	m180	m#520	50	18	#177	#154	59
Internal Link Dist (ft)		734		1299		72			767	
Turn Bay Length (ft)	200		200		175		35			650
Base Capacity (vph)	282	1874	227	1463	742	258	260	201	238	428
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.42	0.14	0.61	0.86	0.22	0.16	0.70	0.59	0.46

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 75 (83%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Queues
 1: Route 202 & Route 26A (Gray Bypass)

Splits and Phases: 1: Route 202 & Route 26A (Gray Bypass)

 ø1	 ø2	 ø4	 ø8
16 s	42 s	16 s	16 s
 ø5	 ø6		
17 s	41 s		

HCM Signalized Intersection Capacity Analysis
 1: Route 202 & Route 26A (Gray Bypass)

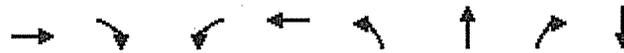
Synchro 7 Report
 3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕		↘	↕	↗		↕	↗	↘	↕	↗
Volume (vph)	220	680	20	30	830	595	20	20	30	240	15	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	16	12	12	12	11	11	16
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0	5.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	0.96	1.00
Satd. Flow (prot)	1719	3423		1572	3252	1649		1782	1553	1564	1576	1727
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	0.96	1.00
Satd. Flow (perm)	1719	3423		1572	3252	1649		1782	1553	1564	1576	1727
Peak-hour factor, PHF	0.88	0.88	0.88	0.93	0.93	0.93	0.72	0.72	0.72	0.91	0.91	0.91
Adj. Flow (vph)	250	773	23	32	892	640	28	28	42	264	16	198
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	37	0	0	168
Lane Group Flow (vph)	250	794	0	32	892	640	0	56	5	140	140	30
Heavy Vehicles (%)	5%	5%	5%	11%	11%	11%	4%	4%	4%	6%	6%	6%
Turn Type	Prot			Prot		Prot	Split		Prot	Split		Prot
Protected Phases	5	2		1	6	6	4	4	4	8	8	8
Permitted Phases												
Actuated Green, G (s)	11.8	42.6		5.5	36.3	36.3		7.4	7.4	10.5	10.5	10.5
Effective Green, g (s)	14.8	45.6		8.5	39.3	39.3		10.4	10.4	11.5	13.5	13.5
Actuated g/C Ratio	0.16	0.51		0.09	0.44	0.44		0.12	0.12	0.13	0.15	0.15
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	283	1734		148	1420	720		206	179	200	236	259
v/s Ratio Prot	c0.15	0.23		0.02	0.27	c0.39		c0.03	0.00	c0.09	0.09	0.02
v/s Ratio Perm												
v/c Ratio	0.88	0.46		0.22	0.63	0.89		0.27	0.03	0.70	0.59	0.11
Uniform Delay, d1	36.8	14.3		37.7	19.7	23.3		36.3	35.3	37.6	35.7	33.1
Progression Factor	1.00	1.00		1.06	0.85	0.88		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	26.0	0.9		0.6	1.3	10.4		1.0	0.1	11.0	4.6	0.3
Delay (s)	62.8	15.1		40.6	18.1	30.9		37.3	35.4	48.6	40.3	33.4
Level of Service	E	B		D	B	C		D	D	D	D	C
Approach Delay (s)		26.5			23.8			36.5			39.9	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	27.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
2: Route 202 & Gray Graveyard



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Configurations	↕↕	↗	↖↖	↔	↖	↕	↗	↕↕
Volume (vph)	555	395	210	520	935	0	600	0
Lane Group Flow (vph)	584	416	244	605	525	526	674	4
Turn Type		Prot	Prot		Split		pt+ov	
Protected Phases	2	2	1	6	8	8	8 1	4
Permitted Phases								
Detector Phase	2	2	1	6	8	8	8 1	4
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	8.0	8.0		5.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	16.0		16.0
Total Split (s)	21.0	21.0	16.0	37.0	37.0	37.0	53.0	16.0
Total Split (%)	23.3%	23.3%	17.8%	41.1%	41.1%	41.1%	58.9%	17.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Recall Mode	C-Min	C-Min	None	C-Min	None	None		None
v/c Ratio	0.82	0.62	0.53	0.85	0.70	0.72	0.61	0.02
Control Delay	37.1	7.5	41.2	44.5	24.4	25.7	5.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	7.5	41.2	44.5	24.4	25.7	5.3	0.0
Queue Length 50th (ft)	176	15	76	326	207	212	36	0
Queue Length 95th (ft)	#254	49	m103	m#484	#463	#478	162	0
Internal Link Dist (ft)	1299			605		270		46
Turn Bay Length (ft)		350	205		145			
Base Capacity (vph)	710	669	473	709	753	728	1100	277
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.62	0.52	0.85	0.70	0.72	0.61	0.01

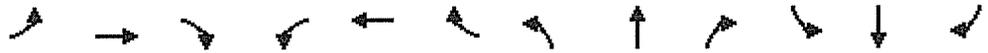
Intersection Summary
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Route 202 & Gray Graveyard

 ø1	 ø2	 ø4	 ø8
16 s	21 s	16 s	37 s
 ø6			
37 s			

HCM Signalized Intersection Capacity Analysis
2: Route 202 & Gray Graveyard

Synchro 7 Report
3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↗	↖↖	↘		↗	↖	↗		↔↔	
Volume (vph)	0	555	395	210	520	0	935	0	600	0	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	13	12	12	12	11	12	12	12	12
Grade (%)		0%			-4%			0%			0%	
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0	
Lane Util. Factor		0.95	1.00	0.97	1.00		0.95	0.95	1.00		1.00	
Frt		1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.86	
Flt Protected		1.00	1.00	0.95	1.00		0.95	0.95	1.00		1.00	
Satd. Flow (prot)		3438	1641	3549	1863		1491	1441	1404		1644	
Flt Permitted		1.00	1.00	0.95	1.00		0.95	0.95	1.00		1.00	
Satd. Flow (perm)		3438	1641	3549	1863		1491	1441	1404		1644	
Peak-hour factor, PHF	0.95	0.95	0.95	0.86	0.86	0.86	0.89	0.89	0.89	0.25	0.25	0.25
Adj. Flow (vph)	0	584	416	244	605	0	1051	0	674	0	0	4
RTOR Reduction (vph)	0	0	352	0	0	0	0	0	143	0	4	0
Lane Group Flow (vph)	0	584	64	244	605	0	525	526	531	0	0	0
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	15%	15%	15%	0%	0%	0%
Turn Type	Perm		Prot	Prot			Split		pt+ov	Split		
Protected Phases		2	2	1	6		8	8	8 1	4	4	
Permitted Phases	2											
Actuated Green, G (s)		11.8	11.8	9.7	27.5		43.4	43.4	59.1		1.1	
Effective Green, g (s)		13.8	13.8	11.7	29.5		45.4	45.4	61.1		3.1	
Actuated g/C Ratio		0.15	0.15	0.13	0.33		0.50	0.50	0.68		0.03	
Clearance Time (s)		6.0	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			3.0	
Lane Grp Cap (vph)		527	252	461	611		752	727	953		57	
v/s Ratio Prot		0.17	0.04	0.07	c0.32		0.35	c0.36	0.38		c0.00	
v/s Ratio Perm												
v/c Ratio		1.11	0.25	0.53	0.99		0.70	0.72	0.56		0.00	
Uniform Delay, d1		38.1	33.6	36.6	30.1		17.1	17.4	7.5		42.0	
Progression Factor		0.75	0.98	1.03	1.30		1.00	1.00	1.00		1.00	
Incremental Delay, d2		70.4	2.2	0.8	28.9		2.8	3.6	0.7		0.0	
Delay (s)		99.1	34.9	38.6	68.1		19.9	21.0	8.2		42.0	
Level of Service		F	C	D	E		B	C	A		D	
Approach Delay (s)		72.4			59.6			15.6			42.0	
Approach LOS		E			E			B			D	

Intersection Summary			
HCM Average Control Delay	42.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
2: Route 202 & Exit 63 Ramps



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑↑	↑	↑↑↑	↑
Volume (vph)	555	395	210	520	935	600
Lane Group Flow (vph)	584	416	244	605	1051	674
Turn Type		Prot	Prot			pt+ov
Protected Phases	2	2	1	6	8	8 1
Permitted Phases						
Detector Phase	2	2	1	6	8	8 1
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	8.0	
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	
Total Split (s)	29.0	29.0	16.0	45.0	45.0	61.0
Total Split (%)	32.2%	32.2%	17.8%	50.0%	50.0%	67.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	
v/c Ratio	0.57	0.53	0.52	0.69	0.79	0.76
Control Delay	21.4	4.8	41.5	31.8	26.6	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	4.8	41.5	31.8	26.6	17.5
Queue Length 50th (ft)	110	15	76	335	240	206
Queue Length 95th (ft)	128	49	m96	m390	320	355
Internal Link Dist (ft)	1299			605	270	
Turn Bay Length (ft)		350	205		145	
Base Capacity (vph)	1029	783	482	887	1394	887
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.53	0.51	0.68	0.75	0.76

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 4 (4%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Route 202 & Exit 63 Ramps

φ1	φ2	φ8
16 s	29 s	45 s
φ6		
45 s		

HCM Signalized Intersection Capacity Analysis

2: Route 202 & Exit 63 Ramps

Synchro 7 Report
3/25/2013



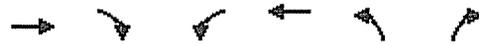
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑↑	↑	↑↑	↑
Volume (vph)	555	395	210	520	935	600
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	14	13	12	12	12
Grade (%)	0%			-4%	0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	0.97	1.00	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3438	1641	3549	1863	3045	1404
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3438	1641	3549	1863	3045	1404
Peak-hour factor, PHF	0.95	0.95	0.86	0.86	0.89	0.89
Adj. Flow (vph)	584	416	244	605	1051	674
RTOR Reduction (vph)	0	293	0	0	0	25
Lane Group Flow (vph)	584	123	244	605	1051	649
Heavy Vehicles (%)	5%	5%	4%	4%	15%	15%
Turn Type		Prot	Prot			pt+ov
Protected Phases	2	2	1	6	8	8 1
Permitted Phases						
Actuated Green, G (s)	24.7	24.7	9.9	40.6	37.4	53.3
Effective Green, g (s)	26.7	26.7	11.9	42.6	39.4	55.3
Actuated g/C Ratio	0.30	0.30	0.13	0.47	0.44	0.61
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)	1020	487	469	882	1333	863
v/s Ratio Prot	0.17	0.08	0.07	c0.32	c0.35	c0.46
v/s Ratio Perm						
v/c Ratio	0.57	0.25	0.52	0.69	0.79	0.75
Uniform Delay, d1	26.8	24.1	36.4	18.5	21.7	12.4
Progression Factor	0.69	0.84	1.05	1.45	1.00	1.00
Incremental Delay, d2	2.1	1.1	0.7	3.0	3.2	3.7
Delay (s)	20.7	21.4	39.1	29.9	24.9	16.2
Level of Service	C	C	D	C	C	B
Approach Delay (s)	21.0			32.5	21.5	
Approach LOS	C			C	C	

Intersection Summary			
HCM Average Control Delay	24.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
3: Route 202 & Central Road

Synchro 7 Report
3/25/2013



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↑	↑
Volume (veh/h)	935	55	35	745	20	45
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.86	0.86	0.78	0.78
Hourly flow rate (vph)	984	58	41	866	26	58
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	685			172		
pX, platoon unblocked				0.89	0.85	0.89
vC, conflicting volume				1042	1961	521
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				793	1544	206
tC, single (s)				4.2	6.8	6.9
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				94	70	92
cM capacity (veh/h)				719	86	716

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	656	386	907	83
Volume Left	0	0	41	26
Volume Right	0	58	0	58
cSH	1700	1700	719	281
Volume to Capacity	0.39	0.23	0.06	0.30
Queue Length 95th (ft)	0	0	4	30
Control Delay (s)	0.0	0.0	1.6	26.7
Lane LOS			A	D
Approach Delay (s)	0.0		1.6	26.7
Approach LOS				D

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		

Queues
4: Route 202 & Main Street



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Volume (vph)	675	210	275	100	530	15	335	405
Lane Group Flow (vph)	703	318	445	118	689	0	407	471
Turn Type	Split			Prot		Perm		Perm
Protected Phases	4	4	3	5	2		6	
Permitted Phases						6		6
Detector Phase	4	4	3	5	2	6	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	16.0	16.0	28.0	16.0	24.0	16.0	16.0	16.0
Total Split (s)	20.0	20.0	28.0	16.0	42.0	26.0	26.0	26.0
Total Split (%)	22.2%	22.2%	31.1%	17.8%	46.7%	28.9%	28.9%	28.9%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio	1.00	0.84	0.87	0.56	0.86		1.03	0.63
Control Delay	67.2	48.3	50.7	47.6	36.4		75.2	4.8
Queue Delay	72.6	0.0	0.0	0.0	1.7		9.7	0.4
Total Delay	139.8	48.3	50.7	47.6	38.0		85.0	5.2
Queue Length 50th (ft)	-232	177	237	64	343		~262	0
Queue Length 95th (ft)	m#335	m#284	#312	111	#478		#394	6
Internal Link Dist (ft)		92	183		238		223	
Turn Bay Length (ft)				90				
Base Capacity (vph)	702	380	530	227	800		395	749
Starvation Cap Reductn	0	0	0	0	0		11	55
Spillback Cap Reductn	112	0	0	0	34		0	0
Storage Cap Reductn	0	0	0	0	0		0	0
Reduced v/c Ratio	1.19	0.84	0.84	0.52	0.90		1.06	0.68

Intersection Summary

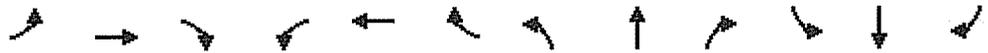
Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 4 (4%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Route 202 & Main Street

↑ ø2	↙ ø3	↘ ø4
42 s	28 s	20 s
↙ ø5	↓ ø6	
16 s	26 s	

HCM Signalized Intersection Capacity Analysis
4: Route 202 & Main Street

Synchro 7 Report
3/25/2013

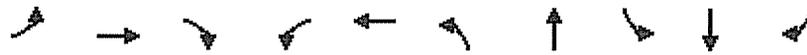


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖ ↗		↘	↕			↖ ↗	↘			↕	↖ ↗	
Volume (vph)	675	210	95	60	275	25	100	530	55	15	335	405	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	16	16	16	16	16	16	12	14	14	15	15	16	
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0	
Lane Util. Factor	0.97	1.00			1.00		1.00	1.00			1.00	1.00	
Frt	1.00	0.95			0.99		1.00	0.99			1.00	0.85	
Flt Protected	0.95	1.00			0.99		0.95	1.00			1.00	1.00	
Satd. Flow (prot)	3744	1937			1977		1703	1885			2005	1566	
Flt Permitted	0.95	1.00			0.99		0.95	1.00			0.77	1.00	
Satd. Flow (perm)	3744	1937			1977		1703	1885			1556	1566	
Peak-hour factor, PHF	0.96	0.96	0.96	0.81	0.81	0.81	0.85	0.85	0.85	0.86	0.86	0.86	
Adj. Flow (vph)	703	219	99	74	340	31	118	624	65	17	390	471	
RTOR Reduction (vph)	0	18	0	0	3	0	0	4	0	0	0	351	
Lane Group Flow (vph)	703	300	0	0	442	0	118	685	0	0	407	120	
Heavy Vehicles (%)	6%	6%	6%	7%	7%	7%	6%	6%	6%	4%	4%	4%	
Parking (#/hr)												2	
Turn Type	Split		Split			Prot		Perm			Perm		
Protected Phases	4	4	3			3	5	2				6	
Permitted Phases											6	6	
Actuated Green, G (s)	14.9	14.9				21.1	9.1	36.0				20.9	20.9
Effective Green, g (s)	16.9	16.9				23.1	11.1	38.0				22.9	22.9
Actuated g/C Ratio	0.19	0.19				0.26	0.12	0.42				0.25	0.25
Clearance Time (s)	6.0	6.0				6.0	6.0	6.0				6.0	6.0
Vehicle Extension (s)	2.5	2.5				2.0	2.5	3.5				3.5	3.5
Lane Grp Cap (vph)	703	364				507	210	796				396	398
v/s Ratio Prot	c0.19	0.15				c0.22	0.07	c0.36					
v/s Ratio Perm											c0.26	0.08	
v/c Ratio	1.00	0.82				0.87	0.56	0.86				1.03	0.30
Uniform Delay, d1	36.5	35.1				32.0	37.2	23.6				33.5	27.1
Progression Factor	0.97	0.96				1.00	1.00	1.00				0.62	0.45
Incremental Delay, d2	29.1	10.5				14.7	2.8	11.7				48.9	1.6
Delay (s)	64.4	44.1				46.8	39.9	35.3				69.6	13.9
Level of Service	E	D				D	D	D				E	B
Approach Delay (s)	58.1					46.8	36.0					39.8	
Approach LOS	E					D	D					D	

Intersection Summary			
HCM Average Control Delay	45.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	101.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Queues
5: Shaker Road & Main Street



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↖	↕		↕↕	↗
Volume (vph)	125	125	205	50	170	380	805	30	500	155
Lane Group Flow (vph)	0	308	253	0	336	418	929	0	596	174
Turn Type	Perm		pm+ov	Perm		Prot		Perm		Perm
Protected Phases		4	5		8	5	2		6	
Permitted Phases	4		4	8				6		6
Detector Phase	4	4	5	8	8	5	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	8.0	5.0	5.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	35.0	35.0	16.0	37.0	37.0	16.0	24.0	32.0	32.0	32.0
Total Split (s)	37.0	37.0	21.0	37.0	37.0	21.0	53.0	32.0	32.0	32.0
Total Split (%)	41.1%	41.1%	23.3%	41.1%	41.1%	23.3%	58.9%	35.6%	35.6%	35.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	5.0	4.0	4.0	5.0	4.0	4.0	4.0	5.0	4.0	4.0
Lead/Lag			Lead			Lead		Lag	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio		0.89	0.23		0.62	1.06	0.89		0.73	0.32
Control Delay		55.9	5.4		29.1	77.1	15.6		33.9	11.5
Queue Delay		0.0	0.0		0.0	0.0	94.4		2.7	0.0
Total Delay		55.9	5.4		29.1	77.1	110.0		36.7	11.5
Queue Length 50th (ft)		155	35		144	~291	377		155	26
Queue Length 95th (ft)		#248	58		196	m#329	m#553		213	74
Internal Link Dist (ft)		258			295		223		212	
Turn Bay Length (ft)										60
Base Capacity (vph)		381	1120		592	395	1044		863	558
Starvation Cap Reductn		0	0		0	0	276		0	0
Spillback Cap Reductn		0	6		1	0	0		162	0
Storage Cap Reductn		0	0		0	0	0		0	0
Reduced v/c Ratio		0.81	0.23		0.57	1.06	1.21		0.85	0.31

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Queues
5: Shaker Road & Main Street

Splits and Phases: 5: Shaker Road & Main Street

 ø2	 ø4	
53 s	37 s	
 ø5	 ø6	 ø8
21 s	32 s	37 s

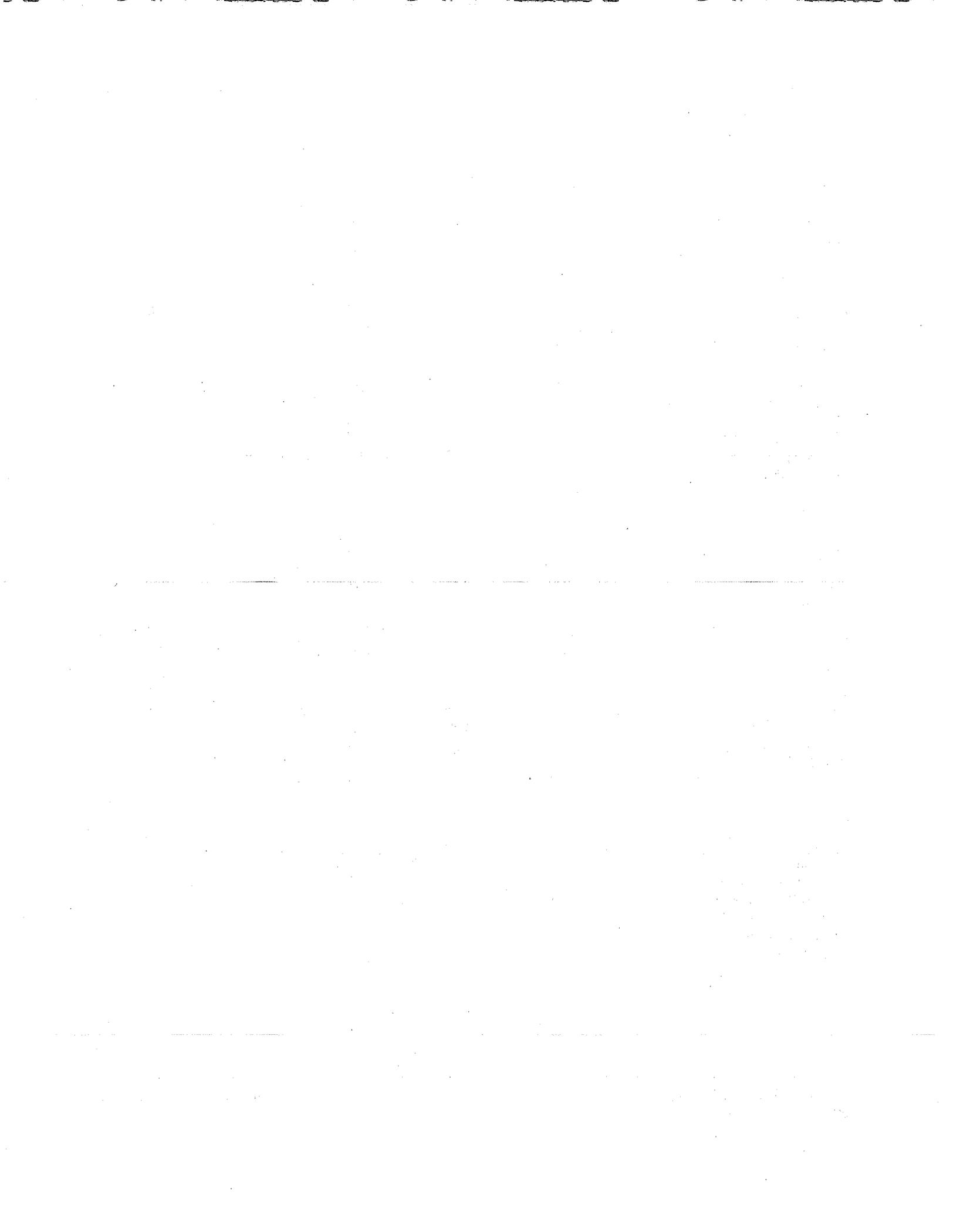
HCM Signalized Intersection Capacity Analysis
5: Shaker Road & Main Street

Synchro 7 Report
3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔		↖	↗			↖↗	↖↗
Volume (vph)	125	125	205	50	170	50	380	805	40	30	500	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	16	16	16	12	13	13	11	12	12
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00			0.95	1.00
Frt		1.00	0.85		0.98		1.00	0.99			1.00	0.85
Flt Protected		0.98	1.00		0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1782	1760		2000		1671	1805			3461	1553
Flt Permitted		0.57	1.00		0.79		0.95	1.00			0.80	1.00
Satd. Flow (perm)		1040	1760		1590		1671	1805			2772	1553
Peak-hour factor, PHF	0.81	0.81	0.81	0.80	0.80	0.80	0.91	0.91	0.91	0.89	0.89	0.89
Adj. Flow (vph)	154	154	253	62	212	62	418	885	44	34	562	174
RTOR Reduction (vph)	0	0	43	0	9	0	0	2	0	0	0	77
Lane Group Flow (vph)	0	308	210	0	327	0	418	927	0	0	596	97
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	8%	8%	8%	4%	4%	4%
Turn Type	Perm		pm+ov	Perm			Prot			Perm		Perm
Protected Phases		4	5		8		5	2			6	
Permitted Phases	4		4	8						6		6
Actuated Green, G (s)		28.1	47.4		28.1		19.3	49.9			24.6	24.6
Effective Green, g (s)		30.1	51.4		30.1		21.3	51.9			26.6	26.6
Actuated g/C Ratio		0.33	0.57		0.33		0.24	0.58			0.30	0.30
Clearance Time (s)		6.0	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	3.0
Lane Grp Cap (vph)		348	1083		532		395	1041			819	459
v/s Ratio Prot			0.05				c0.25	c0.51				
v/s Ratio Perm		c0.30	0.07		0.21						0.22	0.06
v/c Ratio		0.89	0.19		0.61		1.06	0.89			0.73	0.21
Uniform Delay, d1		28.3	9.3		25.1		34.4	16.6			28.4	23.8
Progression Factor		1.00	1.00		1.00		0.80	0.50			1.00	1.00
Incremental Delay, d2		22.4	0.1		2.1		43.7	4.6			5.6	1.1
Delay (s)		50.8	9.4		27.2		71.3	12.8			34.1	24.9
Level of Service		D	A		C		E	B			C	C
Approach Delay (s)		32.1			27.2			31.0			32.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	31.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	101.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Queues
1: Route 202 & Route 26A (Gray Bypass)



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Volume (vph)	165	630	25	605	275	5	35	315	20	220
Lane Group Flow (vph)	181	708	27	651	296	24	43	174	175	229
Turn Type	Prot		Prot		Prot		Prot	Split		Prot
Protected Phases	5	2	1	6	6	4	4	8	8	8
Permitted Phases										
Detector Phase	5	2	1	6	6	4	4	8	8	8
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Total Split (s)	21.0	36.0	16.0	31.0	31.0	16.0	16.0	22.0	22.0	22.0
Total Split (%)	23.3%	40.0%	17.8%	34.4%	34.4%	17.8%	17.8%	24.4%	24.4%	24.4%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag					
Lead-Lag Optimize?										
Recall Mode	None	C-Min	None	C-Min	C-Min	None	None	None	None	None
v/c Ratio	0.60	0.36	0.13	0.44	0.40	0.12	0.20	0.60	0.56	0.44
Control Delay	43.3	16.6	33.4	19.0	20.2	37.4	14.1	42.4	39.9	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.3	16.6	33.4	19.0	20.2	37.4	14.1	42.4	39.9	7.1
Queue Length 50th (ft)	95	111	15	141	121	13	0	94	93	0
Queue Length 95th (ft)	161	225	m24	172	175	33	25	162	161	57
Internal Link Dist (ft)		734		1299		72			767	
Turn Bay Length (ft)	200		200		175		35			650
Base Capacity (vph)	338	1981	245	1468	744	244	253	322	343	556
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.36	0.11	0.44	0.40	0.10	0.17	0.54	0.51	0.41

