# Environmental Assessment

East Park Reservoir

Prepared for: East Park Leadership Conservation Center

Prepared by: CVM Construction Managers, Inc.

## Contents

**Introduction**

In accordance with the requirements of the City of Philadelphia Open Space Protection Ordinance, Section 15-104 of the Philadelphia Code, this memorandum presents an environmental and traffic analysis for the site of the proposed Outward Bound and Audubon Center on Reservoir Drive, Philadelphia, PA 19121, as shown on the attached location plan.

This memorandum specifically describes the features of the site and potential impacts of the change in use as required in Section 15-104 (1)(b) of the Ordinance.

**A. Project Description**

Outward Bound Philadelphia and National Audubon Society, Inc. have formed the East Park Leadership and Conservation Center, a Pennsylvania nonprofit support organization ("EPLACC") for the purpose of providing a center (the "Center") that will preserve a unique man-made lake as a bird and wildlife sanctuary and be the Philadelphia base of operations for nationally recognized Audubon and Outward Bound youth leadership and environmental education programs. This project will allow managed public access to the lake that aligns with education, recreation and conservation goals and will create an unparalleled resource to connect communities across the Philadelphia region with youth leadership development, nature and habitat conservation.

(1) Description of proposed Leased Acreage

a. Almost 50 acres currently under control of PWD and fenced off from the public would become accessible to the public for recreational and educational purposes that are consistent with management of the site as a bird and wildlife sanctuary. This acreage includes 37.65 acres of lake and 12.35 acres of land around the perimeter of the lake that is currently fenced off under the jurisdiction of the Philadelphia Water Department and inaccessible to the public. Less than half an acre of this land would be used for a building, deck and observation platforms; and
b. 4.47 acres of current open land would substantially continue to be used for permitted outdoor recreational uses. This piece of land consists of a small strip of land, contiguous to the land currently fenced around the reservoir and extending out to the logical boundary with Reservoir Drive. Because neither a sidewalk nor natural barrier exists between this land and Reservoir Drive, a modified protective fence may be installed on some parts of this acreage. The fence would not deny visual open space access, but would ensure safety for those enjoying the land. Public access to this area would continue, and the sight lines and space for foot and bicycle travel along Reservoir Drive would be maintained. A very small portion of this land (estimated at between .05 and .10 acre) might be affected by the building footprint. [See (3) below regarding Description of Building, Parking and Trails.]

(2) Description of Gateway Areas <u>not included</u> in proposed Leased Acreage

Audubon and Outward Bound will be among the public and private partners working in collaboration with the Department of Parks & Recreation to enhance two areas along Reservoir Drive toward 33rd street to create an inviting natural gateway to East Fairmount Park through landscaping, signage and walking paths. These areas, including 0.82 acres of Fairmount Park open land ("Gateway #2"), and (b) 1.35 acres of Fairmount Park open land ("Gateway # 1") will continue to be open to the public. [See (4) below regarding Description of Uses].

(3) Description of Building, Parking and Trails

a. Building: The current plan is to construct a two-story Center building, estimated to be a total of approximately 17,000 square feet, at the southern end of the lake. The footprint of the building is estimated to be approximately 8,500 square feet (approximately .25 acre). An additional .12 acre area immediately adjacent to the building will offer an outdoor deck and observation platform. Final plans, architectural drawings and building construction documents are not complete at this time. However, the vision is for the building footprint