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 54 (60%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Route 202 & Route 26A (Gray Bypass)

ø2	ø1	ø4	ø8
36 s	16 s	16 s	22 s
ø5	ø6		
21 s	31 s		

HCM Signalized Intersection Capacity Analysis
 1: Route 202 & Route 26A (Gray Bypass)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑		↙	↑↑	↗		↑	↗	↙	↑	↗
Volume (vph)	165	630	15	25	605	275	15	5	35	315	20	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	16	12	12	12	11	11	16
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	5.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96	1.00	0.95	0.96	1.00
Satd. Flow (prot)	1787	3562		1711	3539	1794		1831	1615	1625	1639	1794
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.96	1.00	0.95	0.96	1.00
Satd. Flow (perm)	1787	3562		1711	3539	1794		1831	1615	1625	1639	1794
Peak-hour factor, PHF	0.91	0.91	0.91	0.93	0.93	0.93	0.82	0.82	0.82	0.96	0.96	0.96
Adj. Flow (vph)	181	692	16	27	651	296	18	6	43	328	21	229
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	40	0	0	185
Lane Group Flow (vph)	181	706	0	27	651	296	0	24	3	174	175	44
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	2%	2%	2%
Turn Type	Prot			Prot		Prot	Split		Prot	Split		Prot
Protected Phases	5	2		1	6	6	4	4	4	8	8	8
Permitted Phases												
Actuated Green, G (s)	13.1	41.1		4.9	32.9	32.9		4.9	4.9	15.1	15.1	15.1
Effective Green, g (s)	15.1	43.1		6.9	34.9	34.9		6.9	6.9	16.1	17.1	17.1
Actuated g/C Ratio	0.17	0.48		0.08	0.39	0.39		0.08	0.08	0.18	0.19	0.19
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		4.0	4.0	4.0		3.0	3.0	4.0	4.0	4.0
Lane Grp Cap (vph)	300	1706		131	1372	696		140	124	291	311	341
v/s Ratio Prot	c0.10	0.20		0.02	c0.18	0.16		c0.01	0.00	c0.11	0.11	0.02
v/s Ratio Perm												
v/c Ratio	0.60	0.41		0.21	0.47	0.43		0.17	0.03	0.60	0.56	0.13
Uniform Delay, d1	34.7	15.2		39.0	20.7	20.2		38.9	38.4	34.0	33.1	30.3
Progression Factor	1.00	1.00		0.95	0.82	0.83		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4	0.7		0.9	1.0	1.7		0.6	0.1	3.8	2.8	0.2
Delay (s)	38.1	16.0		37.9	18.0	18.5		39.5	38.5	37.8	35.9	30.5
Level of Service	D	B		D	B	B		D	D	D	D	C
Approach Delay (s)		20.5			18.7			38.9			34.3	
Approach LOS		C			B			D			C	

Intersection Summary			
HCM Average Control Delay	23.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
2: Route 202 & Gray Graveyard



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Configurations		↕↕	↗	↖↖	↕	↖	↕	↗	↕↕
Volume (vph)	1	540	440	235	485	420	0	195	0
Lane Group Flow (vph)	0	575	468	267	552	233	234	217	4
Turn Type	Perm		Prot	Prot		Split		Prot	
Protected Phases		2	2	1	6	8	8	8	4
Permitted Phases	2								
Detector Phase	2	2	2	1	6	8	8	8	4
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	8.0	8.0	8.0	5.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Total Split (s)	33.0	33.0	33.0	16.0	49.0	25.0	25.0	25.0	16.0
Total Split (%)	36.7%	36.7%	36.7%	17.8%	54.4%	27.8%	27.8%	27.8%	17.8%
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)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead					
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min	C-Min	None	C-Min	None	None	None	None
v/c Ratio		0.37	0.45	0.52	0.44	0.61	0.63	0.41	0.01
Control Delay		11.8	5.7	36.1	13.6	37.1	38.3	6.2	0.0
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		11.8	5.7	36.1	13.6	37.1	38.3	6.2	0.0
Queue Length 50th (ft)		84	36	81	186	123	124	0	0
Queue Length 95th (ft)		214	252	m102	342	192	194	51	0
Internal Link Dist (ft)		1299			605		270		46
Turn Bay Length (ft)			350	205		145			
Base Capacity (vph)		1572	1037	527	1241	420	406	558	390
Starvation Cap Reductn		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.37	0.45	0.51	0.44	0.55	0.58	0.39	0.01

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Route 202 & Gray Graveyard

ø1	ø2	ø4	ø8
16 s	33 s	16 s	25 s
ø6			
49 s			

HCM Signalized Intersection Capacity Analysis

2: Route 202 & Gray Graveyard

Synchro 7 Report
3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↗	↖↖	↘		↙	↕	↗		↕	
Volume (vph)	1	540	440	235	485	1	420	0	195	0	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	13	12	12	12	11	12	12	12	12
Grade (%)		0%			-4%			0%				0%
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0			4.0
Lane Util. Factor		0.95	1.00	0.97	1.00		0.95	0.95	1.00			1.00
Frt		1.00	0.85	1.00	1.00		1.00	1.00	0.85			0.86
Flt Protected		1.00	1.00	0.95	1.00		0.95	0.95	1.00			1.00
Satd. Flow (prot)		3539	1689	3618	1899		1649	1594	1553			1644
Flt Permitted		0.95	1.00	0.95	1.00		0.95	0.95	1.00			1.00
Satd. Flow (perm)		3378	1689	3618	1899		1649	1594	1553			1644
Peak-hour factor, PHF	0.94	0.94	0.94	0.88	0.88	0.88	0.90	0.90	0.90	0.25	0.25	0.25
Adj. Flow (vph)	1	574	468	267	551	1	467	0	217	0	0	4
RTOR Reduction (vph)	0	0	275	0	0	0	0	0	167	0	4	0
Lane Group Flow (vph)	0	575	193	267	552	0	233	234	50	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	0%	0%	0%
Turn Type	Perm		Prot	Prot			Split		Prot	Split		
Protected Phases		2	2	1	6		8	8	8	4	4	
Permitted Phases	2											
Actuated Green, G (s)		35.1	35.1	10.9	52.0		18.9	18.9	18.9			1.1
Effective Green, g (s)		37.1	37.1	12.9	54.0		20.9	20.9	20.9			3.1
Actuated g/C Ratio		0.41	0.41	0.14	0.60		0.23	0.23	0.23			0.03
Clearance Time (s)		6.0	6.0	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	3.0			3.0
Lane Grp Cap (vph)		1392	696	519	1139		383	370	361			57
v/s Ratio Prot			0.11	0.07	c0.29		0.14	c0.15	0.03			c0.00
v/s Ratio Perm		0.17										
v/c Ratio		0.41	0.28	0.51	0.48		0.61	0.63	0.14			0.00
Uniform Delay, d1		18.7	17.6	35.7	10.2		30.9	31.1	27.4			42.0
Progression Factor		0.63	1.88	0.93	1.30		1.00	1.00	1.00			1.00
Incremental Delay, d2		0.8	0.9	0.7	1.2		2.7	3.5	0.2			0.0
Delay (s)		12.7	33.9	33.7	14.4		33.6	34.6	27.6			42.0
Level of Service		B	C	C	B		C	C	C			D
Approach Delay (s)		22.2			20.7			32.0				42.0
Approach LOS		C			C			C				D

Intersection Summary			
HCM Average Control Delay	24.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
2: Route 202 & Exit 63 Ramps



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑↑	↑	↑↑	↑
Volume (vph)	540	440	235	485	420	195
Lane Group Flow (vph)	574	468	267	551	467	217
Turn Type		Prot	Prot			Prot
Protected Phases	2	2	1	6	8	8
Permitted Phases						
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	8.0	8.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	16.0
Total Split (s)	41.0	41.0	20.0	61.0	29.0	29.0
Total Split (%)	45.6%	45.6%	22.2%	67.8%	32.2%	32.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	C-Min	C-Min	None	C-Min	None	None
v/c Ratio	0.33	0.44	0.48	0.42	0.62	0.42
Control Delay	7.5	2.6	35.0	9.0	34.6	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.5	2.6	35.0	9.0	34.6	6.5
Queue Length 50th (ft)	42	0	64	141	123	0
Queue Length 95th (ft)	87	67	m106	252	159	51
Internal Link Dist (ft)	1299			605	270	
Turn Bay Length (ft)		350	205		145	
Base Capacity (vph)	1737	1067	651	1306	940	590
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.44	0.41	0.42	0.50	0.37

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
 Natural Cycle: 50
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Route 202 & Exit 63 Ramps

ø1 20 s	ø2 41 s	ø8 29 s
ø6 61 s		

HCM Signalized Intersection Capacity Analysis
2: Route 202 & Exit 63 Ramps

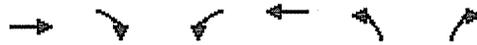


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑↑	↑	↑↑	↑
Volume (vph)	540	440	235	485	420	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	14	13	12	12	12
Grade (%)	0%			-4%	0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	0.97	1.00	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1689	3618	1900	3367	1553
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1689	3618	1900	3367	1553
Peak-hour factor, PHF	0.94	0.94	0.88	0.88	0.90	0.90
Adj. Flow (vph)	574	468	267	551	467	217
RTOR Reduction (vph)	0	240	0	0	0	168
Lane Group Flow (vph)	574	228	267	551	467	49
Heavy Vehicles (%)	2%	2%	2%	2%	4%	4%
Turn Type		Prot	Prot			Prot
Protected Phases	2	2	1	6	8	8
Permitted Phases						
Actuated Green, G (s)	41.8	41.8	11.9	59.7	18.3	18.3
Effective Green, g (s)	43.8	43.8	13.9	61.7	20.3	20.3
Actuated g/C Ratio	0.49	0.49	0.15	0.69	0.23	0.23
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)	1722	822	559	1303	759	350
v/s Ratio Prot	0.16	0.13	c0.07	c0.29	c0.14	0.03
v/s Ratio Perm						
v/c Ratio	0.33	0.28	0.48	0.42	0.62	0.14
Uniform Delay, d1	14.2	13.7	34.7	6.3	31.3	27.9
Progression Factor	0.45	0.73	0.95	1.15	1.00	1.00
Incremental Delay, d2	0.5	0.8	0.5	0.8	1.5	0.2
Delay (s)	6.9	10.8	33.5	8.0	32.8	28.1
Level of Service	A	B	C	A	C	C
Approach Delay (s)	8.6			16.3	31.3	
Approach LOS	A			B	C	

Intersection Summary			
HCM Average Control Delay	17.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	44.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 3: Route 202 & Central Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↑	↑
Volume (veh/h)	640	35	45	675	25	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.88	0.88	0.75	0.75
Hourly flow rate (vph)	696	38	51	767	33	47
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	685			172		
pX, platoon unblocked			0.92		0.92	0.92
vC, conflicting volume			734		1584	367
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			536		1264	137
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		77	94
cM capacity (veh/h)			946		143	821

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	464	270	818	80
Volume Left	0	0	51	33
Volume Right	0	38	0	47
cSH	1700	1700	946	343
Volume to Capacity	0.27	0.16	0.05	0.23
Queue Length 95th (ft)	0	0	4	22
Control Delay (s)	0.0	0.0	1.4	21.3
Lane LOS			A	C
Approach Delay (s)	0.0		1.4	21.3
Approach LOS				C

Intersection Summary			
Average Delay		1.7	
Intersection Capacity Utilization		70.2%	ICU Level of Service C
Analysis Period (min)		15	

Queues
4: Route 202 & Main Street



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Volume (vph)	400	190	170	130	445	20	400	420
Lane Group Flow (vph)	482	331	303	149	574	0	488	488
Turn Type	Split			Prot		Perm		Perm
Protected Phases	4	4	3	5	2		6	
Permitted Phases						6		6
Detector Phase	4	4	3	5	2	6	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	6.0	3.0	10.0	5.0	5.0	5.0
Minimum Split (s)	16.0	16.0	28.0	16.0	24.0	16.0	16.0	16.0
Total Split (s)	17.0	17.0	28.0	16.0	45.0	29.0	29.0	29.0
Total Split (%)	18.9%	18.9%	31.1%	17.8%	50.0%	32.2%	32.2%	32.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio	0.72	0.92	0.74	0.76	0.66		0.95	0.63
Control Delay	50.9	74.0	44.0	64.9	24.4		54.8	6.2
Queue Delay	1.0	0.0	0.0	0.0	0.0		27.6	0.3
Total Delay	51.9	74.0	44.0	64.9	24.4		82.4	6.5
Queue Length 50th (ft)	148	190	160	83	247		287	4
Queue Length 95th (ft)	#222	#358	205	#167	345		#446	21
Internal Link Dist (ft)		92	183		238		223	
Turn Bay Length (ft)				90				
Base Capacity (vph)	665	361	513	201	869		511	780
Starvation Cap Reductn	0	0	0	0	0		51	52
Spillback Cap Reductn	52	0	0	0	0		0	0
Storage Cap Reductn	0	0	0	0	0		0	0
Reduced v/c Ratio	0.79	0.92	0.59	0.74	0.66		1.06	0.67

Intersection Summary
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 14 (16%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 4: Route 202 & Main Street

02	03	04
45 s	28 s	17 s
05	06	
16 s	29 s	

HCM Signalized Intersection Capacity Analysis
4: Route 202 & Main Street

Synchro 7 Report
3/25/2013

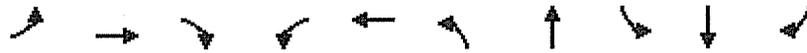


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↖			↕		↖	↗			↖	↗
Volume (vph)	400	190	85	55	170	20	130	445	55	20	400	420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	16	16	12	14	14	15	15	16
Total Lost time (s)	6.0	6.0			6.0		6.0	6.0			6.0	6.0
Lane Util. Factor	0.97	1.00			1.00		1.00	1.00			1.00	1.00
Flt	1.00	0.95			0.99		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00			0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)	3891	2014			2085		1805	1993			2064	1613
Flt Permitted	0.95	1.00			0.99		0.95	1.00			0.95	1.00
Satd. Flow (perm)	3891	2014			2085		1805	1993			1974	1613
Peak-hour factor, PHF	0.83	0.83	0.83	0.81	0.81	0.81	0.87	0.87	0.87	0.86	0.86	0.86
Adj. Flow (vph)	482	229	102	68	210	25	149	511	63	23	465	488
RTOR Reduction (vph)	0	17	0	0	4	0	0	5	0	0	0	362
Lane Group Flow (vph)	482	314	0	0	299	0	149	569	0	0	488	126
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Parking (#/hr)												2
Turn Type	Split			Split			Prot			Perm		Perm
Protected Phases	4	4		3	3		5	2			6	
Permitted Phases										6		6
Actuated Green, G (s)	15.4	15.4			17.6		9.7	39.0			23.3	23.3
Effective Green, g (s)	15.4	15.4			17.6		9.7	39.0			23.3	23.3
Actuated g/C Ratio	0.17	0.17			0.20		0.11	0.43			0.26	0.26
Clearance Time (s)	6.0	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	3.0
Lane Grp Cap (vph)	666	345			408		195	864			511	418
v/s Ratio Prot	0.12	c0.16			c0.14		0.08	c0.29				
v/s Ratio Perm											c0.25	0.08
v/c Ratio	0.72	0.91			0.73		0.76	0.66			0.95	0.30
Uniform Delay, d1	35.3	36.6			34.0		39.0	20.2			32.8	26.8
Progression Factor	1.20	1.22			1.00		1.00	1.00			0.74	0.99
Incremental Delay, d2	3.8	26.6			6.7		16.2	3.9			27.3	1.6
Delay (s)	46.2	71.2			40.7		55.2	24.1			51.8	28.0
Level of Service	D	E			D		E	C			D	C
Approach Delay (s)		56.4			40.7			30.5			39.9	
Approach LOS		E			D			C			D	

Intersection Summary			
HCM Average Control Delay	42.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues
5: Shaker Road & Main Street



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↖	↗		↕	↗
Volume (vph)	170	110	285	60	115	285	550	30	550	125
Lane Group Flow (vph)	0	341	348	0	281	331	698	0	659	142
Turn Type	Perm		pm+ov	Perm		Prot		Perm		Perm
Protected Phases		4	5		8	5	2		6	
Permitted Phases	4		4	8				6		6
Detector Phase	4	4	5	8	8	5	2	6	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	35.0	35.0	16.0	37.0	37.0	16.0	24.0	32.0	32.0	32.0
Total Split (s)	37.0	37.0	21.0	37.0	37.0	21.0	53.0	32.0	32.0	32.0
Total Split (%)	41.1%	41.1%	23.3%	41.1%	41.1%	23.3%	58.9%	35.6%	35.6%	35.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	5.0	4.0	4.0	5.0	4.0	4.0	4.0	5.0	4.0	4.0
Lead/Lag			Lead			Lead		Lag	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min
v/c Ratio		0.89	0.31		0.58	0.87	0.63		0.66	0.25
Control Delay		54.0	7.6		27.7	51.1	7.0		30.8	12.3
Queue Delay		0.0	0.0		0.0	0.8	4.8		2.3	0.0
Total Delay		54.0	7.6		27.7	51.9	11.8		33.1	12.3
Queue Length 50th (ft)		173	67		116	111	45		170	25
Queue Length 95th (ft)		#275	97		165	#301	99		224	66
Internal Link Dist (ft)		258			295		223		212	
Turn Bay Length (ft)										60
Base Capacity (vph)		414	1124		519	382	1101		1018	567
Starvation Cap Reductn		0	0		0	5	326		0	0
Spillback Cap Reductn		0	5		1	0	0		227	0
Storage Cap Reductn		0	0		0	0	0		0	0
Reduced v/c Ratio		0.82	0.31		0.54	0.88	0.90		0.83	0.25

Intersection Summary

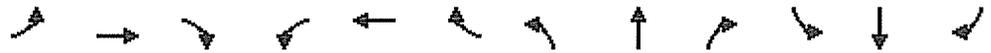
Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 5 (6%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Shaker Road & Main Street

↑ ø2	↕ ø4
53 s	37 s
↖ ø5	↖ ø8
21 s	37 s
↘ ø6	
32 s	

HCM Signalized Intersection Capacity Analysis
5: Shaker Road & Main Street

Synchro 7 Report
3/25/2013

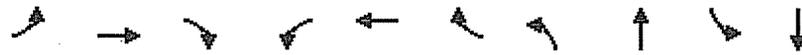


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↕		↙	↘			↖	↗
Volume (vph)	170	110	285	60	115	50	285	550	50	30	550	125
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	16	16	16	12	13	13	11	12	12
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00			0.95	1.00
Frt		1.00	0.85		0.97		1.00	0.99			1.00	0.85
Flt Protected		0.97	1.00		0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1844	1830		2041		1787	1920			3565	1599
Flt Permitted		0.59	1.00		0.67		0.95	1.00			0.89	1.00
Satd. Flow (perm)		1128	1830		1383		1787	1920			3176	1599
Peak-hour factor, PHF	0.82	0.82	0.82	0.80	0.80	0.80	0.86	0.86	0.86	0.88	0.88	0.88
Adj. Flow (vph)	207	134	348	75	144	62	331	640	58	34	625	142
RTOR Reduction (vph)	0	0	34	0	12	0	0	3	0	0	0	56
Lane Group Flow (vph)	0	341	315	0	269	0	331	695	0	0	659	86
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Perm		pm+ov	Perm			Prot			Perm		Perm
Protected Phases		4	5		8		5	2			6	
Permitted Phases	4		4	8						6		6
Actuated Green, G (s)		28.6	45.8		28.6		17.2	49.4			26.2	26.2
Effective Green, g (s)		30.6	49.8		30.6		19.2	51.4			28.2	28.2
Actuated g/C Ratio		0.34	0.55		0.34		0.21	0.57			0.31	0.31
Clearance Time (s)		6.0	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	3.0
Lane Grp Cap (vph)		384	1094		470		381	1097			995	501
v/s Ratio Prot			0.06				c0.19	c0.36				
v/s Ratio Perm		c0.30	0.11		0.19						0.21	0.05
v/c Ratio		0.89	0.29		0.57		0.87	0.63			0.66	0.17
Uniform Delay, d1		28.1	10.7		24.3		34.2	13.0			26.8	22.4
Progression Factor		1.00	1.00		1.00		0.89	0.35			1.00	1.00
Incremental Delay, d2		21.2	0.1		1.7		14.1	2.0			3.5	0.7
Delay (s)		49.2	10.8		26.0		44.5	6.6			30.2	23.2
Level of Service		D	B		C		D	A			C	C
Approach Delay (s)		29.8			26.0			18.8			29.0	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM Average Control Delay	25.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Queues
1: Route 202 & Route 26A (Gray Bypass)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↙	↑	↘	↙↘	↑	↘	↙	↘	↙	↙↘
Volume (vph)	165	435	385	545	255	150	55	30	190	445
Lane Group Flow (vph)	179	473	418	592	277	163	60	87	207	636
Turn Type	Prot		pt+ov	Prot		pt+ov	Prot		Prot	
Protected Phases	5	2	2 3	1	6	6 7	3	8	7	4
Permitted Phases										
Detector Phase	5	2	2 3	1	6	6 7	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0	5.0	10.0
Minimum Split (s)	16.0	16.0		16.0	16.0		16.0	16.0	16.0	16.0
Total Split (s)	21.0	31.0	47.0	22.0	32.0	50.0	16.0	19.0	18.0	21.0
Total Split (%)	23.3%	34.4%	52.2%	24.4%	35.6%	55.6%	17.8%	21.1%	20.0%	23.3%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Min		None	C-Min		None	None	None	None
Act Effct Green (s)	23.0	26.3	40.7	18.0	21.3	40.6	10.4	14.4	18.5	19.3
Actuated g/C Ratio	0.26	0.29	0.45	0.20	0.24	0.45	0.12	0.16	0.21	0.21
v/c Ratio	0.41	0.89	0.59	0.94	0.66	0.21	0.31	0.29	0.61	0.89
Control Delay	32.7	51.6	20.7	58.8	36.1	8.6	40.4	18.2	45.0	50.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.7	51.6	20.7	58.8	36.1	8.6	40.4	18.2	45.0	50.2
LOS	C	D	C	E	D	A	D	B	D	D
Approach Delay		36.4			44.8			27.3		48.9
Approach LOS		D			D			C		D
Queue Length 50th (ft)	84	253	157	165	135	31	32	16	115	177
Queue Length 95th (ft)	160	#427	243	#272	175	57	69	58	#231	#301
Internal Link Dist (ft)		734			1299			178		766
Turn Bay Length (ft)	200		200	200		175	125		200	
Base Capacity (vph)	439	543	735	627	547	890	223	311	338	712
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.87	0.57	0.94	0.51	0.18	0.27	0.28	0.61	0.89

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 87 (97%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 42.2
 Intersection Capacity Utilization 72.7%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.

Intersection LOS: D
 ICU Level of Service C

Queue shown is maximum after two cycles.

Splits and Phases: 1: Route 202 & Route 26A (Gray Bypass)

 φ1	 φ2	 φ3	 φ4
22 s	31 s	16 s	21 s
 φ6	 φ5	 φ7	 φ8
32 s	21 s	18 s	19 s

HCM Signalized Intersection Capacity Analysis
 1: Route 202 & Route 26A (Gray Bypass)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖↗	↑	↗	↖	↑		↖	↖↗	
Volume (vph)	165	435	385	545	255	150	55	30	50	190	445	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	16	12	12	12	11	11	16
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	1810	1538	3134	1759	1695	1671	1595		1646	3174	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1719	1810	1538	3134	1759	1695	1671	1595		1646	3174	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	179	473	418	592	277	163	60	33	54	207	484	152
RTOR Reduction (vph)	0	0	15	0	0	0	0	47	0	0	32	0
Lane Group Flow (vph)	179	473	403	592	277	163	60	40	0	207	604	0
Heavy Vehicles (%)	5%	5%	5%	8%	8%	8%	8%	8%	8%	6%	6%	6%
Turn Type	Prot		pt+ov	Prot		pt+ov	Prot			Prot		
Protected Phases	5	2	2 3	1	6	6 7	3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	21.0	23.1	37.5	16.0	18.1	34.6	8.4	10.4		16.5	18.5	
Effective Green, g (s)	23.0	25.1	39.5	18.0	20.1	38.6	10.4	12.4		18.5	20.5	
Actuated g/C Ratio	0.26	0.28	0.44	0.20	0.22	0.43	0.12	0.14		0.21	0.23	
Clearance Time (s)	6.0	6.0		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		3.0	3.0	
Lane Grp Cap (vph)	439	505	675	627	393	727	193	220		338	723	
v/s Ratio Prot	0.10	c0.26	c0.26	c0.19	0.16	0.10	0.04	0.03		0.13	c0.19	
v/s Ratio Perm												
v/c Ratio	0.41	0.94	0.60	0.94	0.70	0.22	0.31	0.18		0.61	0.84	
Uniform Delay, d1	27.8	31.7	19.2	35.5	32.2	16.2	36.5	34.3		32.5	33.1	
Progression Factor	1.00	1.00	1.00	1.01	0.97	0.95	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	27.0	1.4	20.2	8.6	0.1	0.9	0.4		3.3	8.3	
Delay (s)	28.5	58.7	20.6	55.9	39.7	15.5	37.4	34.7		35.8	41.4	
Level of Service	C	E	C	E	D	B	D	C		D	D	
Approach Delay (s)		38.8			45.2			35.8			40.0	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	41.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
2: Route 202 & Gray Graveyard



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	ø8
Lane Configurations	↕↕	↗	↘	↔	↘	↕	↗	
Volume (vph)	470	205	105	785	165	1	165	
Lane Group Flow (vph)	495	216	114	853	89	91	179	
Turn Type		pt+ov	Prot		Split		pt+ov	
Protected Phases	2	2 4	1	6	4	4	1 4	8
Permitted Phases								
Detector Phase	2	2 4	1	6	4	4	1 4	
Switch Phase								
Minimum Initial (s)	10.0		5.0	10.0	8.0	8.0		5.0
Minimum Split (s)	16.0		16.0	16.0	16.0	16.0		14.0
Total Split (s)	44.0	60.0	16.0	60.0	16.0	16.0	32.0	14.0
Total Split (%)	48.9%	66.7%	17.8%	66.7%	17.8%	17.8%	35.6%	16%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0		3.0
All-Red Time (s)	3.0		3.0	3.0	3.0	3.0		3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lag		Lead					
Lead-Lag Optimize?								
Recall Mode	C-Min		None	C-Min	None	None		None
Act Effct Green (s)	50.7	69.2	12.8	67.6	14.4	14.4	31.3	
Actuated g/C Ratio	0.56	0.77	0.14	0.75	0.16	0.16	0.35	
v/c Ratio	0.26	0.16	0.44	0.61	0.35	0.37	0.28	
Control Delay	5.4	2.9	40.8	5.4	36.0	36.6	3.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	5.4	2.9	40.8	5.4	36.0	36.6	3.6	
LOS	A	A	D	A	D	D	A	
Approach Delay	4.6			9.6		20.0		
Approach LOS	A			A		B		
Queue Length 50th (ft)	3	0	60	82	48	49	0	
Queue Length 95th (ft)	m133	m66	m85	307	85	87	33	
Internal Link Dist (ft)	1299			605		270		
Turn Bay Length (ft)		350	205		145			
Base Capacity (vph)	1942	1310	278	1399	266	258	634	
Starvation Cap Reductn	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.25	0.16	0.41	0.61	0.33	0.35	0.28	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 10 (11%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 9.7

Intersection LOS: A

Intersection Capacity Utilization 71.0%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Route 202 & Gray Graveyard

 ø1	 ø2	 ø4	 ø8
16 s	44 s	16 s	14 s
 ø6			
60 s			

HCM Signalized Intersection Capacity Analysis
2: Route 202 & Gray Graveyard

Synchro 7 Report
3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↗	↗	↖	↖	↗	↖	↖	↗		↔↖	
Volume (vph)	0	470	205	105	785	0	165	1	165	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	13	12	12	12	11	12	12	12	12
Grade (%)		0%			-4%			0%			0%	
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0			
Lane Util. Factor		0.95	1.00	1.00	1.00		0.95	0.95	1.00			
Frt		1.00	0.85	1.00	1.00		1.00	1.00	0.85			
Flt Protected		1.00	1.00	0.95	1.00		0.95	0.95	1.00			
Satd. Flow (prot)		3438	1641	1829	1863		1588	1539	1495			
Flt Permitted		1.00	1.00	0.95	1.00		0.95	0.95	1.00			
Satd. Flow (perm)		3438	1641	1829	1863		1588	1539	1495			
Peak-hour factor, PHF	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25
Adj. Flow (vph)	0	495	216	114	853	0	179	1	179	0	0	0
RTOR Reduction (vph)	0	0	50	0	0	0	0	0	117	0	0	0
Lane Group Flow (vph)	0	495	166	114	853	0	89	91	62	0	0	0
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	8%	8%	8%	0%	0%	0%
Turn Type	Perm		pt+ov	Prot			Split		pt+ov	Split		
Protected Phases		2	2 4	1	6		4	4	1 4	8	8	
Permitted Phases	2											
Actuated Green, G (s)		48.8	67.2	10.8	65.6		12.4	12.4	29.2			
Effective Green, g (s)		50.8	69.2	12.8	67.6		14.4	14.4	31.2			
Actuated g/C Ratio		0.56	0.77	0.14	0.75		0.16	0.16	0.35			
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)		1941	1262	260	1399		254	246	518			
v/s Ratio Prot		0.14	0.10	0.06	c0.46		0.06	c0.06	0.04			
v/s Ratio Perm												
v/c Ratio		0.26	0.13	0.44	0.61		0.35	0.37	0.12			
Uniform Delay, d1		10.0	2.7	35.3	5.1		33.6	33.7	20.0			
Progression Factor		0.45	4.97	1.07	0.61		1.00	1.00	1.00			
Incremental Delay, d2		0.2	0.0	0.9	1.5		0.8	0.9	0.1			
Delay (s)		4.7	13.3	38.6	4.6		34.5	34.7	20.1			
Level of Service		A	B	D	A		C	C	C			
Approach Delay (s)		7.3			8.6			27.4			0.0	
Approach LOS		A			A			C			A	

Intersection Summary		
HCM Average Control Delay	11.5	HCM Level of Service B
HCM Volume to Capacity ratio	0.57	
Actuated Cycle Length (s)	90.0	Sum of lost time (s) 8.0
Intersection Capacity Utilization	71.0%	ICU Level of Service C
Analysis Period (min)	15	

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
3: Route 202 & Central Road

Synchro 7 Report
3/25/2013



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↑	↑
Volume (veh/h)	555	25	25	825	45	55
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.86	0.86	0.78	0.78
Hourly flow rate (vph)	584	26	29	959	58	71
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	685			172		
pX, platoon unblocked			0.99		0.88	0.99
vC, conflicting volume			611		1615	305
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			578		1573	268
tC, single (s)			4.2		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		34	90
cM capacity (veh/h)			965		88	726

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	389	221	988	128
Volume Left	0	0	29	58
Volume Right	0	26	0	71
cSH	1700	1700	965	187
Volume to Capacity	0.23	0.13	0.03	0.69
Queue Length 95th (ft)	0	0	2	105
Control Delay (s)	0.0	0.0	0.9	58.3
Lane LOS			A	F
Approach Delay (s)	0.0		0.9	58.3
Approach LOS				F

Intersection Summary			
Average Delay		4.8	
Intersection Capacity Utilization		73.6%	ICU Level of Service D
Analysis Period (min)		15	

Queues
4: Route 202 & Main Street



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔	↑	↔	↔	↑		↑	↔
Volume (vph)	355	200	185	100	220	25	410	565
Lane Group Flow (vph)	370	265	303	118	294	0	506	657
Turn Type	Split			Prot		Perm		Perm
Protected Phases	4	4	3	5	2		6	
Permitted Phases						6		6
Detector Phase	4	4	3	5	2	6	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	16.0	16.0	28.0	16.0	24.0	16.0	16.0	16.0
Total Split (s)	17.0	17.0	28.0	16.0	45.0	29.0	29.0	29.0
Total Split (%)	18.9%	18.9%	31.1%	17.8%	50.0%	32.2%	32.2%	32.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?								
Recall Mode	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	17.1	17.1	20.1	11.3	40.8		25.5	25.5
Actuated g/C Ratio	0.19	0.19	0.22	0.13	0.45		0.28	0.28
v/c Ratio	0.52	0.69	0.68	0.55	0.34		0.92	0.79
Control Delay	24.7	33.9	39.3	47.1	16.7		52.2	14.5
Queue Delay	0.1	0.0	0.0	0.0	0.0		26.4	0.7
Total Delay	24.8	33.9	39.3	47.1	16.7		78.6	15.3
LOS	C	C	D	D	B		E	B
Approach Delay		28.6	39.3		25.4		42.8	
Approach LOS		C	D		C		D	
Queue Length 50th (ft)	90	122	155	64	100		297	60
Queue Length 95th (ft)	78	#259	201	111	148		#421	132
Internal Link Dist (ft)		92	183		238		223	
Turn Bay Length (ft)				90				
Base Capacity (vph)	710	383	530	227	861		551	834
Starvation Cap Reductn	0	0	0	0	0		67	37
Spillback Cap Reductn	19	0	0	0	28		0	0
Storage Cap Reductn	0	0	0	0	0		0	0
Reduced v/c Ratio	0.54	0.69	0.57	0.52	0.35		1.05	0.82

Intersection Summary
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 83 (92%), Referenced to phase 4:EBTL, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 36.0
 Intersection Capacity Utilization 76.7%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Route 202 & Main Street

↑ ø2	↙ ø3	↘ ø4
45 s	28 s	17 s
↙ ø5	↓ ø6	
16 s	29 s	

HCM Signalized Intersection Capacity Analysis
4: Route 202 & Main Street

Synchro 7 Report
3/25/2013

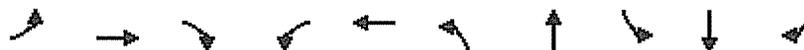


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	355	200	55	45	185	15	100	220	30	25	410	565
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	16	16	12	14	14	15	15	16
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	1.00			1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.97			0.99		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00			0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)	3744	1966			1977		1703	1878			2004	1566
Flt Permitted	0.95	1.00			0.99		0.95	1.00			0.97	1.00
Satd. Flow (perm)	3744	1966			1977		1703	1878			1943	1566
Peak-hour factor, PHF	0.96	0.96	0.96	0.81	0.81	0.81	0.85	0.85	0.85	0.86	0.86	0.86
Adj. Flow (vph)	370	208	57	56	228	19	118	259	35	29	477	657
RTOR Reduction (vph)	0	11	0	0	3	0	0	5	0	0	0	390
Lane Group Flow (vph)	370	254	0	0	300	0	118	289	0	0	506	267
Heavy Vehicles (%)	6%	6%	6%	7%	7%	7%	6%	6%	6%	4%	4%	4%
Parking (#/hr)												2
Turn Type	Split			Split			Prot			Perm		Perm
Protected Phases	4	4		3	3		5	2			6	
Permitted Phases										6		6
Actuated Green, G (s)	15.1	15.1			18.1		9.3	38.8			23.5	23.5
Effective Green, g (s)	17.1	17.1			20.1		11.3	40.8			25.5	25.5
Actuated g/C Ratio	0.19	0.19			0.22		0.13	0.45			0.28	0.28
Clearance Time (s)	6.0	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	3.0
Lane Grp Cap (vph)	711	374			442		214	851			551	444
v/s Ratio Prot	0.10	c0.13			c0.15		c0.07	0.15				
v/s Ratio Perm											c0.26	0.17
v/c Ratio	0.52	0.68			0.68		0.55	0.34			0.92	0.60
Uniform Delay, d1	32.8	33.9			32.0		37.0	15.9			31.2	27.9
Progression Factor	0.64	0.63			1.00		1.00	1.00			0.94	1.29
Incremental Delay, d2	2.7	9.5			4.1		3.1	0.2			18.3	2.0
Delay (s)	23.8	30.9			36.1		40.0	16.1			47.8	37.9
Level of Service	C	C			D		D	B			D	D
Approach Delay (s)		26.8			36.1			23.0			42.2	
Approach LOS		C			D			C			D	

Intersection Summary			
HCM Average Control Delay	34.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
5: Shaker Road & Main Street



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↖	↗		↕	↗
Volume (vph)	70	105	375	70	115	160	400	15	610	135
Lane Group Flow (vph)	0	216	463	0	282	176	473	0	702	152
Turn Type	Perm		pt+ov	Perm		Prot		Perm		Perm
Protected Phases		4	4 5		8	5	2		6	
Permitted Phases	4			8				6		6
Detector Phase	4	4	4 5	8	8	5	2	6	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0		8.0	8.0	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	35.0	35.0		37.0	37.0	16.0	24.0	32.0	32.0	32.0
Total Split (s)	37.0	37.0	57.0	37.0	37.0	20.0	53.0	33.0	33.0	33.0
Total Split (%)	41.1%	41.1%	63.3%	41.1%	41.1%	22.2%	58.9%	36.7%	36.7%	36.7%
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)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	5.0	4.0	4.0	5.0	4.0	4.0	4.0	5.0	4.0	4.0
Lead/Lag						Lead		Lag	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None		None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		24.0	43.5		24.0	15.5	58.0		38.5	38.5
Actuated g/C Ratio		0.27	0.48		0.27	0.17	0.64		0.43	0.43
v/c Ratio		0.64	0.52		0.72	0.61	0.41		0.50	0.21
Control Delay		37.0	14.8		38.8	34.9	6.0		22.3	10.7
Queue Delay		0.0	0.4		0.4	0.0	1.2		0.2	0.0
Total Delay		37.0	15.2		39.1	34.9	7.1		22.5	10.7
LOS		D	B		D	C	A		C	B
Approach Delay		22.1			39.1		14.7		20.4	
Approach LOS		C			D		B		C	
Queue Length 50th (ft)		110	147		140	48	13		150	23
Queue Length 95th (ft)		139	151		167	149	333		238	71
Internal Link Dist (ft)		258			295		223		212	
Turn Bay Length (ft)										60
Base Capacity (vph)		466	909		529	313	1162		1393	712
Starvation Cap Reductn		0	0		0	0	449		0	0
Spillback Cap Reductn		0	123		44	0	0		184	0
Storage Cap Reductn		0	0		0	0	0		0	0
Reduced v/c Ratio		0.46	0.59		0.58	0.56	0.66		0.58	0.21

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 45 (50%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 21.5
 Intersection Capacity Utilization 69.2%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

Queues
 5: Shaker Road & Main Street

Splits and Phases: 5: Shaker Road & Main Street

 ø2 53 s		 ø4 37 s	
 ø5 20 s	 ø6 33 s	 ø8 37 s	

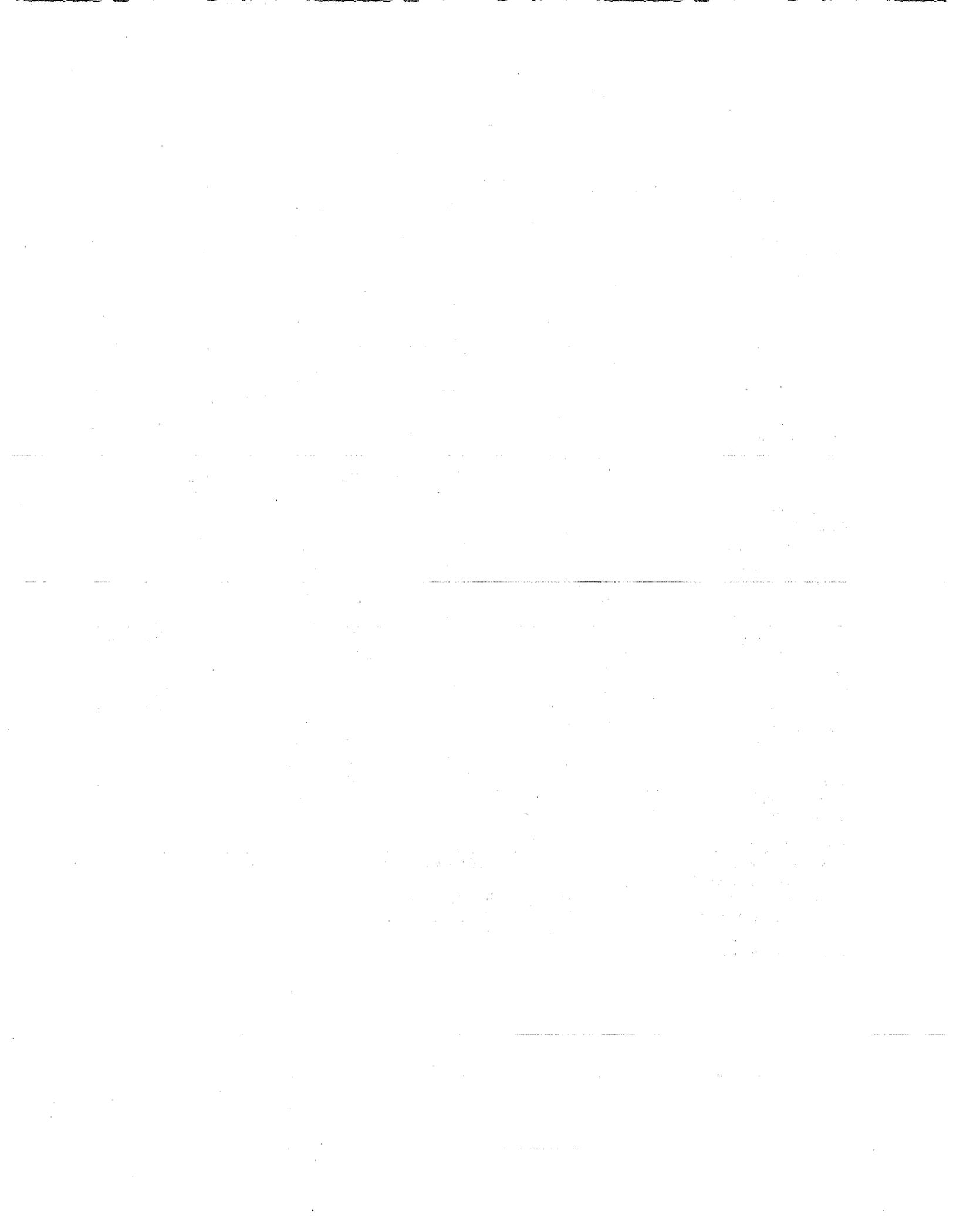
HCM Signalized Intersection Capacity Analysis
5: Shaker Road & Main Street

Synchro 7 Report
3/25/2013

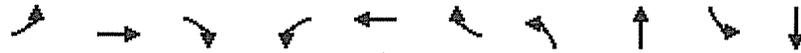


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔		↔	↔			↔↔	↔
Volume (vph)	70	105	375	70	115	40	160	400	30	15	610	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	16	16	16	12	13	13	11	12	12
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00			0.95	1.00
Flt		1.00	0.85		0.98		1.00	0.99			1.00	0.85
Flt Protected		0.98	1.00		0.98		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1791	1760		1990		1671	1799			3467	1553
Flt Permitted		0.70	1.00		0.70		0.95	1.00			0.94	1.00
Satd. Flow (perm)		1272	1760		1419		1671	1799			3259	1553
Peak-hour factor, PHF	0.81	0.81	0.81	0.80	0.80	0.80	0.91	0.91	0.91	0.89	0.89	0.89
Adj. Flow (vph)	86	130	463	88	144	50	176	440	33	17	685	152
RTOR Reduction (vph)	0	0	33	0	10	0	0	2	0	0	0	47
Lane Group Flow (vph)	0	216	430	0	272	0	176	471	0	0	702	105
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	8%	8%	8%	4%	4%	4%
Turn Type	Perm		pt+ov	Perm			Prot			Perm		Perm
Protected Phases		4	4 5		8		5	2			6	
Permitted Phases	4			8						6		6
Actuated Green, G (s)		22.0	41.5		22.0		13.5	56.0			36.5	36.5
Effective Green, g (s)		24.0	43.5		24.0		15.5	58.0			38.5	38.5
Actuated g/C Ratio		0.27	0.48		0.27		0.17	0.64			0.43	0.43
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)		339	851		378		288	1159			1394	664
v/s Ratio Prot			0.24				c0.11	0.26				
v/s Ratio Perm		0.17			c0.19						c0.22	0.07
v/c Ratio		0.64	0.51		0.72		0.61	0.41			0.50	0.16
Uniform Delay, d1		29.2	15.9		29.9		34.5	7.7			18.8	15.8
Progression Factor		1.00	1.00		1.00		0.77	0.55			1.00	1.00
Incremental Delay, d2		3.9	0.5		6.4		3.5	1.0			1.3	0.5
Delay (s)		33.1	16.4		36.4		30.0	5.2			20.1	16.3
Level of Service		C	B		D		C	A			C	B
Approach Delay (s)		21.7			36.4			11.9			19.4	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM Average Control Delay	20.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Queues
1: Route 202 & Route 26A (Gray Bypass)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↘	↑	↗	↘↗	↑	↗	↘	↗	↘	↗↘
Volume (vph)	220	585	115	215	710	515	140	100	75	180
Lane Group Flow (vph)	239	636	125	231	763	554	152	261	82	392
Turn Type	Prot		pt+ov	Prot		pt+ov	Prot		Prot	
Protected Phases	5	2	2 3	1	6	6 7	3	8	7	4
Permitted Phases										
Detector Phase	5	2	2 3	1	6	6 7	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0	5.0	10.0
Minimum Split (s)	16.0	16.0		16.0	16.0		16.0	16.0	16.0	16.0
Total Split (s)	20.0	58.0	75.0	17.0	55.0	71.0	17.0	19.0	16.0	18.0
Total Split (%)	18.2%	52.7%	68.2%	15.5%	50.0%	64.5%	15.5%	17.3%	14.5%	16.4%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Min		None	C-Min		None	None	None	None
Act Effct Green (s)	16.6	54.3	71.1	12.7	50.4	62.4	12.8	15.0	12.0	14.2
Actuated g/C Ratio	0.15	0.49	0.65	0.12	0.46	0.57	0.12	0.14	0.11	0.13
v/c Ratio	0.92	0.71	0.12	0.64	0.95	0.58	0.78	0.98	0.46	0.71
Control Delay	85.8	27.4	2.0	59.6	39.0	6.7	74.2	90.4	54.8	31.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.8	27.4	2.0	59.6	39.0	6.7	74.2	90.4	54.8	31.2
LOS	F	C	A	E	D	A	E	F	D	C
Approach Delay		38.1			30.5			84.5		35.3
Approach LOS		D			C			F		D
Queue Length 50th (ft)	170	341	3	85	551	96	106	151	55	72
Queue Length 95th (ft)	#326	482	23	m114	#742	130	#210	#321	105	126
Internal Link Dist (ft)		734			1299			191		767
Turn Bay Length (ft)	200		200	200		175	125		200	
Base Capacity (vph)	260	894	1037	370	816	971	197	265	180	556
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.71	0.12	0.62	0.94	0.57	0.77	0.98	0.46	0.71

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 25 (23%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 39.9
 Intersection Capacity Utilization 81.4%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.

Queues
 1: Route 202 & Route 26A (Gray Bypass)

Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Route 202 & Route 26A (Gray Bypass)

 ø1	 ø2	 ø3	 ø4
17 s	58 s	17 s	18 s
 ø6	 ø5	 ø7	 ø8
55 s	20 s	16 s	19 s

HCM Signalized Intersection Capacity Analysis
1: Route 202 & Route 26A (Gray Bypass)

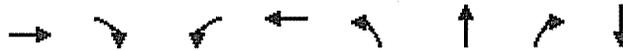
Synchro 7 Report
3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙↗	↑	↗	↙	↗		↙	↕	↘
Volume (vph)	220	585	115	215	710	515	140	100	140	75	180	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	16	12	12	12	11	11	16
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00		1.00	0.95	
Fit	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	1810	1538	3134	1759	1695	1671	1606		1646	3045	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1719	1810	1538	3134	1759	1695	1671	1606		1646	3045	
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	239	636	125	231	763	554	152	109	152	82	196	196
RTOR Reduction (vph)	0	0	40	0	0	0	0	46	0	0	164	0
Lane Group Flow (vph)	239	636	85	231	763	554	152	215	0	82	228	0
Heavy Vehicles (%)	5%	5%	5%	8%	8%	8%	8%	8%	8%	6%	6%	6%
Turn Type	Prot		pt+ov	Prot		pt+ov	Prot			Prot		
Protected Phases	5	2	2 3	1	6	6 7	3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	14.6	52.3	69.1	10.7	48.4	58.4	10.8	13.0		10.0	12.2	
Effective Green, g (s)	16.6	54.3	71.1	12.7	50.4	62.4	12.8	15.0		12.0	14.2	
Actuated g/C Ratio	0.15	0.49	0.65	0.12	0.46	0.57	0.12	0.14		0.11	0.13	
Clearance Time (s)	6.0	6.0		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		3.0	3.0	
Lane Grp Cap (vph)	259	893	994	362	806	962	194	219		180	393	
v/s Ratio Prot	c0.14	0.35	0.06	0.07	c0.43	0.33	c0.09	c0.13		0.05	0.07	
v/s Ratio Perm												
v/c Ratio	0.92	0.71	0.09	0.64	0.95	0.58	0.78	0.98		0.46	0.58	
Uniform Delay, d1	46.1	21.7	7.3	46.5	28.5	15.3	47.3	47.4		45.9	45.1	
Progression Factor	1.00	1.00	1.00	1.16	0.77	0.57	1.00	1.00		1.00	1.00	
Incremental Delay, d2	35.7	4.8	0.0	2.4	15.8	0.6	18.4	55.6		1.8	2.2	
Delay (s)	81.8	26.6	7.3	56.1	37.6	9.2	65.7	102.9		47.8	47.3	
Level of Service	F	C	A	E	D	A	E	F		D	D	
Approach Delay (s)		37.4			30.2			89.2			47.4	
Approach LOS		D			C			F			D	

Intersection Summary			
HCM Average Control Delay	41.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues
2: Route 202 & Gray Graveyard



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Configurations	↕↕	↗	↖	↔	↖	↕	↗	↕↕
Volume (vph)	665	135	25	705	735	0	490	0
Lane Group Flow (vph)	700	142	27	766	399	400	533	4
Turn Type		pt+ov	Prot		Split		pt+ov	
Protected Phases	2	2 4	1	6	4	4	1 4	8
Permitted Phases								
Detector Phase	2	2 4	1	6	4	4	1 4	8
Switch Phase								
Minimum Initial (s)	10.0		5.0	10.0	8.0	8.0		5.0
Minimum Split (s)	16.0		16.0	16.0	16.0	16.0		14.0
Total Split (s)	37.0	75.0	21.0	58.0	38.0	38.0	59.0	14.0
Total Split (%)	33.6%	68.2%	19.1%	52.7%	34.5%	34.5%	53.6%	12.7%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0		3.0
All-Red Time (s)	3.0		3.0	3.0	3.0	3.0		3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag		Lead					
Lead-Lag Optimize?								
Recall Mode	C-Min		None	C-Min	None	None		None
Act Effct Green (s)	48.6	89.1	10.6	63.2	36.5	36.5	50.3	7.5
Actuated g/C Ratio	0.44	0.81	0.10	0.57	0.33	0.33	0.46	0.07
v/c Ratio	0.46	0.10	0.15	0.72	0.76	0.79	0.65	0.02
Control Delay	16.1	0.3	47.3	22.4	43.4	45.6	13.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.1	0.3	47.3	22.4	43.4	45.6	13.1	0.0
LOS	B	A	D	C	D	D	B	A
Approach Delay	13.4			23.2		31.9		0.0
Approach LOS	B			C		C		A
Queue Length 50th (ft)	102	0	20	318	242	245	127	0
Queue Length 95th (ft)	m210	m6	m28	m496	#437	#452	176	0
Internal Link Dist (ft)	1299			605		270		46
Turn Bay Length (ft)		350	205		145			
Base Capacity (vph)	1519	1367	283	1070	538	520	898	237
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.10	0.10	0.72	0.74	0.77	0.59	0.02

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 68 (62%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 24.3
 Intersection Capacity Utilization 70.8%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.

Queues
 2: Route 202 & Gray Graveyard

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Route 202 & Gray Graveyard

 ø1	 ø2	 ø4	 ø8
21 s	37 s	38 s	14 s
 ø6			
58 s			

HCM Signalized Intersection Capacity Analysis
2: Route 202 & Gray Graveyard

Synchro 7 Report
3/25/2013

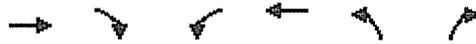


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↗	↖	↗	↖	↖	↗	↖	↖	↗	↔
Volume (vph)	0	665	135	25	705	0	735	0	490	0	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	13	12	12	12	11	12	12	12	12
Grade (%)		0%			-4%			0%			0%	
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0	
Lane Util. Factor		0.95	1.00	1.00	1.00		0.95	0.95	1.00		1.00	
Frt		1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.86	
Flt Protected		1.00	1.00	0.95	1.00		0.95	0.95	1.00		1.00	
Satd. Flow (prot)		3438	1641	1829	1863		1588	1535	1495		1644	
Flt Permitted		1.00	1.00	0.95	1.00		0.95	0.95	1.00		1.00	
Satd. Flow (perm)		3438	1641	1829	1863		1588	1535	1495		1644	
Peak-hour factor, PHF	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25
Adj. Flow (vph)	0	700	142	27	766	0	799	0	533	0	0	4
RTOR Reduction (vph)	0	0	33	0	0	0	0	0	150	0	4	0
Lane Group Flow (vph)	0	700	109	27	766	0	399	400	383	0	0	0
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	8%	8%	8%	0%	0%	0%
Turn Type	Perm		pt+ov	Prot			Split		pt+ov	Split		
Protected Phases		2	2 4	1	6		4	4	1 4	8	8	
Permitted Phases	2											
Actuated Green, G (s)		41.8	82.3	8.6	56.4		34.5	34.5	43.1		1.1	
Effective Green, g (s)		43.8	84.3	10.6	58.4		36.5	36.5	47.1		3.1	
Actuated g/C Ratio		0.40	0.77	0.10	0.53		0.33	0.33	0.43		0.03	
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)		1369	1258	176	989		527	509	640		46	
v/s Ratio Prot		0.20	0.07	0.01	c0.41		0.25	c0.26	0.26		c0.00	
v/s Ratio Perm												
v/c Ratio		0.51	0.09	0.15	0.77		0.76	0.79	0.60		0.00	
Uniform Delay, d1		25.0	3.2	45.6	20.6		32.8	33.2	24.2		51.9	
Progression Factor		0.66	0.27	1.05	1.04		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.9	0.0	0.3	4.2		6.1	7.8	1.5		0.0	
Delay (s)		17.4	0.9	48.2	25.5		38.9	41.0	25.7		52.0	
Level of Service		B	A	D	C		D	D	C		D	
Approach Delay (s)		14.6			26.3			34.3			52.0	
Approach LOS		B			C			C			D	

Intersection Summary		
HCM Average Control Delay	26.6	HCM Level of Service C
HCM Volume to Capacity ratio	0.75	
Actuated Cycle Length (s)	110.0	Sum of lost time (s) 12.0
Intersection Capacity Utilization	70.8%	ICU Level of Service C
Analysis Period (min)	15	

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 3: Route 202 & Central Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↘	↗
Volume (veh/h)	935	55	35	745	20	45
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.86	0.86	0.78	0.78
Hourly flow rate (vph)	984	58	41	866	26	58
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None			None		
Median storage veh						
Upstream signal (ft)	685			172		
pX, platoon unblocked				0.88	0.85	0.88
vC, conflicting volume				1042	1961	521
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				786	1531	196
tC, single (s)				4.2	6.8	6.9
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				94	71	92
cM capacity (veh/h)				722	88	723

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	656	386	907	83
Volume Left	0	0	41	26
Volume Right	0	58	0	58
cSH	1700	1700	722	285
Volume to Capacity	0.39	0.23	0.06	0.29
Queue Length 95th (ft)	0	0	4	30
Control Delay (s)	0.0	0.0	1.6	26.3
Lane LOS			A	D
Approach Delay (s)	0.0		1.6	26.3
Approach LOS				D

Intersection Summary				
Average Delay			1.8	
Intersection Capacity Utilization			77.7%	ICU Level of Service D
Analysis Period (min)			15	

Queues
4: Route 202 & Main Street



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Volume (vph)	675	210	275	100	530	15	335	405
Lane Group Flow (vph)	703	318	445	118	689	0	407	471
Turn Type	Split			Prot		Perm		Perm
Protected Phases	4	4	3	5	2		6	
Permitted Phases						6		6
Detector Phase	4	4	3	5	2	6	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	16.0	16.0	28.0	16.0	24.0	16.0	16.0	16.0
Total Split (s)	28.0	28.0	31.0	16.0	51.0	35.0	35.0	35.0
Total Split (%)	25.5%	25.5%	28.2%	14.5%	46.4%	31.8%	31.8%	31.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?								
Recall Mode	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	24.6	24.6	26.7	11.6	46.7		31.1	31.1
Actuated g/C Ratio	0.22	0.22	0.24	0.11	0.42		0.28	0.28
v/c Ratio	0.84	0.71	0.92	0.66	0.86		0.96	0.60
Control Delay	48.6	43.8	66.7	65.1	40.6		60.3	4.9
Queue Delay	12.8	0.0	33.2	0.0	0.7		31.8	0.5
Total Delay	61.4	43.8	99.9	65.1	41.3		92.1	5.4
LOS	E	D	F	E	D		F	A
Approach Delay		55.9	99.9		44.8		45.6	
Approach LOS		E	F		D		D	
Queue Length 50th (ft)	264	212	305	81	426		298	0
Queue Length 95th (ft)	#343	300	#409	#135	541		#458	10
Internal Link Dist (ft)		92	183		238		223	
Turn Bay Length (ft)				90				
Base Capacity (vph)	837	448	488	186	809		422	781
Starvation Cap Reductn	0	0	0	0	0		44	80
Spillback Cap Reductn	126	0	69	0	19		0	0
Storage Cap Reductn	0	0	0	0	0		0	0
Reduced v/c Ratio	0.99	0.71	1.06	0.63	0.87		1.08	0.67

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 4:EBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 56.4

Intersection LOS: E

Intersection Capacity Utilization 101.6%

ICU Level of Service G

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

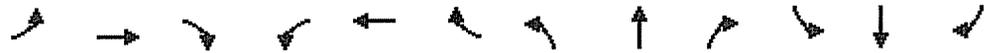
Queue shown is maximum after two cycles.

Splits and Phases: 4: Route 202 & Main Street

 ø2		 ø3		 ø4	
51 s		31 s		28 s	
 ø5		 ø6			
16 s		35 s			

HCM Signalized Intersection Capacity Analysis
4: Route 202 & Main Street

Synchro 7 Report
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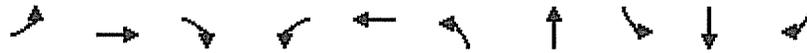


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	675	210	95	60	275	25	100	530	55	15	335	405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	16	16	12	14	14	15	15	16
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	1.00			1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.95			0.99		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00			0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)	3744	1937			1977		1703	1885			2005	1566
Flt Permitted	0.95	1.00			0.99		0.95	1.00			0.74	1.00
Satd. Flow (perm)	3744	1937			1977		1703	1885			1494	1566
Peak-hour factor, PHF	0.96	0.96	0.96	0.81	0.81	0.81	0.85	0.85	0.85	0.86	0.86	0.86
Adj. Flow (vph)	703	219	99	74	340	31	118	624	65	17	390	471
RTOR Reduction (vph)	0	15	0	0	2	0	0	3	0	0	0	338
Lane Group Flow (vph)	703	303	0	0	443	0	118	686	0	0	407	133
Heavy Vehicles (%)	6%	6%	6%	7%	7%	7%	6%	6%	6%	4%	4%	4%
Parking (#/hr)												2
Turn Type	Split			Split			Prot			Perm		Perm
Protected Phases	4	4		3	3		5	2				6
Permitted Phases										6		6
Actuated Green, G (s)	22.6	22.6			24.7		9.6	44.7			29.1	29.1
Effective Green, g (s)	24.6	24.6			26.7		11.6	46.7			31.1	31.1
Actuated g/C Ratio	0.22	0.22			0.24		0.11	0.42			0.28	0.28
Clearance Time (s)	6.0	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	3.0
Lane Grp Cap (vph)	837	433			480		180	800			422	443
v/s Ratio Prot	c0.19	0.16			c0.22		0.07	c0.36				
v/s Ratio Perm											c0.27	0.09
v/c Ratio	0.84	0.70			0.92		0.66	0.86			0.96	0.30
Uniform Delay, d1	40.8	39.3			40.6		47.3	28.6			38.9	30.9
Progression Factor	0.96	0.94			1.00		1.00	1.00			0.66	0.65
Incremental Delay, d2	8.9	8.1			23.3		8.3	9.0			31.1	0.3
Delay (s)	48.0	44.9			63.9		55.6	37.6			56.6	20.5
Level of Service	D	D			E		E	D			E	C
Approach Delay (s)		47.0			63.9			40.2			37.3	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM Average Control Delay	45.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	101.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Queues
5: Shaker Road & Main Street



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↖	↖		↕	↗
Volume (vph)	125	125	205	50	170	380	805	30	500	155
Lane Group Flow (vph)	0	308	253	0	336	418	929	0	596	174
Turn Type	Perm		pm+ov	Perm		Prot		Perm		Perm
Protected Phases		4	5		8	5	2		6	
Permitted Phases	4		4	8				6		6
Detector Phase	4	4	5	8	8	5	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	8.0	5.0	5.0	8.0	10.0	10.0	10.0	10.0
Minimum Split (s)	35.0	35.0	16.0	37.0	37.0	16.0	24.0	32.0	32.0	32.0
Total Split (s)	41.0	41.0	34.0	41.0	41.0	34.0	69.0	35.0	35.0	35.0
Total Split (%)	37.3%	37.3%	30.9%	37.3%	37.3%	30.9%	62.7%	31.8%	31.8%	31.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	5.0	4.0	4.0	5.0	4.0	4.0	4.0	5.0	4.0	4.0
Lead/Lag			Lead			Lead		Lag	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		36.0	69.8		36.0	29.8	66.0		32.2	32.2
Actuated g/C Ratio		0.33	0.63		0.33	0.27	0.60		0.29	0.29
v/c Ratio		0.93	0.22		0.68	0.92	0.86		0.70	0.34
Control Delay		72.3	6.0		38.6	50.1	15.0		40.2	18.0
Queue Delay		0.0	0.0		0.0	26.8	50.9		2.6	0.0
Total Delay		72.3	6.0		38.6	76.9	65.9		42.7	18.0
LOS		E	A		D	E	E		D	B
Approach Delay		42.4			38.6		69.3		37.1	
Approach LOS		D			D		E		D	
Queue Length 50th (ft)		207	45		195	189	456		200	47
Queue Length 95th (ft)		#314	66		253	m#376	m#773		262	105
Internal Link Dist (ft)		258			295		223		212	
Turn Bay Length (ft)										60
Base Capacity (vph)		341	1151		512	459	1089		869	521
Starvation Cap Reductn		0	0		0	58	249		0	0
Spillback Cap Reductn		0	4		1	0	0		163	0
Storage Cap Reductn		0	0		0	0	0		0	0
Reduced v/c Ratio		0.90	0.22		0.66	1.04	1.11		0.84	0.33

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 42 (38%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 52.7
 Intersection Capacity Utilization 101.1%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.

Queues
 5: Shaker Road & Main Street

Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Shaker Road & Main Street

 ø2 69 s		 ø4 41 s	
 ø5 34 s	 ø6 35 s	 ø8 41 s	

HCM Signalized Intersection Capacity Analysis
5: Shaker Road & Main Street

Synchro 7 Report
3/25/2013

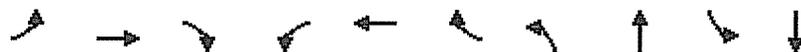


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔		↔	↔			↔	↔
Volume (vph)	125	125	205	50	170	50	380	805	40	30	500	155
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	16	16	16	12	13	13	11	12	12
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00			0.95	1.00
Frt		1.00	0.85		0.98		1.00	0.99			1.00	0.85
Flt Protected		0.98	1.00		0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1782	1760		2000		1671	1805			3461	1553
Flt Permitted		0.55	1.00		0.74		0.95	1.00			0.84	1.00
Satd. Flow (perm)		1009	1760		1493		1671	1805			2921	1553
Peak-hour factor, PHF	0.81	0.81	0.81	0.80	0.80	0.80	0.91	0.91	0.91	0.89	0.89	0.89
Adj. Flow (vph)	154	154	253	62	212	62	418	885	44	34	562	174
RTOR Reduction (vph)	0	0	31	0	7	0	0	2	0	0	0	61
Lane Group Flow (vph)	0	308	222	0	329	0	418	927	0	0	596	113
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	8%	8%	8%	4%	4%	4%
Turn Type	Perm		pm+ov	Perm			Prot			Perm		Perm
Protected Phases		4	5		8		5	2			6	
Permitted Phases	4		4	8						6		6
Actuated Green, G (s)		34.0	61.8		34.0		27.8	64.0			30.2	30.2
Effective Green, g (s)		36.0	65.8		36.0		29.8	66.0			32.2	32.2
Actuated g/C Ratio		0.33	0.60		0.33		0.27	0.60			0.29	0.29
Clearance Time (s)		6.0	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	3.0
Lane Grp Cap (vph)		330	1117		489		453	1083			855	455
v/s Ratio Prot			0.05				c0.25	c0.51				
v/s Ratio Perm		c0.31	0.07		0.22						0.20	0.07
v/c Ratio		0.93	0.20		0.67		0.92	0.86			0.70	0.25
Uniform Delay, d1		35.8	10.1		31.9		39.0	18.1			34.6	29.7
Progression Factor		1.00	1.00		1.00		0.83	0.50			1.00	1.00
Incremental Delay, d2		32.5	0.1		3.6		14.6	4.6			4.7	1.3
Delay (s)		68.4	10.2		35.5		46.9	13.7			39.2	31.0
Level of Service		E	B		D		D	B			D	C
Approach Delay (s)		42.1			35.5			24.0			37.4	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM Average Control Delay	32.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	101.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Queues
1: Route 202 & Route 26A (Gray Bypass)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↖	↑	↗	↖↗	↑	↗	↖	↑	↖	↑↗
Volume (vph)	165	500	145	225	550	250	70	30	140	195
Lane Group Flow (vph)	179	543	158	242	591	269	76	115	146	432
Turn Type	Prot		pt+ov	Prot		pt+ov	Prot		Prot	
Protected Phases	5	2	2 7	1	6	3 6	7	4	3	8
Permitted Phases										
Detector Phase	5	2	2 7	1	6	3 6	7	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	10.0	5.0	10.0
Minimum Split (s)	16.0	16.0		16.0	16.0		16.0	16.0	16.0	16.0
Total Split (s)	18.0	46.0	62.0	16.0	44.0	61.0	16.0	16.0	17.0	17.0
Total Split (%)	18.9%	48.4%	65.3%	16.8%	46.3%	64.2%	16.8%	16.8%	17.9%	17.9%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Min		None	C-Min		None	None	None	None
Act Effct Green (s)	14.0	42.6	57.2	11.9	40.5	53.0	10.6	12.0	12.5	13.9
Actuated g/C Ratio	0.15	0.45	0.60	0.13	0.43	0.56	0.11	0.13	0.13	0.15
v/c Ratio	0.68	0.64	0.16	0.58	0.74	0.27	0.38	0.40	0.65	0.66
Control Delay	52.7	25.0	2.8	45.5	26.9	5.0	44.2	18.8	53.2	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.7	25.0	2.8	45.5	26.9	5.0	44.2	18.8	53.2	23.2
LOS	D	C	A	D	C	A	D	B	D	C
Approach Delay		26.6			25.7			28.9		30.8
Approach LOS		C			C			C		C
Queue Length 50th (ft)	101	249	9	57	283	58	43	18	84	59
Queue Length 95th (ft)	#191	365	32	111	364	61	86	69	#157	112
Internal Link Dist (ft)		734			1299			164		767
Turn Bay Length (ft)	200		200	200		175	125		200	
Base Capacity (vph)	272	847	1023	425	804	1022	228	286	235	657
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.64	0.15	0.57	0.74	0.26	0.33	0.40	0.62	0.66

Intersection Summary

Cycle Length: 95
 Actuated Cycle Length: 95
 Offset: 56 (59%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 27.3
 Intersection Capacity Utilization 68.1%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.

Intersection LOS: C
 ICU Level of Service C

Queues
 1: Route 202 & Route 26A (Gray Bypass)

Queue shown is maximum after two cycles.

Splits and Phases: 1: Route 202 & Route 26A (Gray Bypass)

 ø1	 ø2	 ø3	 ø4
16 s	46 s	17 s	16 s
 ø6	 ø5	 ø7	 ø8
44 s	18 s	16 s	17 s

HCM Signalized Intersection Capacity Analysis
 1: Route 202 & Route 26A (Gray Bypass)

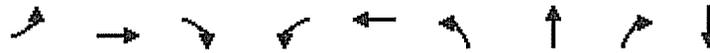
Synchro 7 Report
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	165	500	145	225	550	250	70	30	75	140	195	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	16	12	12	12	11	11	16
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00		1.00	0.95	
Fr _t	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.89		1.00	0.92	
Fl _t Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	1881	1599	3319	1863	1794	1805	1697		1711	3149	
Fl _t Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1787	1881	1599	3319	1863	1794	1805	1697		1711	3149	
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.96	0.96	0.96
Adj. Flow (vph)	179	543	158	242	591	269	76	33	82	146	203	229
RTOR Reduction (vph)	0	0	48	0	0	0	0	72	0	0	195	0
Lane Group Flow (vph)	179	543	110	242	591	269	76	43	0	146	237	0
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	2%	2%	2%
Turn Type	Prot		pt+ov	Prot		pt+ov	Prot			Prot		
Protected Phases	5	2	2.7	1	6	3.6	7	4		3	8	
Permitted Phases												
Actuated Green, G (s)	12.0	40.6	55.2	9.9	38.5	49.0	8.6	10.0		10.5	11.9	
Effective Green, g (s)	14.0	42.6	57.2	11.9	40.5	53.0	10.6	12.0		12.5	13.9	
Actuated g/C Ratio	0.15	0.45	0.60	0.13	0.43	0.56	0.11	0.13		0.13	0.15	
Clearance Time (s)	6.0	6.0		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		3.0	3.0	
Lane Grp Cap (vph)	263	843	963	416	794	1001	201	214		225	461	
v/s Ratio Prot	0.10	c0.29	0.07	0.07	c0.32	0.15	0.04	0.03		c0.09	c0.08	
v/s Ratio Perm												
v/c Ratio	0.68	0.64	0.11	0.58	0.74	0.27	0.38	0.20		0.65	0.51	
Uniform Delay, d1	38.4	20.3	8.1	39.2	22.9	10.9	39.1	37.2		39.2	37.4	
Progression Factor	1.00	1.00	1.00	1.03	0.90	0.80	1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.1	3.8	0.1	1.7	5.3	0.1	1.2	0.5		6.3	1.0	
Delay (s)	45.4	24.1	8.1	42.0	25.9	8.8	40.3	37.7		45.5	38.4	
Level of Service	D	C	A	D	C	A	D	D		D	D	
Approach Delay (s)		25.6			25.3			38.7			40.2	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	29.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
2: Route 202 & Gray Graveyard



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Configurations		↕↕	↗	↖	↔	↖	↕	↗	↔
Volume (vph)	1	580	135	35	685	340	0	155	0
Lane Group Flow (vph)	0	618	144	38	746	185	185	168	4
Turn Type	Perm		pt+ov	Prot		Split		pt+ov	
Protected Phases		2	24	1	6	4	4	14	8
Permitted Phases	2								
Detector Phase	2	2	24	1	6	4	4	14	8
Switch Phase									
Minimum Initial (s)	10.0	10.0		5.0	10.0	8.0	8.0		5.0
Minimum Split (s)	16.0	16.0		16.0	16.0	16.0	16.0		14.0
Total Split (s)	42.0	42.0	65.0	16.0	58.0	23.0	23.0	39.0	14.0
Total Split (%)	44.2%	44.2%	68.4%	16.8%	61.1%	24.2%	24.2%	41.1%	14.7%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0		3.0
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	3.0		3.0
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag		Lead					
Lead-Lag Optimize?									
Recall Mode	C-Min	C-Min		None	C-Min	None	None		None
Act Effct Green (s)		53.1	75.3	9.4	66.5	18.2	18.2	30.8	7.5
Actuated g/C Ratio		0.56	0.79	0.10	0.70	0.19	0.19	0.32	0.08
v/c Ratio		0.33	0.11	0.21	0.56	0.59	0.61	0.27	0.01
Control Delay		14.0	0.7	36.4	14.1	42.4	43.5	3.8	0.0
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		14.0	0.7	36.4	14.1	42.4	43.5	3.8	0.0
LOS		B	A	D	B	D	D	A	A
Approach Delay		11.5			15.2		30.7		0.0
Approach LOS		B			B		C		A
Queue Length 50th (ft)		131	2	19	267	105	105	0	0
Queue Length 95th (ft)		103	m0	m32	460	180	181	32	0
Internal Link Dist (ft)		1299			605		270		46
Turn Bay Length (ft)			350	205		145			
Base Capacity (vph)		1887	1399	236	1330	349	337	650	323
Starvation Cap Reductn		0	0	0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.33	0.10	0.16	0.56	0.53	0.55	0.26	0.01

Intersection Summary

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 17.8

Intersection LOS: B

Intersection Capacity Utilization 58.9%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Route 202 & Gray Graveyard

 ø1	 ø2	 ø4	 ø8
16 s	42 s	23 s	14 s
 ø6			
58 s			

HCM Signalized Intersection Capacity Analysis

2: Route 202 & Gray Graveyard

Synchro 7 Report
3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗	↖	↔		↖	↕	↗		↕↕	
Volume (vph)	1	580	135	35	685	1	340	0	155	0	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	13	12	12	12	11	12	12	12	12
Grade (%)		0%			-4%			0%			0%	
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0	
Lane Util. Factor		0.95	1.00	1.00	1.00		0.95	0.95	1.00		1.00	
Frt		1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.86	
Flt Protected		1.00	1.00	0.95	1.00		0.95	0.95	1.00		1.00	
Satd. Flow (prot)		3539	1689	1865	1900		1649	1594	1553		1644	
Flt Permitted		0.95	1.00	0.95	1.00		0.95	0.95	1.00		1.00	
Satd. Flow (perm)		3378	1689	1865	1900		1649	1594	1553		1644	
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25
Adj. Flow (vph)	1	617	144	38	745	1	370	0	168	0	0	4
RTOR Reduction (vph)	0	0	37	0	0	0	0	0	119	0	4	0
Lane Group Flow (vph)	0	618	107	38	746	0	185	185	49	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	0%	0%	0%
Turn Type	Perm		pt+ov	Prot			Split		pt+ov	Perm		
Protected Phases		2	2 4	1	6		4	4	1 4		8	
Permitted Phases	2									8		
Actuated Green, G (s)		46.3	68.5	7.4	59.7		16.2	16.2	23.6		1.1	
Effective Green, g (s)		48.3	70.5	9.4	61.7		18.2	18.2	27.6		3.1	
Actuated g/C Ratio		0.51	0.74	0.10	0.65		0.19	0.19	0.29		0.03	
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)		1717	1253	185	1234		316	305	451		54	
v/s Ratio Prot			0.06	0.02	c0.39		0.11	c0.12	0.03		c0.00	
v/s Ratio Perm		0.18										
v/c Ratio		0.36	0.09	0.21	0.60		0.59	0.61	0.11		0.00	
Uniform Delay, d1		14.0	3.4	39.4	9.6		35.0	35.1	24.7		44.5	
Progression Factor		1.05	0.75	0.88	1.44		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.5	0.0	0.5	1.8		2.8	3.4	0.1		0.0	
Delay (s)		15.2	2.5	35.3	15.7		37.7	38.5	24.8		44.5	
Level of Service		B	A	D	B		D	D	C		D	
Approach Delay (s)		12.8			16.6			34.0			44.5	
Approach LOS		B			B			C			D	

Intersection Summary			
HCM Average Control Delay	19.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 3: Route 202 & Central Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↓	↓	↓
Volume (veh/h)	640	35	45	675	25	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.88	0.88	0.75	0.75
Hourly flow rate (vph)	696	38	51	767	33	47
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	685			172		
pX, platoon unblocked				0.93	0.92	0.93
vC, conflicting volume				734	1584	367
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				555	1294	160
tC, single (s)				4.1	6.8	6.9
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				95	76	94
cM capacity (veh/h)				937	136	801

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	464	270	818	80
Volume Left	0	0	51	33
Volume Right	0	38	0	47
cSH	1700	1700	937	327
Volume to Capacity	0.27	0.16	0.05	0.24
Queue Length 95th (ft)	0	0	4	24
Control Delay (s)	0.0	0.0	1.4	22.3
Lane LOS			A	C
Approach Delay (s)	0.0		1.4	22.3
Approach LOS				C

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

Queues
4: Route 202 & Main Street



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Volume (vph)	400	190	170	130	445	20	400	420
Lane Group Flow (vph)	482	331	303	149	574	0	488	488
Turn Type	Split			Prot		Perm		Perm
Protected Phases	4	4	3	5	2		6	
Permitted Phases						6		6
Detector Phase	4	4	3	5	2	6	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	16.0	16.0	28.0	16.0	24.0	16.0	16.0	16.0
Total Split (s)	21.0	21.0	28.0	16.0	46.0	30.0	30.0	30.0
Total Split (%)	22.1%	22.1%	29.5%	16.8%	48.4%	31.6%	31.6%	31.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?								
Recall Mode	C-Min	C-Min	None	None	None	None	None	None
Act Effect Green (s)	21.3	21.3	20.2	11.7	41.5		25.8	25.8
Actuated g/C Ratio	0.22	0.22	0.21	0.12	0.44		0.27	0.27
v/c Ratio	0.55	0.71	0.68	0.67	0.66		0.91	0.61
Control Delay	37.5	43.2	41.5	55.7	25.0		45.6	5.2
Queue Delay	0.3	0.0	0.0	0.0	0.0		22.2	0.3
Total Delay	37.8	43.2	41.5	55.7	25.0		67.8	5.5
LOS	D	D	D	E	C		E	A
Approach Delay		40.0	41.5		31.3		36.7	
Approach LOS		D	D		C		D	
Queue Length 50th (ft)	80	98	165	87	259		299	5
Queue Length 95th (ft)	193	#298	212	#157	356		#434	21
Internal Link Dist (ft)		92	183		238		223	
Turn Bay Length (ft)				90				
Base Capacity (vph)	874	469	530	228	886		542	796
Starvation Cap Reductn	0	0	0	0	0		67	55
Spillback Cap Reductn	90	0	0	0	0		0	0
Storage Cap Reductn	0	0	0	0	0		0	0
Reduced v/c Ratio	0.61	0.71	0.57	0.65	0.65		1.03	0.66

Intersection Summary
 Cycle Length: 95
 Actuated Cycle Length: 95
 Offset: 56 (59%), Referenced to phase 4:EBTL, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 36.8
 Intersection LOS: D
 Intersection Capacity Utilization 90.6%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 4: Route 202 & Main Street

↑ ø2	↙ ø3	↘ ø4
46 s	28 s	21 s
↙ ø5	↓ ø6	
16 s	30 s	

HCM Signalized Intersection Capacity Analysis

4: Route 202 & Main Street

Synchro 7 Report
3/25/2013

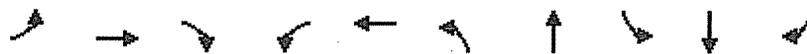


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	↔
Volume (vph)	400	190	85	55	170	20	130	445	55	20	400	420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	16	16	12	14	14	15	15	16
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	1.00			1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.95			0.99		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00			0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)	3891	2014			2085		1805	1993			2064	1613
Flt Permitted	0.95	1.00			0.99		0.95	1.00			0.96	1.00
Satd. Flow (perm)	3891	2014			2085		1805	1993			1980	1613
Peak-hour factor, PHF	0.83	0.83	0.83	0.81	0.81	0.81	0.87	0.87	0.87	0.86	0.86	0.86
Adj. Flow (vph)	482	229	102	68	210	25	149	511	63	23	465	488
RTOR Reduction (vph)	0	16	0	0	4	0	0	5	0	0	0	355
Lane Group Flow (vph)	482	315	0	0	299	0	149	569	0	0	488	133
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Parking (#/hr)												2
Turn Type	Split			Split			Prot			Perm		Perm
Protected Phases	4	4		3	3		5	2				6
Permitted Phases										6		6
Actuated Green, G (s)	19.3	19.3			18.2		9.7	39.5			23.8	23.8
Effective Green, g (s)	21.3	21.3			20.2		11.7	41.5			25.8	25.8
Actuated g/C Ratio	0.22	0.22			0.21		0.12	0.44			0.27	0.27
Clearance Time (s)	6.0	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	3.0
Lane Grp Cap (vph)	872	452			443		222	871			538	438
v/s Ratio Prot	0.12	c0.16			c0.14		0.08	c0.29				
v/s Ratio Perm											c0.25	0.08
v/c Ratio	0.55	0.70			0.68		0.67	0.65			0.91	0.30
Uniform Delay, d1	32.6	33.9			34.4		39.8	21.1			33.4	27.5
Progression Factor	1.03	1.01			1.00		1.00	1.00			0.74	0.74
Incremental Delay, d2	2.5	8.4			4.0		7.7	1.8			16.8	0.3
Delay (s)	36.1	42.7			38.4		47.5	22.9			41.4	20.8
Level of Service	D	D			D		D	C			D	C
Approach Delay (s)		38.8			38.4			28.0			31.1	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	33.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	90.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
5: Shaker Road & Main Street



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↖	↗		↕	↗
Volume (vph)	170	110	285	60	115	285	550	30	550	125
Lane Group Flow (vph)	0	341	348	0	281	331	698	0	659	142
Turn Type	Perm		pm+ov	Perm		Prot		Perm		Perm
Protected Phases		4	5		8	5	2		6	
Permitted Phases	4		4	8				6		6
Detector Phase	4	4	5	8	8	5	2	6	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	35.0	35.0	16.0	37.0	37.0	16.0	24.0	32.0	32.0	32.0
Total Split (s)	38.0	38.0	25.0	38.0	38.0	25.0	57.0	32.0	32.0	32.0
Total Split (%)	40.0%	40.0%	26.3%	40.0%	40.0%	26.3%	60.0%	33.7%	33.7%	33.7%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	5.0	4.0	4.0	5.0	4.0	4.0	4.0	5.0	4.0	4.0
Lead/Lag			Lead			Lead		Lag	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		32.0	56.8		32.0	20.8	55.0		30.2	30.2
Actuated g/C Ratio		0.34	0.60		0.34	0.22	0.58		0.32	0.32
v/c Ratio		0.90	0.31		0.60	0.84	0.63		0.65	0.25
Control Delay		58.6	7.9		30.2	48.7	7.3		32.4	14.2
Queue Delay		0.0	0.0		0.0	3.5	2.7		1.4	0.0
Total Delay		58.6	7.9		30.2	52.2	10.0		33.8	14.2
LOS		E	A		C	D	A		C	B
Approach Delay		33.0			30.2		23.6		30.3	
Approach LOS		C			C		C		C	
Queue Length 50th (ft)		187	70		126	176	45		185	30
Queue Length 95th (ft)		#294	100		178	#301	74		242	74
Internal Link Dist (ft)		258			295		223		212	
Turn Bay Length (ft)										60
Base Capacity (vph)		400	1130		495	401	1115		1008	559
Starvation Cap Reductn		0	0		0	27	292		0	0
Spillback Cap Reductn		0	3		1	0	0		176	0
Storage Cap Reductn		0	0		0	0	0		0	0
Reduced v/c Ratio		0.85	0.31		0.57	0.89	0.85		0.79	0.25

Intersection Summary

Cycle Length: 95
 Actuated Cycle Length: 95
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 28.5
 Intersection Capacity Utilization 89.0%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.

Queues
 5: Shaker Road & Main Street

Queue shown is maximum after two cycles.

Splits and Phases: 5: Shaker Road & Main Street

 ø2 57 s		 ø4 38 s	
 ø5 25 s	 ø6 32 s	 ø8 38 s	

HCM Signalized Intersection Capacity Analysis
5: Shaker Road & Main Street

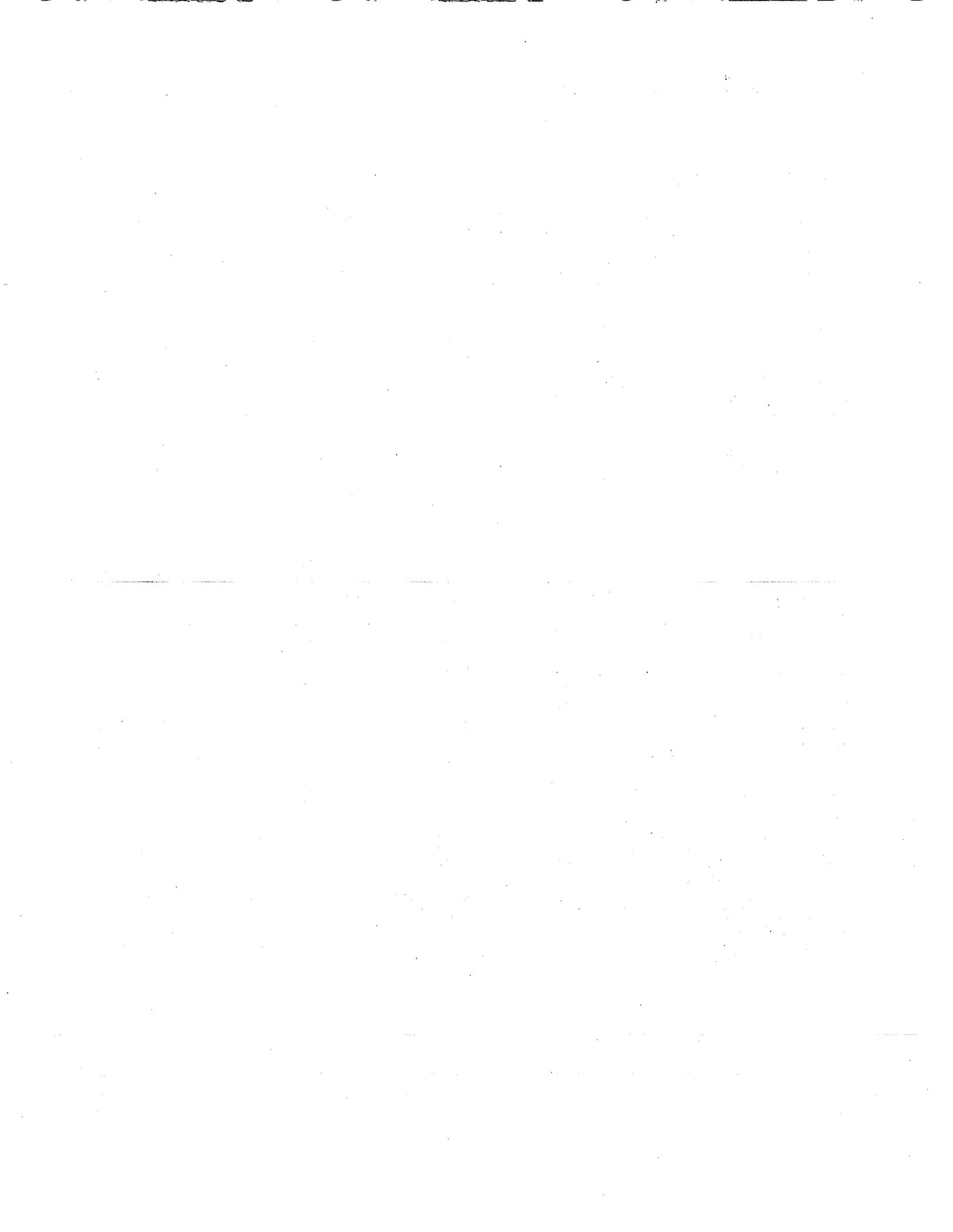
Synchro 7 Report
3/25/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↖	↕			↕	↗
Volume (vph)	170	110	285	60	115	50	285	550	50	30	550	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	16	16	16	12	13	13	11	12	12
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00			0.95	1.00
Frt		1.00	0.85		0.97		1.00	0.99			1.00	0.85
Flt Protected		0.97	1.00		0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1844	1830		2041		1787	1920			3565	1599
Flt Permitted		0.59	1.00		0.65		0.95	1.00			0.89	1.00
Satd. Flow (perm)		1120	1830		1353		1787	1920			3174	1599
Peak-hour factor, PHF	0.82	0.82	0.82	0.80	0.80	0.80	0.86	0.86	0.86	0.88	0.88	0.88
Adj. Flow (vph)	207	134	348	75	144	62	331	640	58	34	625	142
RTOR Reduction (vph)	0	0	28	0	11	0	0	3	0	0	0	51
Lane Group Flow (vph)	0	341	320	0	270	0	331	695	0	0	659	91
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Perm		pm+ov	Perm			Prot			Perm		Perm
Protected Phases		4	5		8		5	2			6	
Permitted Phases	4		4	8						6		6
Actuated Green, G (s)		30.0	48.8		30.0		18.8	53.0			28.2	28.2
Effective Green, g (s)		32.0	52.8		32.0		20.8	55.0			30.2	30.2
Actuated g/C Ratio		0.34	0.56		0.34		0.22	0.58			0.32	0.32
Clearance Time (s)		6.0	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	3.0
Lane Grp Cap (vph)		377	1094		456		391	1112			1009	508
v/s Ratio Prot			0.06				c0.19	c0.36				
v/s Ratio Perm		c0.30	0.11		0.20						0.21	0.06
v/c Ratio		0.90	0.29		0.59		0.85	0.62			0.65	0.18
Uniform Delay, d1		30.0	11.2		26.1		35.6	13.2			27.9	23.4
Progression Factor		1.00	1.00		1.00		0.87	0.36			1.00	1.00
Incremental Delay, d2		24.3	0.1		2.1		12.9	2.1			3.3	0.8
Delay (s)		54.3	11.3		28.1		43.8	7.0			31.2	24.2
Level of Service		D	B		C		D	A			C	C
Approach Delay (s)		32.6			28.1			18.8			29.9	
Approach LOS		C			C			B			C	

Intersection Summary

HCM Average Control Delay	26.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



APPENDIX D - CRASH CHARACTERISTIC SUMMARY

2009 through 2011 Project Area Crash Summary

INTERSECTION	INTERSECTION				TOTAL	PERCENT
	Gray Road (Route 4) at Gray By-Pass (Route 26A)	Gray Road (Route 4) at I-95 Ramps	Gray Road (Route 4) at Center Road, Main Street (Route 26), Yarmouth Road (Route 115)	Main Street (Route 4) at Shaker Road (Route 26) and Brown Street		
Crash Rate	0.69	0.32	0.94	0.54	-	-
Critical Rate	1.06	1.03	1.03	1.05	-	-
Critical Rate Factor	0.65	0.31	0.92	0.51	-	-
YEAR						
2011	3	2	13	5	23	39%
2010	5	1	4	4	14	24%
2009	7	5	7	3	22	37%
Total	15	8	24	12	59	100%
TYPE						
Rear End/Sideswipe	13	5	12	5	35	59%
Intersection Movement	2	2	11	7	22	37%
Object in Road			1		1	2%
Other/Unknown		1			1	2%
Total	15	8	24	12	59	100%
SEVERITY						
Property Damage	12	5	18	11	46	78%
Personal Injury	3	3	6	1	13	22%
Total	15	8	24	12	59	100%
DAY OF WEEK						
Mon-Fri	12	8	20	8	48	81%
Sat-Sun	3	0	4	4	11	19%
Total	15	8	24	12	59	100%
SURFACE CONDITION						
Dry	9	8	16	8	41	69%
Wet	4		4	2	10	17%
Ice/Frost				1	1	2%
Snow	2		3	1	6	10%
Slush			1		1	2%
Total	15	8	24	12	59	100%
WEATHER						
Clear/Cloudy	9	8	18	10	45	76%
Rain	4		4		8	14%
Snow/Ice	2		2	2	6	10%
Total	15	8	24	12	59	100%
LIGHT						
Dawn (Morning)	2	1	0	1	4	7%
Daylight	9	5	20	10	44	75%
Dusk (Evening)	2	1	1	0	4	7%
Dark (Street Lights On)	2	1	3	1	7	12%
Total	15	8	24	12	59	100%
SEASON						
Winter (Dec-Feb)	4	1	9	6	20	34%
Spring (Mar-May)	3	3	3	2	11	19%
Summer (Jun-Aug)	4	3	7	2	16	27%
Fall (Sept-Nov)	4	1	5	2	12	20%
Total	15	8	24	12	59	100%

Source: Maine Department of Transportation.

APPENDIX E – RESOURCE AGENCY RESPONSE LETTER



STATE OF MAINE
DEPARTMENT OF CONSERVATION
93 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0093

PAUL R. LEPAGE
GOVERNOR

WILLIAM H. BEARDSLEY
COMMISSIONER

October 18, 2012

Nancy Rendall
Vanasse Hangen Brustlin, Inc.
Six Bedford Farms Drive, Suite 607
Bedford, NH 03110

RECEIVED

OCT 26 2012

VHB, INC.

Re: Rare and exemplary botanical features in proximity to: Job 52228.00, Maine Turnpike Authority, I-95 Exit 63, Gray, Maine

Dear Ms. Rendall:

I have searched the Natural Areas Program's Biological and Conservation Data System files in response to your request received October 17, 2012 for information on the presence of rare or unique botanical features documented from the vicinity of the project site in Gray, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. Based on the information in our files and the landscape context of this project, there is a low probability that rare or significant botanical features occur at this project location.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

The Natural Areas Program is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. The Natural Areas Program welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by the Natural Areas Program are to be published in any form, the Program should be informed at the outset and credited as the source.

Letter to VHB
Comments RE: I-95 Exit 63
October 18, 2012
Page 2 of 2

The Natural Areas Program has instituted a fee structure of \$75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for \$150.00 for our services.

Thank you for using the Natural Areas Program in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,



Don Cameron
Ecologist
Maine Natural Areas Program
207-287-8041
don.s.cameron@maine.gov



PAUL R. LePAGE
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
284 STATE STREET
41 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0041

CHANDLER E. WOODCOCK
COMMISSIONER

October 25, 2012

Nancy B. Rendall
Vanasse Hangen Brustlin, Inc.
Six Bedford Farms Drive, Suite 607
Bedford, NH 03110-6532

RE: Information Request, Maine Turnpike Authority, I-95 Exit 63 Transportation Feasibility Study, Gray

Dear Nancy:

Per your request received October 22 we have searched current Department records for known occurrences of Rare, Threatened, and Endangered species, designated Essential and Significant Wildlife Habitats, and fisheries habitat concerns within the vicinity of I-95 Exit 63 in Gray.

Our records indicate no occurrences of Rare, Threatened, or Endangered animal species within the project area. Additionally, our department has not mapped any Essential or Significant Wildlife Habitats or Fisheries Habitats that would be directly impacted by your project.

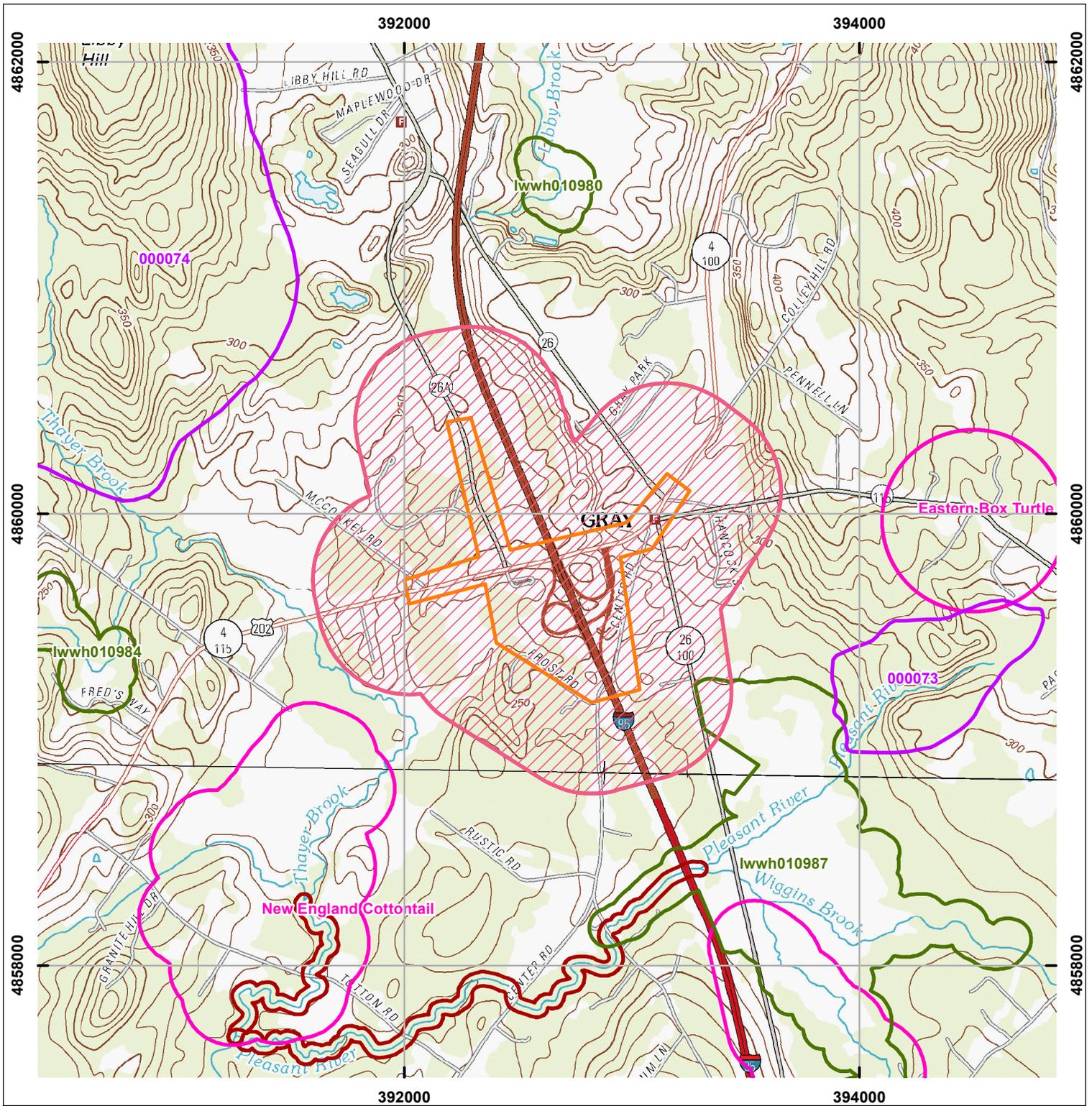
This consultation review has been conducted specifically for known MDIF&W jurisdictional features and should not be interpreted as a comprehensive review for the presence of all regulated features that may occur on site. Prior to the start of any future site disturbance we recommend additional consultation with the municipality, and other state resource agencies including the Maine Natural Areas Program and Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance.

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,

A handwritten signature in blue ink, appearing to read 'Steve Walker', written over a light blue horizontal line.

Steve Walker
Acting Environmental Review Coordinator



Environmental Review of Fish and Wildlife Observations and Priority Habitats

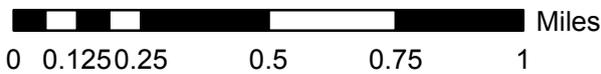
Project Name:

MTA Exit 63 Feasibility Study

(Version 1)



Maine Department of
Inland Fisheries and Wildlife



Projection: UTM, NAD83, Zone 19N

Date: 10/25/2012

	ProjectPoints		Deer Winter Area		Roseate Tern
	ProjectLines		LURC p-fw		Piping Plover/Least Tern
	ProjectPolys		Cooperative DWAs		Aquatic ETSc (2.5 mi review)
	ProjectSearchAreas		Seabird Nesting Islands		Rare Mussels (5 mi review)
			Shorebird Areas		A and B List Ponds
			Inland Waterfowl/Wading Bird		Arctic Charr Habitat
			Shoreland Zoning_lwwh		E. Brook Trout Joint Venture Subwatershed Classification
			Tidal Waterfowl/Wading Bird		Redfin Pickerel/Swamp Darter Habitats (buffer100ft)
			Significant Vernal Pools		Special Concern-occupied habitats(100ft buffer)
			Environmental Review Polygons		Wild Lake Trout Habitats





United States Department of the Interior



FISH AND WILDLIFE SERVICE
MAINE ECOLOGICAL SERVICES FIELD OFFICE
17 GODFREY DRIVE, SUITE 2
ORONO, ME 04473
PHONE: (207)866-3344 FAX: (207)866-3351
URL: www.fws.gov/mainefieldoffice/index.html

Consultation Tracking Number: 05E1ME00-2013-SLI-0023

November 05, 2012

Project Name: Exit 63, Gray, ME

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.

To Whom It May Concern:

The enclosed species list identifies the threatened, endangered, candidate, and proposed species and designated or proposed critical habitat that may occur within the boundary of your proposed project or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC Web site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the Endangered Species Consultation Handbook at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

This species list also identifies candidate species under review for listing and those species that the Service considers species of concern. Candidate species have no protection under the Act but are included for consideration because they could be listed prior to completion of your project. Species of concern are those taxa whose conservation status is of concern to the Service (i.e., species previously known as Category 2 candidates), but for which further information is needed.

If a proposed project may affect only candidate species or species of concern, you are not required to prepare a Biological Assessment or biological evaluation or to consult with the Service. However, the Service recommends minimizing effects to these species to prevent future conflicts. Therefore, if early evaluation indicates that a project will affect a candidate species or species of concern, you may wish to request technical assistance from this office to identify appropriate minimization measures.

Please be aware that bald and golden eagles are not protected under the Endangered Species Act but are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.). Projects affecting these species may require development of an eagle conservation plan: http://www.fws.gov/windenergy/eagle_guidance.html Information on the location of bald eagle nests in Maine can be found on the Maine Field Office Web site: <http://www.fws.gov/mainefieldoffice/Project%20review4.html>

Additionally, wind energy projects should follow the wind energy guidelines: <http://www.fws.gov/windenergy/> for minimizing impacts to migratory birds and bats. Projects may require development of an avian and bat protection plan.

Migratory birds are also a Service trust resource. Under the Migratory Bird Treaty Act, construction activities in grassland, wetland, stream, woodland, and other habitats that would result in the take of migratory birds, eggs, young, or active nests should be avoided. Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm> and at:

<http://www.towerkill.com>; and at:

<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



United States Department of Interior
Fish and Wildlife Service

Project name: Exit 63, Gray, ME

Official Species List

Provided by:

MAINE ECOLOGICAL SERVICES FIELD OFFICE

17 GODFREY DRIVE, SUITE 2

ORONO, ME 04473

(207) 866-3344

<http://www.fws.gov/mainefieldoffice/index.html>

Consultation Tracking Number: 05E1ME00-2013-SLI-0023

Project Type: Transportation

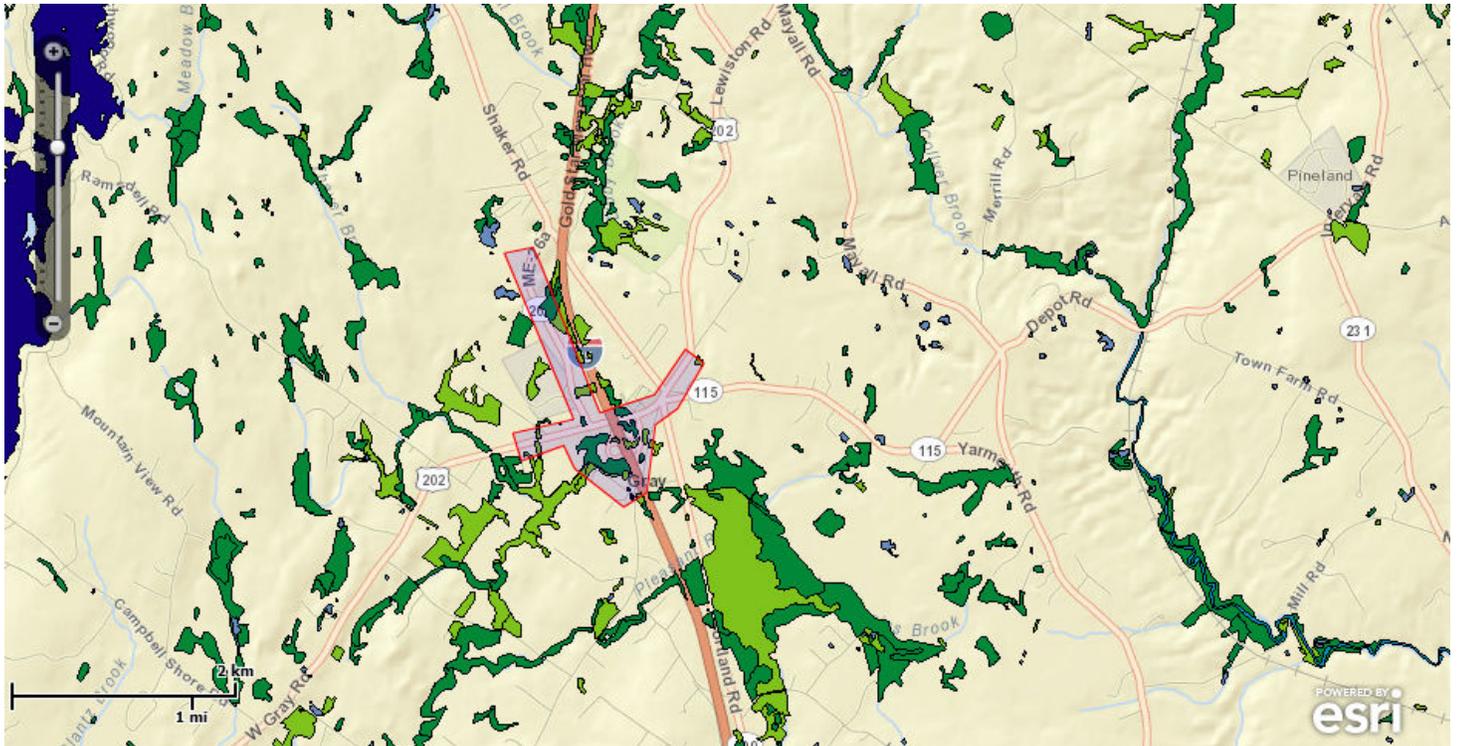
Project Description: The Maine Turnpike Authority is investigating alternatives to make improvements to the Southbound Ramp and other associated improvements as needed.



United States Department of Interior
Fish and Wildlife Service

Project name: Exit 63, Gray, ME

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-70.3450036 43.8974102, -70.3442912 43.8963742, -70.337532 43.8841083, -70.3314209 43.8855713, -70.3279876 43.889221, -70.3259277 43.8881075, -70.3288459 43.8844578, -70.331335 43.8831587, -70.3322792 43.8777145, -70.3348541 43.876539, -70.3403472 43.8796324, -70.3415489 43.8814884, -70.3462653 43.8802511, -70.3472137 43.8824782, -70.3404331 43.8835917, -70.3481535 43.8969525, -70.3450036 43.8974102)))

Project Counties: Cumberland, ME



United States Department of Interior
Fish and Wildlife Service

Project name: Exit 63, Gray, ME

Endangered Species Act Species List

Species lists are not entirely based upon the current range of a species but may also take into consideration actions that affect a species that exists in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Please contact the designated FWS office if you have questions.

New England Cottontail rabbit (*Sylvilagus transitionalis*)

Listing Status: Candidate

Small Whorled pogonia (*Isotria medeoloides*)

Listing Status: Threatened



PAUL R. LEPAGE
GOVERNOR

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
MAINE CONSERVATION CORPS
124 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0124

WALTER E. WHITCOMB
COMMISSIONER

November 15, 2012

RECEIVED

NOV 19 2012

VHB, INC.

Nancy Rendall, Senior Environmental Scientist
Vanasse Hangen Brustlin Inc.
6 Bedford Farms Drive, Suite 607
Bedford, NH 03110-6532

Re: Transportation Feasibility Study—Gray Maine #52228.00

Dear Ms. Rendall,

I have reviewed your project map for possible proposed location of possible future work in Gray. This project will not impact any 6 (f) funded sites of the Land and Water Conservation Fund Act.

If there are further information that you need for your project, please let me know. You can contact me at 207-287-4962 or e-mail: mick.rogers@maine.gov.

Sincerely,

Mick Rogers, Manager
Alternate State Liaison Officer

From: [Reed, Robin K](#)
To: [Rendall, Nancy](#)
Cc: [Mohney, Kirk](#)
Subject: MHPC# 1680-12 MTA Contract #2011.115a; I-95 Exit 63 feasibility study
Date: Friday, November 16, 2012 7:04:43 PM
Attachments: [MHPC# 1680-12 architectural resources.pdf](#)

MHPC# 1680-12 MTA Contract #2011.115a; I-95 Exit 63 feasibility study

Nancy:

In response to your recent request, our office has reviewed the information received October 17 and November 13, 2012 (interagency meeting) to initiate consultation on the above referenced project pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended.

Regarding National Register listed and known eligible architectural resources, please see the enclosed maps and architectural survey forms.

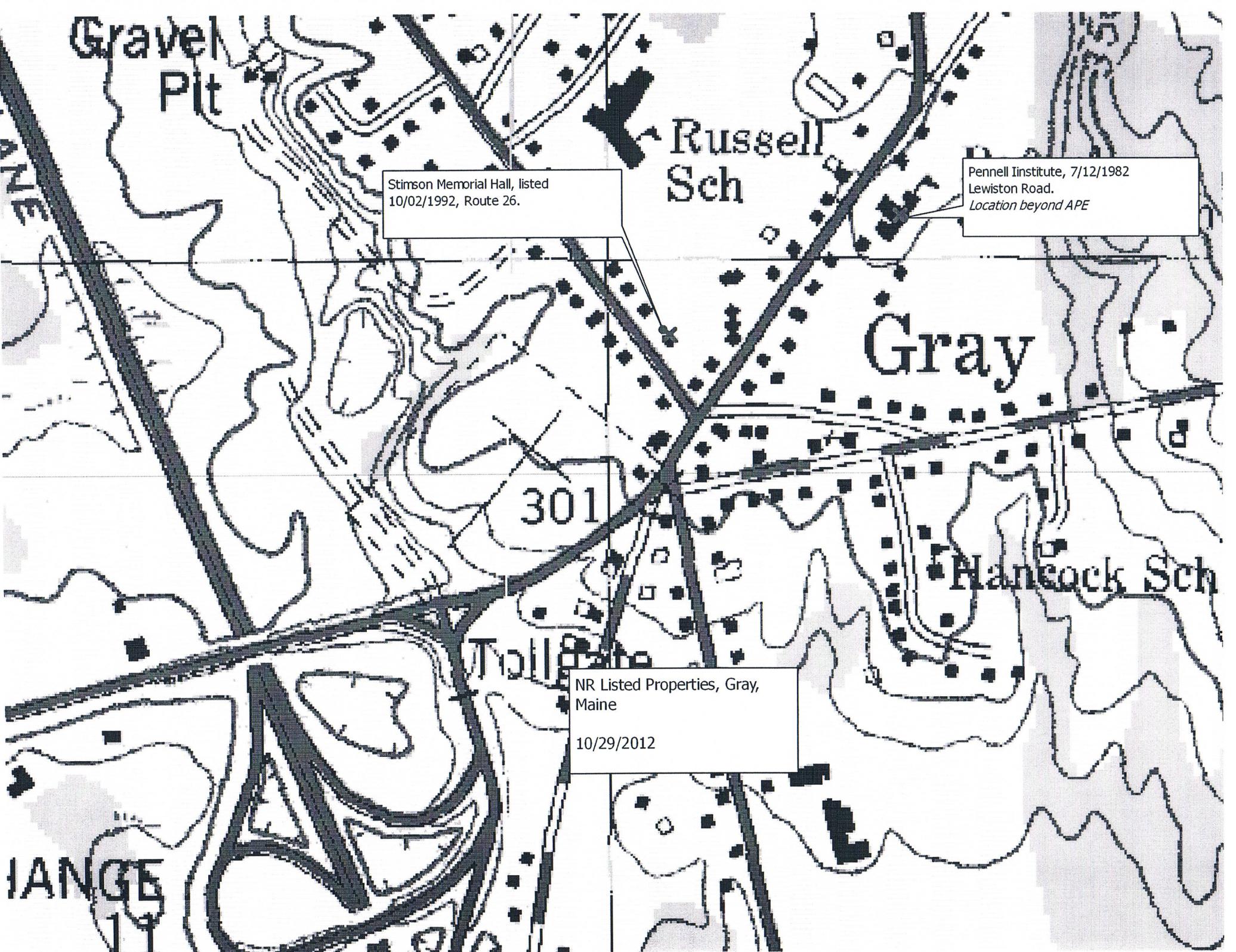
As this project becomes more defined, architectural survey may be necessary to determine whether there are potentially eligible architectural resources within the project area. As you may know, the Section 106 review process considers historic properties that are National Register listed, previously determined eligible, and potentially eligible. The only way to determine whether there are potentially eligible properties is to conduct architectural survey. We have specific requirements for architectural survey. Please let me know if you need more information about conducting survey for our office.

Your letter did not request any information regarding archaeological resources. Depending on the nature of this undertaking and the areas of proposed ground disturbance, archaeological survey may also be required for this project.

In addition, an assessment of effects will need to be submitted to our office for historic properties (archaeological or architectural) that are identified, pursuant to the Section 106 regulations.

We look forward to continuing consultation with you on this project.

Robin K. Reed
Maine Historic Preservation Commission
55 Capitol Street
65 State House Station
Augusta, ME 04333
phone: 207-287-2132 ext. 1
fax: 207-287-2335
robin.k.reed@maine.gov
<http://www.maine.gov/mhpc>



Gravel Pit

Russell Sch

Pennell Institute, 7/12/1982
Lewiston Road.
Location beyond APE

Stimson Memorial Hall, listed
10/02/1992, Route 26.

Gray

301

Hancock Sch

NR Listed Properties, Gray,
Maine
10/29/2012

CHANGE

2.22.06

SURVEY MAP NO.

SURVEY MAP NAME

PIN 9011

MHPC USE ONLY

177-0021

INVENTORY NO.

CH

MAINE HISTORIC PRESERVATION COMMISSION Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): Stimson Memorial Hall

2. PROPERTY NAME (OTHER): _____

3. STREET ADDRESS: _____

4. TOWN: Oran

5. COUNTY: Cumberland

6. DATE RECORDED: 7/10/02

7. SURVEYOR: Hudson, C

8. OWNER NAME: _____

ADDRESS: _____

9. PRIMARY USE (PRESENT):

<input type="checkbox"/> SINGLE FAMILY	<input type="checkbox"/> AGRICULTURE	<input type="checkbox"/> COMMERCIAL/TRADE	<input type="checkbox"/> FUNERARY
<input type="checkbox"/> MULTI-FAMILY	<input type="checkbox"/> GOVERNMENTAL	<input type="checkbox"/> EDUCATION	<input type="checkbox"/> HEALTH CARE
<input type="checkbox"/> INDUSTRY	<input type="checkbox"/> RELIGIOUS	<input type="checkbox"/> HOTEL	<input type="checkbox"/> LANDSCAPE
<input type="checkbox"/> TRANSPORTATION	<input type="checkbox"/> DEFENSE	<input type="checkbox"/> SUMMER COTTAGE/CAMP	<input type="checkbox"/> SOCIAL
<input checked="" type="checkbox"/> RECREATION/CULTURE	<input type="checkbox"/> UNKNOWN		
<input type="checkbox"/> OTHER _____			

10. CONDITION: GOOD FAIR POOR DESTROYED, DATE / /

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:

<input type="checkbox"/> COLONIAL	<input type="checkbox"/> STICK STYLE	<input type="checkbox"/> NEO-CLASSICAL REV.	<input type="checkbox"/> FOUR SQUARE
<input type="checkbox"/> FEDERAL	<input type="checkbox"/> QUEEN ANNE	<input type="checkbox"/> RENAISSANCE REV.	<input type="checkbox"/> ART DECO
<input checked="" type="checkbox"/> GREEK REVIVAL	<input type="checkbox"/> SHINGLE STYLE	<input type="checkbox"/> 19TH/20TH C. REVIVAL	<input type="checkbox"/> INTERNATIONAL
<input type="checkbox"/> GOTHIC REVIVAL	<input type="checkbox"/> R. ROMANESQUE	<input type="checkbox"/> ARTS & CRAFTS	<input type="checkbox"/> RANCH
<input type="checkbox"/> ITALIANATE	<input type="checkbox"/> ROMANESQUE	<input type="checkbox"/> BUNGALOW	<input type="checkbox"/> VERNACULAR
<input type="checkbox"/> SECOND EMPIRE	<input type="checkbox"/> HIGH VIC. GOTHIC	OTHER _____	

12. OTHER STYLISTIC CATEGORY:

<input type="checkbox"/> COLONIAL	<input type="checkbox"/> STICK STYLE	<input type="checkbox"/> NEO-CLASSICAL REV.	<input type="checkbox"/> FOUR SQUARE
<input type="checkbox"/> FEDERAL	<input type="checkbox"/> QUEEN ANNE	<input type="checkbox"/> RENAISSANCE REV.	<input type="checkbox"/> ART DECO
<input type="checkbox"/> GREEK REVIVAL	<input type="checkbox"/> SHINGLE STYLE	<input type="checkbox"/> 19TH/20TH C. REVIVAL	<input type="checkbox"/> INTERNATIONAL
<input type="checkbox"/> GOTHIC REVIVAL	<input type="checkbox"/> R. ROMANESQUE	<input type="checkbox"/> ARTS & CRAFTS	<input type="checkbox"/> RANCH
<input type="checkbox"/> ITALIANATE	<input type="checkbox"/> ROMANESQUE	<input type="checkbox"/> BUNGALOW	<input type="checkbox"/> VERNACULAR
<input type="checkbox"/> SECOND EMPIRE	<input type="checkbox"/> HIGH VIC. GOTHIC	OTHER _____	

13. HEIGHT: 1 STORY 1 1/2 STORY 2 STORY 2 1/2 STORY 3 STORY 4 STORY

5 STORY OVER 5 ()

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR):

1 BAY 2 BAY 3 BAY 4 BAY 5 BAY MORE THAN 5 ()

15. APPENDAGES: SIDE ELL DORMERS REAR ELL PORCH FRONT TOWER ADDED STORIES CUPOLA SHED BAY WINDOW



16. PORCH: ATTACHED FULL WIDTH ENGAGED WRAPAROUND ONE STORY SLEEPING PORCH MORE THAN ONE STORY SECONDARY PORCH
17. PLAN: HALL AND PARLOR BACK HALL 1/2 CAPE IRREGULAR CENTRAL HALL OTHER SIDE HALL
18. PRIMARY STRUCTURAL SYSTEM: TIMBER FRAME BRACED FRAME BRICK LOG OTHER STONE PLANK WALL BALLOON FRAME PLATFORM FRAME CONCRETE STEEL FRAME CONSTRUCTION - TYPE UNKNOWN
19. CHIMNEY PLACEMENT: INTERIOR OTHER INTERIOR FRONT/REAR CENTER INTERIOR END EXTERIOR
20. ROOF CONFIGURATION: GABLE SIDE GAMBREL COMPOUND GABLE FRONT PARAPET GABLE OTHER HIP SHED MANSARD CROSS FLAT GABLE
21. ROOF MATERIAL: WOOD METAL TILE SLATE ASPHALT ASBESTOS
22. EXTERIOR WALL MATERIALS: CLAPBOARD LOG GRANITE OTHER BRICK PRESSED METAL ASBESTOS FLUSH SHEATHING CONCRETE TERRA COTTA WOOD SHINGLE STUCCO BOARD AND BATTEN STONE ASPHALT ALUMINUM/VINYL
23. FOUNDATION MATERIAL: FIELDSTONE OTHER BRICK WOOD CONCRETE GRANITE ORNAMENTAL CONC. BLOCK
24. OUTBUILDINGS/FEATURES: CARRIAGE HOUSE BARN (DETACHED) GARAGE FENCE OR WALL FORMAL GARDEN OTHER CEMETERY LANDSCAPE/PLANT MAT. BARN (CONNECTED) ARCHAEOLOGICAL SITE

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: 1960 26. ESTIMATED DATE OF CONSTRUCTION: _____
27. DATE MAJOR ADDITIONS/ALTERATIONS: _____
28. ARCHITECT: _____ 29. CONTRACTOR: _____
30. ORIGINAL OWNER: _____
31. SUBSEQUENT SIGNIFICANT OWNER: _____ DATES: _____
32. CULTURAL/ETHNIC AFFILIATION: ENGLISH EAST EUROPEAN FRENCH ACADIAN IRISH NATIVE AMERICAN OTHER SCOTTISH FRENCH CANADIAN
33. HISTORIC CONTEXT(S): COMMERCE RELIGION ART, LIT, SCIENCE INDUSTRY CIVIC AFFAIRS SOCIAL TRANSPORTATION RECREATION AGRICULTURE HABITATION MILITARY EDUCATION
34. COMMENTS/SOURCES: National Register

35. HISTORICAL DRAWINGS EXIST: YES NO LOCATION: _____

ENVIRONMENTAL DATA

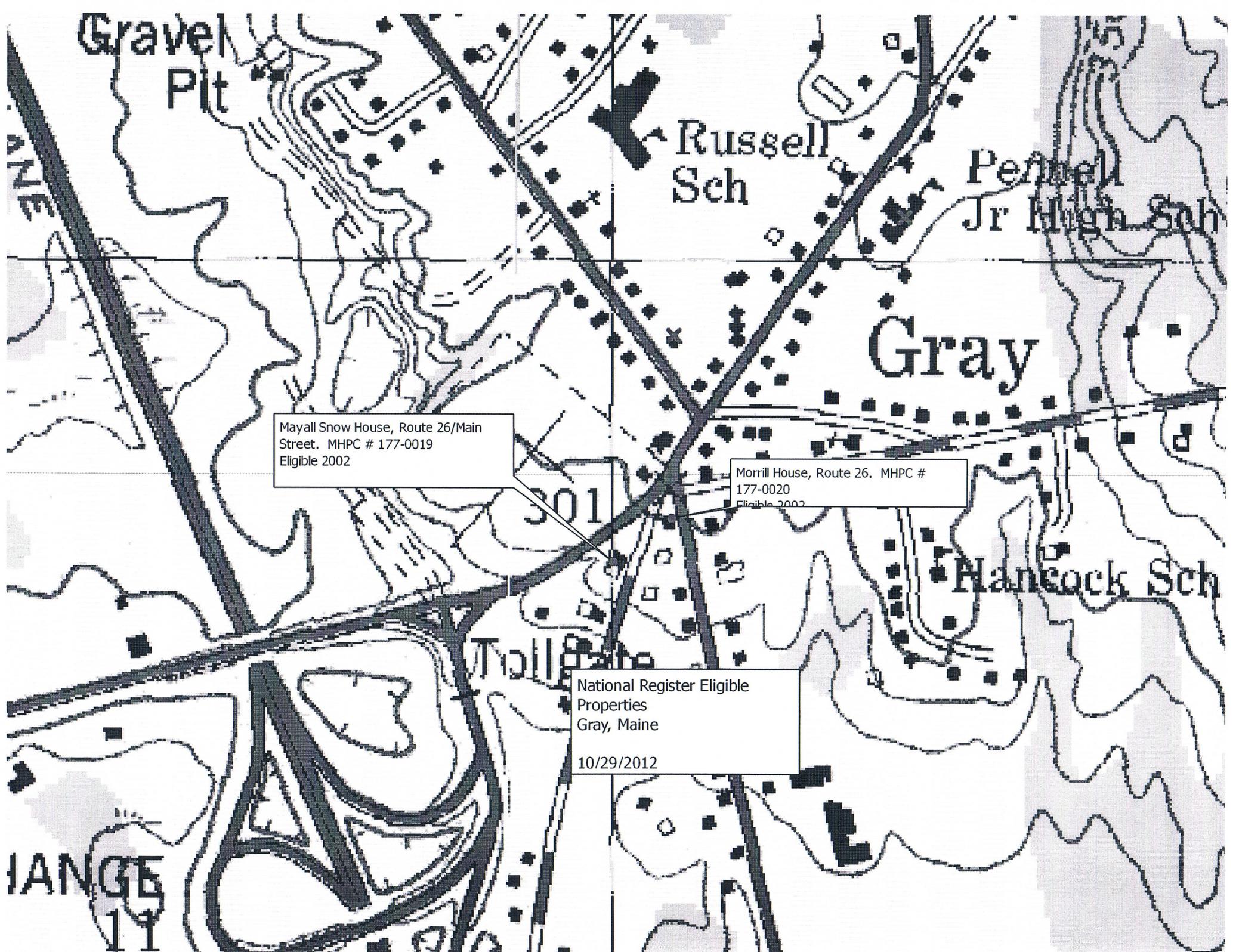
36. SITE INTEGRITY: ORIGINAL MOVED DATE MOVED _____
37. SETTING: RURAL/UNDISTURBED RURAL/BUILT UP SMALL TOWN URBAN SUBURBAN
38. QUADRANGLE MAP USED: _____ QUADRANGLE #: _____
39. UTM NORTHING: _____ 40. UTM EASTING: _____
41. FACADE DIRECTION (CIRCLE ONE): N S E W NE NW SE SW

MHPC USE ONLY

DATE ENTERED IN INVENTORY: 12-20-06 PHOTO FILE #: _____

NR STATUS: L HD E NE ND REVIEWER: EGS Kfm

DATA SOURCE: HPF CLG R&C STAFF STATE SURVEY OTHER _____ LEVEL OF SURVEY: R I



Gravel Pit

Russell Sch

Pennell Jr High Sch

Gray

Mayall Snow House, Route 26/Main Street. MHPC # 177-0019 Eligible 2002

Morrill House, Route 26. MHPC # 177-0020 Eligible 2002

301

Hancock Sch

National Register Eligible Properties
Gray, Maine
10/29/2012

CHANGE 11

MHPC USE ONLY

177-6019

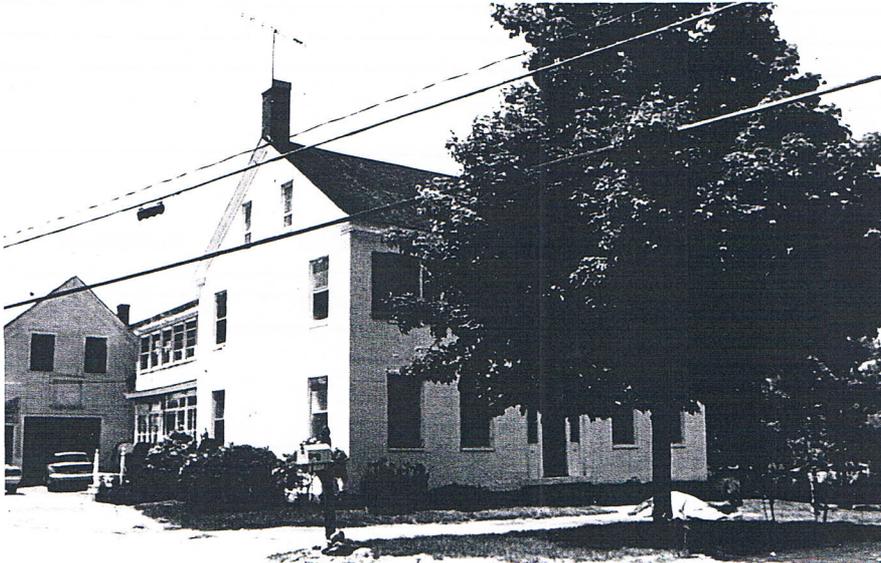
INVENTORY NO. CH

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): Mayall-Snow House
2. PROPERTY NAME (OTHER): _____
3. STREET ADDRESS: Rt 202 add Portland Rd Rt 26 / Main St
4. TOWN: Canaan 5. COUNTY: Cumberland
6. DATE RECORDED: 10 6 02 7. SURVEYOR: H. Mason
8. OWNER NAME: _____ ADDRESS: _____
9. PRIMARY USE (PRESENT):
- | | | | |
|---|---------------------------------------|--|--------------------------------------|
| <input checked="" type="checkbox"/> SINGLE FAMILY | <input type="checkbox"/> AGRICULTURE | <input type="checkbox"/> COMMERCIAL/TRADE | <input type="checkbox"/> FUNERARY |
| <input checked="" type="checkbox"/> MULTI-FAMILY | <input type="checkbox"/> GOVERNMENTAL | <input type="checkbox"/> EDUCATION | <input type="checkbox"/> HEALTH CARE |
| <input type="checkbox"/> INDUSTRY | <input type="checkbox"/> RELIGIOUS | <input type="checkbox"/> HOTEL | <input type="checkbox"/> LANDSCAPE |
| <input type="checkbox"/> TRANSPORTATION | <input type="checkbox"/> DEFENSE | <input type="checkbox"/> SUMMER COTTAGE/CAMP | <input type="checkbox"/> SOCIAL |
| <input type="checkbox"/> RECREATION/CULTURE | <input type="checkbox"/> UNKNOWN | | |
| <input type="checkbox"/> OTHER _____ | | | |
10. CONDITION: GOOD FAIR POOR DESTROYED, DATE / /

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:
- | | | | |
|---|---|---|--|
| <input type="checkbox"/> COLONIAL | <input type="checkbox"/> STICK STYLE | <input type="checkbox"/> NEO-CLASSICAL REV. | <input type="checkbox"/> FOUR SQUARE |
| <input checked="" type="checkbox"/> FEDERAL | <input type="checkbox"/> QUEEN ANNE | <input type="checkbox"/> RENAISSANCE REV. | <input type="checkbox"/> ART DECO |
| <input type="checkbox"/> GREEK REVIVAL | <input type="checkbox"/> SHINGLE STYLE | <input type="checkbox"/> 19TH/20TH C. REVIVAL | <input type="checkbox"/> INTERNATIONAL |
| <input type="checkbox"/> GOTHIC REVIVAL | <input type="checkbox"/> R. ROMANESQUE | <input type="checkbox"/> ARTS & CRAFTS | <input type="checkbox"/> RANCH |
| <input type="checkbox"/> ITALIANATE | <input type="checkbox"/> ROMANESQUE | <input type="checkbox"/> BUNGALOW | <input type="checkbox"/> VERNACULAR |
| <input type="checkbox"/> SECOND EMPIRE | <input type="checkbox"/> HIGH VIC. GOTHIC | OTHER _____ | |
12. OTHER STYLISTIC CATEGORY:
- | | | | |
|---|---|---|--|
| <input type="checkbox"/> COLONIAL | <input type="checkbox"/> STICK STYLE | <input type="checkbox"/> NEO-CLASSICAL REV. | <input type="checkbox"/> FOUR SQUARE |
| <input type="checkbox"/> FEDERAL | <input type="checkbox"/> QUEEN ANNE | <input type="checkbox"/> RENAISSANCE REV. | <input type="checkbox"/> ART DECO |
| <input type="checkbox"/> GREEK REVIVAL | <input type="checkbox"/> SHINGLE STYLE | <input type="checkbox"/> 19TH/20TH C. REVIVAL | <input type="checkbox"/> INTERNATIONAL |
| <input type="checkbox"/> GOTHIC REVIVAL | <input type="checkbox"/> R. ROMANESQUE | <input type="checkbox"/> ARTS & CRAFTS | <input type="checkbox"/> RANCH |
| <input type="checkbox"/> ITALIANATE | <input type="checkbox"/> ROMANESQUE | <input type="checkbox"/> BUNGALOW | <input type="checkbox"/> VERNACULAR |
| <input type="checkbox"/> SECOND EMPIRE | <input type="checkbox"/> HIGH VIC. GOTHIC | OTHER _____ | |
13. HEIGHT: 1 STORY 1 1/2 STORY 2 STORY 2 1/2 STORY 3 STORY 4 STORY 5 STORY OVER 5 ()
14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR): 1 BAY 2 BAY 3 BAY 4 BAY 5 BAY MORE THAN 5 ()
15. APPENDAGES: SIDE ELL REAR ELL FRONT ADDED STORIES SHED
- DORMERS PORCH TOWER CUPOLA BAY WINDOW



16. PORCH: ATTACHED FULL WIDTH ENGAGED WRAPAROUND ONE STORY SLEEPING PORCH MORE THAN ONE STORY SECONDARY PORCH
17. PLAN: HALL AND PARLOR BACK HALL 1/2 CAPE IRREGULAR CENTRAL HALL OTHER SIDE HALL
18. PRIMARY STRUCTURAL SYSTEM: TIMBER FRAME CONCRETE FRAME CONSTRUCTION - TYPE UNKNOWN BRACED FRAME STEEL BRICK LOG OTHER STONE PLANK WALL BALLOON FRAME PLATFORM FRAME
19. CHIMNEY PLACEMENT: INTERIOR INTERIOR FRONT/REAR CENTER INTERIOR END EXTERIOR
20. ROOF CONFIGURATION: GABLE SIDE GAMBREL COMPOUND GABLE FRONT PARAPET GABLE OTHER HIP SHED MANSARD CROSS FLAT GABLE
21. ROOF MATERIAL: WOOD METAL TILE SLATE ASPHALT ASBESTOS
22. EXTERIOR WALL MATERIALS: CLAPBOARD LOG GRANITE OTHER BRICK PRESSED METAL ASBESTOS FLUSH SHEATHING CONCRETE TERRA COTTA WOOD SHINGLE STUCCO BOARD AND BATTEN STONE ASPHALT ALUMINUM/VINYL
23. FOUNDATION MATERIAL: FIELDSTONE BRICK WOOD CONCRETE GRANITE ORNAMENTAL CONC. BLOCK
24. OUTBUILDINGS/FEATURES: CARRIAGE HOUSE BARN (DETACHED) GARAGE FENCE OR WALL FORMAL GARDEN OTHER CEMETERY LANDSCAPE/PLANT MAT. BARN (CONNECTED) ARCHAEOLOGICAL SITE

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: _____ 26. ESTIMATED DATE OF CONSTRUCTION: 1825-30
1890-15
27. DATE MAJOR ADDITIONS/ALTERATIONS: _____
28. ARCHITECT: _____ 29. CONTRACTOR: _____
30. ORIGINAL OWNER: Marshall family
31. SUBSEQUENT SIGNIFICANT OWNER: _____ DATES: _____
32. CULTURAL/ETHNIC AFFILIATION: ENGLISH EAST EUROPEAN FRENCH ACADIAN IRISH NATIVE AMERICAN OTHER SCOTTISH FRENCH CANADIAN
33. HISTORIC CONTEXT(S): COMMERCE RELIGION ART, LIT, SCIENCE INDUSTRY CIVIC AFFAIRS SOCIAL TRANSPORTATION RECREATION AGRICULTURE HABITATION MILITARY EDUCATION
34. COMMENTS/SOURCES: powered parlight in surround

35. HISTORICAL DRAWINGS EXIST: YES NO LOCATION: _____

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ORIGINAL MOVED DATE MOVED _____
37. SETTING: RURAL/UNDISTURBED RURAL/BUILT UP SMALL TOWN URBAN SUBURBAN
38. QUADRANGLE MAP USED: _____ QUADRANGLE #: _____
39. UTM NORTHING: _____ 40. UTM EASTING: _____
41. FACADE DIRECTION (CIRCLE ONE): N S E W NE NW SE SW

MHPC USE ONLY

- DATE ENTERED IN INVENTORY: 12-22-06 PHOTO FILE #: _____
- NR STATUS: L HD E NE ND DATA SOURCE: HPF CLG R&C STAFF STATE SURVEY OTHER REVIEWER: GGS Kfm LEVEL OF SURVEY: R I

MHPC USE ONLY

17-0019

INVENTORY NO.

CH

MAINE HISTORIC PRESERVATION COMMISSION
Historic Building/Structure Survey Form
Continuation Sheet

PROPERTY NAME: Mayall-Snow House

TOWN: Gray COUNTY: Cumberland

SURVEYOR: Huss, C DATE: 8/5/02

DATA FIELD # (From Survey Form):



MHPC USE ONLY

171-0820

INVENTORY NO. ck

MAINE HISTORIC PRESERVATION COMMISSION Historic Building/Structure Survey Form

1. PROPERTY NAME (HISTORIC): Wickell House

2. PROPERTY NAME (OTHER): _____

3. STREET ADDRESS: Rt 26

4. TOWN: Gray

5. COUNTY: Cumberland

6. DATE RECORDED: 6 6 02

7. SURVEYOR: Hudson, C

8. OWNER NAME: _____ ADDRESS: _____

9. PRIMARY USE (PRESENT):

<input checked="" type="checkbox"/> SINGLE FAMILY	<input type="checkbox"/> AGRICULTURE	<input type="checkbox"/> COMMERCIAL/TRADE	<input type="checkbox"/> FUNERARY
<input checked="" type="checkbox"/> MULTI-FAMILY	<input type="checkbox"/> GOVERNMENTAL	<input type="checkbox"/> EDUCATION	<input type="checkbox"/> HEALTH CARE
<input type="checkbox"/> INDUSTRY	<input type="checkbox"/> RELIGIOUS	<input type="checkbox"/> HOTEL	<input type="checkbox"/> LANDSCAPE
<input type="checkbox"/> TRANSPORTATION	<input type="checkbox"/> DEFENSE	<input type="checkbox"/> SUMMER COTTAGE/CAMP	<input type="checkbox"/> SOCIAL
<input type="checkbox"/> RECREATION/CULTURE	<input type="checkbox"/> UNKNOWN		
<input type="checkbox"/> OTHER _____			

10. CONDITION: GOOD FAIR POOR DESTROYED, DATE / /

ARCHITECTURAL DATA

11. PRIMARY STYLISTIC CATEGORY:

<input type="checkbox"/> COLONIAL	<input type="checkbox"/> STICK STYLE	<input type="checkbox"/> NEO-CLASSICAL REV.	<input type="checkbox"/> FOUR SQUARE
<input checked="" type="checkbox"/> FEDERAL	<input type="checkbox"/> QUEEN ANNE	<input type="checkbox"/> RENAISSANCE REV.	<input type="checkbox"/> ART DECO
<input type="checkbox"/> GREEK REVIVAL	<input type="checkbox"/> SHINGLE STYLE	<input type="checkbox"/> 19TH/20TH C. REVIVAL	<input type="checkbox"/> INTERNATIONAL
<input type="checkbox"/> GOTHIC REVIVAL	<input type="checkbox"/> R. ROMANESQUE	<input type="checkbox"/> ARTS & CRAFTS	<input type="checkbox"/> RANCH
<input type="checkbox"/> ITALIANATE	<input type="checkbox"/> ROMANESQUE	<input type="checkbox"/> BUNGALOW	<input type="checkbox"/> VERNACULAR
<input type="checkbox"/> SECOND EMPIRE	<input type="checkbox"/> HIGH VIC. GOTHIC	<input type="checkbox"/> OTHER _____	

12. OTHER STYLISTIC CATEGORY:

<input type="checkbox"/> COLONIAL	<input type="checkbox"/> STICK STYLE	<input type="checkbox"/> NEO-CLASSICAL REV.	<input type="checkbox"/> FOUR SQUARE
<input type="checkbox"/> FEDERAL	<input type="checkbox"/> QUEEN ANNE	<input type="checkbox"/> RENAISSANCE REV.	<input type="checkbox"/> ART DECO
<input type="checkbox"/> GREEK REVIVAL	<input type="checkbox"/> SHINGLE STYLE	<input type="checkbox"/> 19TH/20TH C. REVIVAL	<input type="checkbox"/> INTERNATIONAL
<input type="checkbox"/> GOTHIC REVIVAL	<input type="checkbox"/> R. ROMANESQUE	<input type="checkbox"/> ARTS & CRAFTS	<input type="checkbox"/> RANCH
<input type="checkbox"/> ITALIANATE	<input type="checkbox"/> ROMANESQUE	<input type="checkbox"/> BUNGALOW	<input type="checkbox"/> VERNACULAR
<input type="checkbox"/> SECOND EMPIRE	<input type="checkbox"/> HIGH VIC. GOTHIC	<input type="checkbox"/> OTHER _____	

13. HEIGHT: 1 STORY 1 1/2 STORY 2 STORY 2 1/2 STORY 3 STORY 4 STORY

5 STORY OVER 5 ()

14. PRIMARY FACADE WIDTH (MAIN BLOCK; USE GROUND FLOOR): 1 BAY 2 BAY 3 BAY 4 BAY 5 BAY MORE THAN 5 ()

15. APPENDAGES: SIDE ELL REAR ELL FRONT ADDED STORIES SHED

DORMERS PORCH TOWER CUPOLA BAY WINDOW



16. PORCH: ATTACHED FULL WIDTH ENGAGED WRAPAROUND ONE STORY SLEEPING PORCH MORE THAN ONE STORY SECONDARY PORCH

17. PLAN: HALL AND PARLOR BACK HALL 1/2 CAPE IRREGULAR CENTRAL HALL OTHER SIDE HALL

18. PRIMARY STRUCTURAL SYSTEM: TIMBER FRAME CONCRETE FRAME CONSTRUCTION - TYPE UNKNOWN BRACED FRAME STEEL BRICK LOG OTHER STONE PLANK WALL BALLOON FRAME PLATFORM FRAME

19. CHIMNEY PLACEMENT: INTERIOR OTHER INTERIOR FRONT/REAR CENTER INTERIOR END EXTERIOR

20. ROOF CONFIGURATION: GABLE SIDE GAMBREL COMPOUND GABLE FRONT PARAPET GABLE OTHER HIP SHED MANSARD CROSS FLAT GABLE

21. ROOF MATERIAL: WOOD METAL TILE SLATE ASPHALT ASBESTOS

22. EXTERIOR WALL MATERIALS: CLAPBOARD LOG GRANITE OTHER BRICK PRESSED METAL ASBESTOS FLUSH SHEATHING CONCRETE TERRA COTTA WOOD SHINGLE STUCCO BOARD AND BATTEN STONE ASPHALT ALUMINUM/VINYL

23. FOUNDATION MATERIAL: FIELDSTONE OTHER BRICK WOOD CONCRETE GRANITE ORNAMENTAL CONC. BLOCK

24. OUTBUILDINGS/FEATURES: CARRIAGE HOUSE BARN (DETACHED) GARAGE FENCE OR WALL FORMAL GARDEN OTHER CEMETERY LANDSCAPE/PLANT MAT. BARN (CONNECTED) ARCHAEOLOGICAL SITE

HISTORICAL DATA

25. DOCUMENTED DATE OF CONSTRUCTION: _____ 26. ESTIMATED DATE OF CONSTRUCTION: 1815-20

27. DATE MAJOR ADDITIONS/ALTERATIONS: _____

28. ARCHITECT: _____ 29. CONTRACTOR: _____

30. ORIGINAL OWNER: _____

31. SUBSEQUENT SIGNIFICANT OWNER: _____ DATES: _____

32. CULTURAL/ETHNIC AFFILIATION: ENGLISH EAST EUROPEAN FRENCH ACADIAN IRISH NATIVE AMERICAN OTHER SCOTTISH FRENCH CANADIAN

33. HISTORIC CONTEXT(S): COMMERCE RELIGION ART, LIT, SCIENCE INDUSTRY CIVIC AFFAIRS SOCIAL TRANSPORTATION RECREATION AGRICULTURE HABITATION MILITARY EDUCATION

34. COMMENTS/SOURCES: done surround exceptional, listed Nat. Reg.

35. HISTORICAL DRAWINGS EXIST: YES NO LOCATION: _____

ENVIRONMENTAL DATA

36. SITE INTEGRITY: ORIGINAL MOVED DATE MOVED: _____
37. SETTING: RURAL/UNDISTURBED RURAL/BUILT UP SMALL TOWN URBAN SUBURBAN
38. QUADRANGLE MAP USED: _____ QUADRANGLE #: _____
39. UTM NORTHING: _____ 40. UTM EASTING: _____
41. FACADE DIRECTION (CIRCLE ONE): N S E W NE NW SE SW

MHPC USE ONLY

DATE ENTERED IN INVENTORY: 12.22.06 PHOTO FILE #: _____
NR STATUS: L HD EV NE ND REVIEWER: EGS/KFA
DATA SOURCE: HPF CLG R&C STAFF STATE SURVEY OTHER _____ LEVEL OF SURVEY: R

APPENDIX F – PUBLIC INFORMATIONAL MEETING NOTES

Gray Public Meeting November 27th, 2012- 7pm

Dan opened the meeting

Missed the very opening:

Dan Morin- Since Peter Mills has come on our perspective is that we want to have an open dialog with turnpike customers and abutting communities and residents. We are open, we are a public entity so we can provide information you would like, like finance or turnpike tolls, we will offer that after the presentation. As Peter indicated Peter Clary is here, is with an engineering firm called VHB and Sara Devlin is also here, she is the turnpike planner, she has great knowledge of issues surrounding interchanges and municipal government and how it relates to turnpike operations. The goal here is to present an overview, of goals and objectives and welcome resident feedback on a study to analyze traffic flow and possible improvements to exit 63. We are not presenting the results of a study tonight we are presenting goals and objectives of a study. The reason why we like to have you here tonight is because we would like to have your perspective. As I have always said, the people that have the greatest knowledge of what is going on in a community are community members. We love corresponding and communicating with the various municipalities up and down the turnpike, we would like your input as to what you see and what you would like to see looked at Exit 63. Later Peter would be happy to answer questions about turnpike operations. With that I will hand it over to Peter Clary and he can give you a presentation, and after that we will open it up to questions about the study.

Peter Clary- Thanks Dan. The presentation I have is about 15 slides so it will not take that long to go through. Like Dan said it is a feasibility study right now, it is a continuation of the Gray Bypass work done to date. We are going to go over the introduction, the purpose of the meeting, which is basically so that you guys can provide us with some input as the study moves forward so we can include whatever it is in the study that we need to include. We will go over some of the history, the purpose and need, the schedule, and then open it up to questions at the end. The meeting is to go over the objectives and the purpose and need. The history, the Gray Comprehensive Plan was adopted in 2001 and updated in 2003 and that is basically a growth management plan that identifies transportation issues, public works issues, land use, population demand, and economic development issues. There is the Gray-New Gloucester access study which says to improve turnpike access and transportation on Route 26. Basically 27 alternatives were paired down to 7, the Gray Bypass EA was completed in 2002. From that study came the project that was completed in 2006, the Gray Bypass, that connected to 202 along the west side of the turnpike to Route 26. The turnpike did a quick study of the turnpike last year to find out what the traffic needs are at the interchange itself and what the alternatives could be. This study is basically a continuation of that the way the traffic operates there today, and it may work ok today but soon it will need something to be done. When we met with the town a couple of weeks ago they mentioned the North Raymond Rd traffic study was completed. We are going to get that information from MaineDOT to make sure that information is incorporated into our information and analysis and see what impact it may have on the exit 63 area. Again the purpose of this project is to improve traffic efficiency and reduce safety problems in the interchange area as well as the state routes in and around the interchange. It will not solve all the problems; it's going to solve the problems at the interchange itself.

As for the needs it's the interchange deficiencies in the toll plaza area. Its only about 250 feet from the toll plaza to Route 202, so there are some congestion concerns. All the traffic using the turnpike must funnel through that intersection. The south bound ramp bridges are in pretty poor condition, that's not something you can see when you drive over the bridge. We are going to do some analysis of that bridge and the condition of that bridge to figure out how bad that is. Additionally needs are local and regional access. Obviously exit 63 provides access to the community in Gray and regional access to the Sebago Lakes region and the Sunday River area, there are a lot of folks who live here locally and a lot of tourists that go to the lakes and the mountains. The elements of the study: it's broken down into several phases. First is data collection, we will send out our staff to figure where the traffic is, do traffic counts, and find out when the peak traffic times are. We will go out and pick up environmental information as far as wetlands, endangered species, historic those types of things. We will inspect bridges, when I say bridges I mean the southbound ramps bridge as we as the bridge over Route 202. The Route 202 bridge is in much better shape than the ramps. We will take all that information and put it in a base plan, the information we have is very preliminary, good enough to make an assessment, to form alternatives. We will go through and analyze the traffic information we have for the existing year now and we will look 20 years from now and forecast the traffic numbers out 20 years. We will develop some concepts; we will look at what the environmental resources assessments are. Like alternative 1 impacts an acre of wetlands, alternative 2 impacts half an acre of wetlands, something like that. We will go through and put together some conceptual construction costs. We will put together a draft report and come back to you folks to show you what we have found and to get your input and then go into preliminary final design and then into construction.

Some of the alternatives at this time:

Alternative 1- This is a rehab of the existing southbound bridge. That's only if the traffic that is out there today supports this alternative, if not that this alternative would end up going away.

Alternative 2-We will go in and rehab the southbound bridge and we will do whatever improvements are necessary at the toll plaza intersection and the intersection where the bypass meets Route 202, if we need to add additional lanes, whatever may be necessary to any of the legs of the ramps.

Alternative 3- Is basically take down the existing southbound ramps, take the southbound off ramp, once it gets beneath the 202 bridge swing it around in a loop ramp to line up with the bypass, that would be the off ramp, the on ramp would tie in before the Center Rd bridge. We would have to put in a toll facility. If we have to do this the traffic will be split into two intersections that should relieve the congestion in the area.

Peter Mills- Peter that also eliminates the toll on the east side.

Peter Clary- yes because you would be going north and you do not pay a toll. As far as the schedule goes, we collected data this fall. We met with the interagency group at DOT, this is basically the environmental agencies. We have our meeting tonight. December through January we will be going through our alternatives and cost analysis. In the middle of February we should have a draft report, the

end of February we will have a second public meeting to let you know what we have found out, we will wrap it up with a final report in March. Assuming we are going ahead we will do preliminary and final design in 2013-2014 and if we get through that process, construction would be 2015-2016. Since we don't have a set design or alternative yet it is hard to tell you what the permitting will be, it could take 2 years, it is straight forward and simple it will take less time. The smaller the project is the shorter the construction duration. We are here, this is the initial stage, and there is no engineering that has been done other than looking at the traffic. As we go through our design we are going to do a little conceptual engineering that will determine the envelope of what our impacts may be. And then we will take it from there.

Dan Morin-Thanks Peter, as Peter said, this is about communicating with you up front, way before any decisions are made, there is a sign up sheet around, put your name and contact information on there. I will put my business cards up here, some people do not like to speak in front of crowds and I greatly respect that and if you don't want to speak tonight, my contact information is there. I would be happy to add any comments I receive, or if you don't want to speak tonight, please contact me. I was remiss in not thanking you for coming tonight and taking time out of your busy schedule, and for your comments. As we discussed we will take comments on the Exit 63 feasibility study and then as I said Peter will be here to answer other questions you may have

Audience member- I like the different alternatives that you had there. I like the third one I guess that's the most linear, it takes the most pressure off the intersection. Have you considered removing the toll booth completely? Having a clean access in and out, considering the New Gloucester Toll booth is 3 to 5 miles northbound. Thinking about other exits, Kittery is free, looking at similar, and Sabattus a new toll plaza without a toll.

Peter Mills-the reason there is no toll south of mile 7 is because there was federal money used in the 1970s to widen the highway. The turnpike started at mile 2, there used to be a big entrance; there was a toll booth there. When they built the high rise bridge and made it six lanes, it created a 6 lane highway leading north, all that, it was not done with toll money. It was done with federal investment in it. There is a federal law that says if you put federal money into a highway you are not permitted to put a toll on it. As much as we might like to toll the highway south of mile 7 and we are required to plow it, repave it, rebuild the bridges, the turnpike has been given the responsibility of that highway, but we are not allowed to put a toll on it. It's a problem. The issue in regard to Lewiston, Auburn and Sabattus has its own political history that goes back a long time. In the 1990s there was a plan to get rid of all the side tolls, only barrier tolls would exist. One in York, one in Scarborough that never got built, one in New Gloucester and the one in West Gardiner. And that was going to be it; that would cut down on the number of toll collectors you would need, it would be a simple system. It would relieve local roads, it was a great plan. In 1995, the barriers were built in New Gloucester and West Gardiner but when they tried to get permission from the Army Corps of Engineers to build a new barrier toll in Scarborough, they were going to have to fill some wetlands and there was citizen uprising and the plan was abandoned, this was way before my time. They preserved the side tolls from Wells through Gray. That's why you have a side toll. We have a toll system on the turnpike that suffers in its equity because of the awkward political history. You will never hear me say that the toll system is fair, we make it as fair as we can with

what we have inherited. To let go of the toll in Gray would cause us several millions in loss revenue a year at least we only charge you to get on. It would be difficult for us to justify to the bond holders relinquishing that toll. What you are suggesting was the plan for the turnpike 20 years ago. It is cheap on the E-ZPass. What we have found is people are avoiding some local streets in Portland because of the convenience of E-ZPass. The turnpike is being used to alleviate local traffic in many areas that we are serving.

Dan Morin-If possible can you give us your name and town in case we need to get in touch with you. Does anyone else have any questions or comments on the exit 63 study?

Peter Mills- the smart thing to do is to get the tolls out of downtown Gray and get them on the west side of the highway and the intersection on the east side would have no tolls. The 3rd alternative seems to be a completion of the plans that were done a few years ago. The hope is that it will provide significant traffic relief for the town of Gray.

Dan Morin-a good overview is that if you are familiar with the jetport interchange that is what this would look like.

Mark Grover from Gray- with the 3rd alternative, would the small overpass that has the ramp would that come down?

Dan Morin- Yes that would be torn down. Bridges have about a 50-70 year lifespan. We are approaching a time when the bridges from Portland north need repair or extensive rehabilitation.

Rep Ellie Espling from New Gloucester-Being the state representative from New Gloucester, I have constituents that have concerns about traffic that bypass the toll and cut down side roads or down Route 100, would the study take into consideration some of the side roads up near Auburn. There are a few other side roads that traffic will go through, and it's really tearing up the roads.

Peter Clary-If you could give us a list of those side roads we could take a look at those.

Will Borough West Gray- I come up 202 in the morning and sometimes you have to wait 7 light changes to get through. I think some simple adjustments to the lights might help. This could be some interim measures. The right turn arrow that enters the toll area, it goes green, red, pause, then green arrow. That causes the traffic to stop and then start again. It gets really frustrating. Looking at the light sequences would help, maybe with some other low costs things that could be done. The 202 bridge is a bottleneck, it's the sequencing.

Dan Morin- we were talking on the way up that this might help.

Anne Graham, North Yarmouth Rep- have we looked at preliminary costs, and who will be bearing the costs, what are the next steps as far as money goes.

Peter Mills-this is not a DOT project the money will come from the MTA

Peter Clary- we haven't done the costs yet, we need to do the traffic work first, and we need to look at the bridges, to determine the costs. The bridge over the turnpike needs to be fixed, replaced or removed at this time.

Carl Wilcox from New Gloucester- Westbound on route 115 there is no green arrow so people that don't know the area don't know that they can go. I was on the Gray-New Gloucester access study 14 years ago the alternative that was preferred by the committee was the western bypass with southern connector. That has the interchange flipped as you are proposing in option 3 with the removal of Center Rd bridge, part of your study should study the life cycle cost of that bridge, the southern connector would allow people to avoid going through Gray Center coming up from route 100 coming up and vice versa. It would also allow people on Center Road from access the center of the intersection in Gray. The intersection gets blocked and backs people up.

Dan and Carl looked at the map.

Peter Clary-some time between the access study and the EA the preferred alternative got changed, I am not sure why

Carl Wilcox- I know why, we were a third world country. We studied this like four years, 6 alternatives to 27 alternatives and nowhere was there guidance from DOT or MTA that we are not willing to spend X dollars per vehicle removed from Gray Center. This thing lasts four years and on the last night DOT and MTA were meeting with the commissioner they said that the Westerly Bypass was it. So after 4 years of eating cookies it came down to a decision behind closed doors. I hope there is a more efficient delivery system on this study than that study.

Dan Maguire from Gray- I know there is a lot of appeal in getting rid of the southbound ramp bridge, but is there any thought to use that for northbound traffic to get on to the bypass? To get rid of that left hand turn that is there.

Peter Clary-no we haven't looked at it; at first blush I think it might be difficult with safety and geometrics. This is why we are here to get input and see if there are other things we should consider.

Dan Maguire-has there been any thought of putting your head together with DOT to see what they are doing in the area so that there may be some synergy here?

Dan- we meet quarterly with DOT to coordinate projects.

Dan Cobb from Gray-I can confirm everything Mr. Borough has said. I travel those same routes and see those things happen in the intersections. I am a member of the Gray Planning Board I would encourage you to work with us up front, to get our feedback. I would favor option 3. Quite frequently there are oversized loads and if that happens first thing in the morning that completely blocks access because of the bottle neck.

Gary Foster from Gray-since the barrier was installed in new Gloucester there has been a lot of talk about the traffic. I know the Authority had HNTB do a traffic study that showed that there is no

significant diversion between Auburn and Gray. I own an apartment building in Lewiston and often times when I come back I will follow trucks that will go by the Auburn exit and get on in Gray. If there was no barrier they would get on in Auburn. I know we had discussed this several times with the MTA in the past and I know it probably won't change, but thought I would put it out there.

Peter Mills-It was in 2007 that we had a diversion study done on trucks only. We followed license plates of specific trucks to see where trucks got on and got off. We found that about 90% of the trucks that went through downtown Gray appeared to have a destination on a route before they got on the exit. I took a look at the figures after the toll increase, yes, car traffic through the New Gloucester barrier is down, we need to have some time to determine if there is a pattern here, and traffic is down on the entire turnpike, with some strange exceptions, truck traffic through the New Gloucester toll is up. We have been told by a lot of people that the toll is not the issue. One thing we are hoping that will bring traffic back to the pike is that next spring there will be open road tolling in New Gloucester, you can whiz through with your E-ZPass. I have asked trucking companies what it costs to slow down to 10 miles per hour and then go back up to 65. Poland Spring says it takes about a ¼ of a gallon of diesel fuel which translates into 80 or 90 cents. They will save that money with open road tolling. The high speed toll will hopefully bring more people back to the pike. The first 25 days of November this year versus the first 25 days of November last year, we have 1000 more 18 wheelers going through New Gloucester toll. Wal Mart is a huge customer up there, I think business is up for some, we are seeing more truck traffic and maybe you are seeing more going through Gray and New Gloucester.

Audience Member- I want to follow up on the feasibility piece, what would you consider significant, if 10% is not significant than what is? For years we have been told it's not happening.

Peter Mills- I am not here to argue with you. I think commuters are more sensitive to the tolls. I am here to talk to you about what we can do. One thing we can do complete this study and move the tolls to the other side to free up the intersections. We are spending \$5M to build a high speed toll facility to encourage people to respect the convenience of the E-ZPass tolls. If you have any suggestions, I have my card up here, it has my cell phone on it, you can call me anytime, nights and weekends. I am sorry there are probably more cars in Gray and New Gloucester. This is something that is experienced all over the turnpike. We are trying to promote E-ZPass the best we can this is a problem of having a toll road in your neighborhood.

Deb Cabana-the town of Gray just entered into an urban compact, we inherited 10.4 miles of road to maintain, we have 57,000 to maintain those roads, it means more people more trucks, we in the town of Gray we are seeing an effect on our infrastructure. I have asked Dan to come and sit in my office and see the tractor trailer trucks that go by on route 100, it is a reality, it's not just passenger vehicles. I have been a resident here for 40 years, I will not get on the Gray exit to go northbound. I will get on in Auburn and I have an E-ZPass it's basically to avoid the toll even if it's at a reduced rate. If there is something we can do as a Gray resident to not have to pay the fee to get on. So I will drive up route 100, so that has an impact on our roads as well as New Gloucester's.

Peter Mills-My belief is that the town has dealt directly with DOT on the traffic light issue. Is that something you have any knowledge of? (Directed to Deb Cabana)

Deb Cabana-we have our town engineer here, can you speak to that?

Tom Gorrill- the traffic light, as far as I know, is maintained by the Department of Transportation, I am not really sure. We need to communicate with the DOT to coordinate that system. Optimizing it can make a big difference.

Peter Mills- the turnpike would be happy to participate in this conversation

Dan Maguire- what is the future for the toll system for the Maine turnpike?

Peter Mills- I think the future for nationally is that they will all go to All Electronic Tolling; cash toll collection in the next 8-20 years will be gone. Right now 62% of our revenue is collected electronically. We have sold 3400 E-ZPasses since November 1st and 1600 were sold on the web, which we were unable to do before. When you get 85% of the customers using E-ZPass you can go to all electronic tolls and do away with your cash tolls. You use high resolution photos and send a bill to the owner of the vehicle and collect your toll that way. We are not there. We hope to get to 70% next year, that is still pretty low. There was a traffic study in Boston over the Tobin Bridge, they are daily commuters from Massachusetts, New Hampshire and Maine and we have a reciprocity agreement with those states. Massachusetts is thinking seriously of going to all electronic. I envision they will do away with cash tolls someday. That is the apparent future. The technology right now yields all kinds of solutions. Transponders tell the commuter where you got off and where you got on. With an E-ZPass we charge you the actual miles you use. Even if you aren't paying a toll there is a record that you passed through on the turnpike.

Dan Morin- there has been some confusion on this with new toll increase because the E-ZPass rate is less. This is why we promote E-ZPass.

Audience Member-my wife and I commute together, we pay about \$250 a year to go from Gray to South Portland, the commuting has worked out well. On the notices you sent out you didn't define what a trip was, round trip, one way? Now we are tracking our trips, you could have sent a notice out that had what I had been doing and what my rate of increase would be. The reality is the some of those numbers would have gotten some people's attention. I think when people get their first bills they will be surprised. I do appreciate the discount and I hope you keep it. If I hit the 40 trips my rate will go from \$250 to \$450, if you decrease the discount my rate will go up to \$650. This is a turnpike tax if you live in a community along the turnpike. If you decide to throw out the commuter program it goes to \$900, that's per person.

Dan Morin-If you go from South Portland to Gray it's \$1.40 using E-ZPass you multiply that by 521 trips which is the average for commuters that total is \$728.

Audience Member- then my wife has to get back on the turnpike and go the next exit. So that's two hits.

Dan Morin- you are doing 4 trips a day

Audience Member- what is your trip count, this month? Don't you know? What is yours Peter? My number today is 52. If we go to the July rates, my number of trips will be about 64. If I go 6 more trips I will get a bigger discount at the end of the month so we will take separate cars. I opposed the widening. Now instead of encouraging commuting you are encouraging people to take more cars, more transpasses and to go on more roads they go against what you were saying 20 years ago when you wanted to widen the turnpike. I know you are hoping that commuters are just going to go away. But believe me you have commuters attention.

Peter Mills-In 1982 the turnpike had all of its bonds paid off and they turned the keys over to the state of Maine and told them to take it over. Joe Brennan was governor at the time and he made a pledge to the people of Maine that he was not going to raise the gas tax and someone calculated that it would take 7 cents on the gas tax to pay for the maintenance of the turnpike, so that is why the tolls are still on the turnpike. I get asked this all the time, there is a long history. Today the legislature could take over the turnpike, but they would have to figure out how to pay for the maintenance and how to pay off the bonds. It would cost about 10 cents more in gas tax. It's been debated for decades it's a toll road now and it's likely to remain that way.

Audience Member- Can you speak to if I get on in Gray and get off in South Portland it's a \$1.40, when I do the reverse it is a dollar. If I get on at exit 10 west Falmouth, it's an 80 cent trip to South Portland, so it's a pretty significant difference. Why are we picking on Gray for an excessive cost?

Peter Mills- the basic rate for E-ZPass have certain rules. The rate is 7.7 cents a mile and your rate will not exceed that. Your rate will not exceed the cash rate if the cash rate is lower. The reason Wells and Gray are \$1.50 is because adjacent to the barrier toll and you get access to so many more miles.

Dan Morin-so 63 to 53 is 10 miles at 7 cents a mile and the cash rate caps your toll if we charged you 7.7 cents per mile from 63 there are some places where you should be paying more than \$1.50.

Audience Member-It's the same mileage when I come home.

Dan Morin- the alternative is to make it \$1.50 both ways, but then you would be paying more with your E-ZPass than a cash payer would. The cash cap is beneficial when you are using E-ZPass and on short trips.

Carl Wilcox- Since I live in New Gloucester I never go through the barrier toll. But a coworker does and he doesn't think it's been designed well. He used to work for DOT he is concerned the acceleration lane is not wide enough. There is the potential for accidents.

Dan Morin- all the cash payers will merge into 3 lanes into the traffic lane on the right, those going 65 will be in the left lane. Similar to what you see at a side toll now.

Peter Mills- the reason New Gloucester is the first site for ORT its straight there are no turns or hills it's an ideal location for traffic to divide and then come back together. I am not an engineer and the

engineers that designed it are not here and I am sure there is plenty of room to divide and merge safely. I drive it a lot and I will ask those who designed it about the safety. There is plenty of room to design to the safety standards.

Matt Doughty Gray- Regarding the feasibility study I can appreciate this comes down to dollars and cents and the road is always maintained well. You can bank on it being maintained. Knowing the funding challenges you have I appreciate the complications of raising tolls. My main concern is the village area. We are trying to boost economic development in the village area. What other options can you come up with a different solution? Would some shift in toll structure coming southbound from Auburn offset the construction of the interchange where you could keep the existing one as is? I read there are 10,000 cars coming southbound from Auburn. Another exit between Falmouth and Gray or Gray and Auburn what other concepts? How far do you stretch your imaginations? I would like to slow the village area down.

Peter Mills- the disincentive is not the toll at Gray, but the toll in New Gloucester. We have not had any overtures from people for an interchange between Gray and Auburn. Or Gray and West Falmouth. Most communities are not shy about doing so.

Matt Doughty-what is the cost of doing alternative 3 versus just adjusting the tolls?

Peter Mills- So you are saying if we could reduce the toll in new Gloucester would that put traffic on the turnpike so we wouldn't have to do the improvements in Gray? That should probably be integrated.

Dan Morin-you lower the tolls somewhere you have to adjust it somewhere else.

Peter Clary- if you did what you suggest the existing bridge will still need to be upgraded. As traffic goes down 26 and they want to go southbound are they more likely to go through the village or the bypass?

Audience- Bypass

Matt Sturgess-I grew up on Route 100 in New Gloucester, now I live on Route 100 in South Gray. I am chairman of the council in Gray, I have heard a lot about the 50 cent increase in the tolls, and it has made an impact in Gray. We had traffic in the villages before but not like this and I think its automobile traffic. I too will not go through the New Gloucester toll and maybe I am part of the problem. Your numbers may bear going forward going southbound on 100 you will see an increase in the toll, bypass Gray and get on in West Falmouth. There are also safety issues on roads that were meant to have as much traffic. I am really concerned about the budgets on the roads. Keep that in consideration as you look at things. It's just another form of taxes and hits people hard.

Mark Grover-one way to reduce the village traffic was the original southern connector plan. My recollection was that were safety concerns for bicycles, will there be changes that will make it safer for bicyclists and pedestrians?

Sara Devlin-We typically work with the municipalities and if they have a comp plan that calls for accommodations we work with them. We would partner with town to see what we can do or partner with a business.

Terry Taylor, Gray- has there been a study to lower New Gloucester toll to get more people to use the toll?

Dan Morin- we had that question during the toll increase process, its call elasticity. People use the turnpike because they need to, the turnpike traffic may increase, but it's not a corresponding increase to the amount of the drop in the toll.

Peter Mills- it does vary by toll plaza, some are more susceptible to diversion than others. We experience diversion in every toll increase; it takes about 3 months to settle in. We will look at it.

Terry Taylor- I am a truck driver, north of Gray there is not much traffic. I think that the turnpike has done an injustice to the town with these toll increases.

George Colby, New Gloucester-how about raising the speed to 25?

Peter Mills-one of my toll collectors just lost her foot, it is a safety issue. We like people to be careful around our tollbooths.

Sue Austin-are we sort of in a unique configuration with the tolls in our two towns.

Peter Mills- there are other places where we have diversion, York, Route 1, it is a locational things and a seasonal thing. The turnpike to Augusta is underutilized, we still must maintain it.

Sue Austin-seems like it's more intense for our area than for others.

Peter Mills- Every barrier has its issues. I have been looking at all of the histories, comparing last year and this year seeing how the traffic compares. If you want to call me or ask me how it is going later on we can.

Dan Maguire- there was some discussion about widening the turnpike, and would a third lane ever come to Gray?

Peter Mills- the recession put the end to any widening north of Scarborough, that kind of thing is 10-20 years from now. I don't foresee the need to widen beyond 53 in our lifetime. I-295 up to Augusta is getting to be an old highway; they are going to have to start looking at those bridges. They are beginning to be 30 or 40 years old. The bridges will have to be redecked or replaced. All over America the Eisenhower highway system is aging out and there is going to be money that is needed to pay for it. They may have to put a toll on it.

Dan Maguire- As you have been replacing bridges in the Portland Area, it has been assumed that you would widen them for a third lane.

Peter Mills- Oh yes. We are building bridges that will last 50 to 60 years and we are not building bridges north of Portland to accommodate a 6 lane highway. If there is a toll south of Freeport on 295, watch the traffic come to the turnpike, or some of it. That could have an impact on the traffic on the turnpike. The 18 cent federal gas tax has been the same since 1991 and Congress shows no signs of increasing it

Mark Grover-I have been invited to a meeting this week from people advocating commuter rail Portland to Auburn have you studied that?

Sara Devlin-The DOT has studied that many times, we have also looked at the commuter patterns from Portland to Auburn and vice versa for a bus service, the mayors of those two cities have discussed looking at it. We have never studied commuter rail as an alternative

Dan Morin- the MTA is entirely funded by tolls, there are no free roads, the tolls are visible, and all the roads have to be paid somehow someday. There is a day of reckoning and the money will have to come from somewhere. The MTA is full funded for the next decade based on the last toll increase. The free roads are falling in disrepair and the money has to come from somewhere.

Rep Graham- talking about the diversion of traffic on 295, many of the trucks come down 26 to 115 to 295, my question have you looked at other communities that have an impact from trucks diverting to 295?

Peter Mills- I don't think we have looked at that specific issue, we have a selfish reason to look at diversion, because it is lost revenue; we look at it that way. We are concerned about the impact on the local communities. We are not the DOT and not in charge of all the highways in the state

Carl Wilcox-I wish the MTA had stuck to their guns in Scarborough. It screams of inequity. The majority of the costs for the toll increase was to pay for the widening. The original plan with barrier tolls with free travel from Gray to Portland.

Peter Mills thanked everyone for coming.

TOWN OF GRAY
GRAY TOWN COUNCIL
MINUTES • MAY 7, 2013

Regular Meeting

Henry Pennell Municipal Complex

7:00 PM

24 Main Street, Gray, ME 04039

6:00 EXECUTIVE SESSION

6:00 PM - the Council Will Go into Executive Session, Pursuant to Title 1, Chapter 13, Subchapter 1, Section 405, Subsection 6-A: "Discussion or Consideration of the Employment, Appointment, Assignment, Duties, Promotion, Demotion, Compensation, Evaluation, Disciplining, Resignation or Dismissal of an Individual or Group of Public Officials..." Specifically to Discuss the Annual Performance of the Town Manager.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Lew Mancini, Councilman
SECONDER:	Richard Barter, Town Council Vice Chair
AYES:	Sturgis, Barter, Doughty, Mancini, Gallagher

ROLL CALL

Attendee Name	Title	Status	Arrived
Matthew Sturgis	Town Council Chair	Present	
Richard Barter	Town Council Vice Chair	Present	
Matthew Doughty	Councilman	Present	
Lew Mancini	Councilman	Present	
Lynn Gallagher	Councilwoman	Present	

PLEDGE OF ALLEGIANCE TO THE FLAG

MINUTES FROM PREVIOUS MEETINGS

Approval of April 16, 2013 Town Council Minutes

Ordered, the Gray Town Council approves the April 16, 2013 Town Council Minutes, as presented.

Councilor Doughty stated that on page 2, under the Second Order of Business there should be a period after the second sentence.

RESULT:	ADOPTED AS AMENDED [UNANIMOUS]
MOVER:	Richard Barter, Town Council Vice Chair
SECONDER:	Lew Mancini, Councilman
AYES:	Sturgis, Barter, Doughty, Mancini, Gallagher

FIRST ORDER OF BUSINESS:

Public Comments of Non-Agenda Items (limit 3 minutes per person). Comments in excess of 3 minutes are welcome at the end of the agenda prior to adjournment.

No public comment.

SECOND ORDER OF BUSINESS:*Council Business*

Discussion Regarding Town Council Training Session with Town Attorney

Councilor Sturgis stated that Bill Dale is willing to meet with the Council regarding training if they wish.

Councilor Gallagher stated that she brought this topic up, given the frequent number of comments and questions from the public related to potential conflict of interest by Councilors and other issues. She urged the group to conduct this meeting.

Councilor Doughty stated that a refresher on these topics would be beneficial to the group.

Councilor Barter agreed with the suggestion and recommended that Bill Dale establish the agenda given his professional expertise. Councilor Sturgis stated that he agreed as well.

Tuesday, May 28 at 7pm was the suggested meeting date.

THIRD ORDER OF BUSINESS:*Report from the Council Chair*

Councilor Sturgis reminded the public about the Patriot 5K race on May 18th. There was a good article in the Independent about the event. Additional funds will be raised for the family of the boy killed at the Boston Marathon bombings.

Report from the Town Manager

Town Manager Report

Town Manager Cabana stated that the Legrow Road intersection project is nearly complete.

Absentee ballots are available for the June 11, 2013 election. She noted that absentee ballots for the MSAD#15 budget will not be available until after May 23rd. This is the date of the open forum meeting prior to the referendum by secret ballot vote on June 11th.

The MaineDOT landscaping project is going well.

The Library Trustees conducted preliminary interviews for Library Director and they will be making recommendations regarding some candidates to return for a second interview.

Councilor Barter reiterated his desire to see that the Council participates in a communication's plan about the budget. Councilor Sturgis stated that he will have something ready for the group.

Committee Reports

Councilor Gallagher stated that the Finance Committee will be meeting this Thursday at 5:30 pm.

Councilor Doughty stated that the CEDC is reviewing the upcoming business reception topic/format.

Councilor Barter commented on the Library Trustees' work. He also thanked the Town staff for assisting the Trustees throughout the Library Director selection process. The Library Expansion Committee (LEC) met and they are working diligently and making progress to finalize the total budget. He also commented on the volunteers working on the old fire station (now, the Gray Historical Society). He indicated that the Gray Wildlife Park volunteers have been recognized by the State of Maine and received the "2013 Volunteer of the Year Award" at a special recognition program in Augusta.

Councilor Sturgis stated that the Finance Committee reviewed the finances and noted that things are tracking well. The Recreation and Conservation Committee will be meeting this week. They are looking into how to apply account monies for the ball field, snack shack etc and they are moving forward on the Pennell Park planning. A variety of youth summer camps are filling up quickly. The LEC is working well to get some design plans finalized, as well as, lighting and landscaping plans.

Council Correspondence

Councilor Gallagher commented on her reporting items that she receives (emails, calls, and letters).

Councilor Doughty stated that he received positive comments on the MaineDOT project and that this demonstrates good collaboration between the town and state.

Councilor Mancini mentioned Jean and Richard Bibber's comments (all Council received) and that they received a reply.

Councilor Barter also mentioned Jean and Richard Bibber's comments and that he also responded. He received positive comments about the MaineDOT landscaping, as well.

Councilor Sturgis stated that he responded on behalf of the Council to Jean and Richard Bibber and all Councilors were copied. He stated that the Sara Leighton letter regarding an assault at the Tailgate bar was received and it has been forwarded to the Cumberland County Sheriff's Dept.

FOURTH ORDER OF BUSINESS:

Public Hearing

Renewals of Liquor License Applications and Special Amusement Applications for Cole Farms Restaurant, Located at 64 Lewiston Road and Spring Meadows Golf, Located at 59 Lewiston Road.

No public comment.

Presentation

MTA Presentation Regarding the Draft Report and Findings for the Gray Interchange Study

Peter Clary of Vanasse Hangen Brustin, Inc. (VHB) gave an overview via PowerPoint on the Gray Interchange, including historical data to date. The purpose of the project is to improve safety and access to all roads to the Maine Turnpike. He indicated that there are interchange deficiencies and confusion as to which lanes are to be used. The bridge and ramp need to be redone. He commented on some of the environmental resources including potential wetlands areas, aquifers, etc. Traffic counts at peak hours have been conducted through a traffic study. They are working with the Town Planning Department and will work with the Planning Board. The Oxford Casino has impacted the traffic and this data has been updated. The projection of increased traffic over the next 20 years is 20% (1% per year). A traffic signalization study has been done to determine capacity and alternatives.

He outlined the following alternatives:

Alternative 1: Rehab the bridge/deck only. If this is done, an F level of service would occur. This is not a viable choice.

Alternative 2: Rehab and widen the bridge and add a 2nd east bound lane), widen Route 202 bridge, change the ramp and lanes. The Gray Bypass and Park & Ride would have additional lanes to have exclusive left and right hand turns. There would be an additional toll lane.

Alternative 3: Move south bound lanes to the west side. There would be similar intersection changes as in Alternative 2 and changes to the Route 202 Bridge. Toll plaza will be located only on the west side.

He also presented a comparison of all three alternatives. The conclusion is that Alternative 3 is better and the project costs are less. Maintenance for Alternative 3 over time is less. There are minimal wetlands and water quality impacts. He stated that the MTA prefers Alternative 3.

They will finalize the feasibility report to present to the MTA Board for approval, then come to Planning Board for review and work with the Town with a planned construction in 2014-2015.

Councilor Gallagher stated that she likes Alternative 3 and asked if there has been consideration in the studies for Gray center traffic. Mr. Clary said that they would likely change and improve the signalization to improve the conditions and make it safer.

Councilor Doughty asked about toll increases and a revised traffic diversion study in Gray center. He asked if these changes have been considered in their traffic studies. It was stated that the impact is 1/2 of 1% overall. Councilor Doughty also asked about the Town's letter to the MTA. It was stated that the MTA believed that this presentation would be better to help address questions. The MTA is still reviewing the data but there have also been increases on the turnpike. They will also provide data to the town to assess potential diversions.

Councilor Mancini stated that the project is a good one but there still is the issue of the majority of morning southbound and evening northbound traffic going to and coming back to Gray.

Councilor Sturgis stated that the MTA needs to clear the myth on the increased traffic going through the center of town trying to avoid the tolls. He urged them to listen to and stay in communications with the town. Councilor Sturgis supports Alternative 3. He asked how many properties are impacted by this. It was stated that right of way data is still needed but that this alternative will take into account every effort to minimize all impacts. Councilor Sturgis asked if there are pedestrian improvements. The MTA answered that pedestrian improvements have not been considered. The impact is negligible but that they would work with the town to see if there are any options. There was also a discussion on the Park & Ride location to either move or expand it. Councilor Sturgis urged the group to do a traffic diversion study. He also commented that there is a deterioration of roads by this impact that the town needs to consider budget impacts.

FIFTH ORDER OF BUSINESS:

#121-13 To Review and Act Upon Making Appointments to the Various Boards and Committees

Ordered, that the Gray Town Council appoints Marcia Kackmeister as a regular member to the Recreation and Conservation Committee for a term to expire August, 2015 and appoints Mike Vadas as a regular member to the Recycling Committee for a term to expire August, 2015.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Richard Barter, Town Council Vice Chair
SECONDER:	Lynn Gallagher, Councilwoman
AYES:	Sturgis, Barter, Dougherty, Mancini, Gallagher

#122-13 To Act on an Order to Remove the Former Church Property (Tax Map 020, Lot 020-024-000) from the List of Tax Acquired Properties to be Sold at Auction.

Ordered that the former Church property (Town Tax Map 020, Lot 020-024-000), which had become tax-acquired and which the Town Council had ordered to be disposed of by auction pursuant to Town Council Order 110-13 be removed from the list of tax acquired properties to be sold at auction.

Councilor Sturgis stated that all property taxes have been paid.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Lew Mancini, Councilman
SECONDER:	Richard Barter, Town Council Vice Chair
AYES:	Sturgis, Barter, Dougherty, Mancini, Gallagher

#123-13 To Authorize the Town Manager to Sign a Quitclaim Deed to Cristiano Cenci Church for Map and Lot 020-020-024-000 of the Tax Assessors' Maps of the Town of Gray.

Ordered the Gray Town Council authorizes the Town Manager to sign a quitclaim deed to Cristiano Cenci Church for Map and Lot 020-020-024-000 of the Tax Assessors' Maps of the Town of Gray.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Richard Barter, Town Council Vice Chair
SECONDER:	Lew Mancini, Councilman
AYES:	Sturgis, Barter, Dougherty, Mancini, Gallagher

#124-13 To Review and Act Upon Authorizing the Town Manager to Send Notices to All Personal Property Accounts with Outstanding Balances Stating that Their Accounts Will be Referred to a Collection Agency If They Do Not Make Full Payment or Official Arrangements Within the Terms of the Notice.

Ordered the Gray Town Council Authorizes the Town Manager to Send Notices to All Personal Property Accounts with Outstanding Balances Stating that Their Accounts Will be Referred to a Collection Agency If They Do Not Make Full Payment or Official Arrangements Within the Terms of the Notice and Be It Further Ordered that the Town Manager is Hereby Directed to Select a Collection Agency and Submit for Their Collection, Any Unpaid Claims of the Same.

Councilor Sturgis stated that the Council has received an itemized list and this process is an attempt to get a response and assess the status of the outstanding properties.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Lynn Gallagher, Councilwoman
SECONDER:	Matthew Doughty, Councilman
AYES:	Sturgis, Barter, Doughty, Mancini, Gallagher

#125-13 To Review and Act Upon Approving a Liquor License and Auxiliary Liquor License Renewal for the Sale of Alcoholic Beverages for Spring Meadows Banquet Center and Golf Course at 59 Lewiston Road.

Ordered the Gray Town Council approves a Liquor License and Auxiliary Liquor License renewal for the sale of alcoholic beverages for Spring Meadows Banquet Center and Golf Course at 59 Lewiston Road.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Richard Barter, Town Council Vice Chair
SECONDER:	Matthew Doughty, Councilman
AYES:	Sturgis, Barter, Doughty, Mancini, Gallagher

#126-13 To Review and Act Upon Approving a Special Amusement Permit Renewal for Spring Meadows Banquet Center and Golf Course at 59 Lewiston Road.

Ordered the Gray Town Council approves a Special Amusement Permit renewal for Spring Meadows Banquet Center and Golf Course at 59 Lewiston Road.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Lew Mancini, Councilman
SECONDER:	Matthew Doughty, Councilman
AYES:	Sturgis, Barter, Doughty, Mancini, Gallagher

#127-13 To Review and Act Upon Approving an Application for a Renewal Liquor License for the Sale of Alcoholic Beverages for Cole Farms, Inc at 64 Lewiston Road.

Ordered the Gray Town Council approves the application for a Renewal Liquor License for the sale of alcoholic beverages for Cole Farms, Inc. at 64 Lewiston Road.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Matthew Doughty, Councilman
SECONDER:	Lew Mancini, Councilman
AYES:	Sturgis, Barter, Doughty, Mancini, Gallagher

#128-13 To Review and Act Upon Approving a Special Amusement Permit for Cole Farms, Inc. at 64 Lewiston Road.

Ordered the Gray Town Council approves a Special Amusement Permit for Cole Farms, Inc. at 64Lewiston Road.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Matthew Doughty, Councilman
SECONDER:	Lew Mancini, Councilman
AYES:	Sturgis, Barter, Doughty, Mancini, Gallagher

EIGHTH ORDER OF BUSINESS:

Motion to Adjourn

The meeting ended at 8:38pm.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Matthew Doughty, Councilman
SECONDER:	Lynn Gallagher, Councilwoman
AYES:	Sturgis, Barter, Doughty, Mancini, Gallagher



Vanasse Hangen Brustlin, Inc.

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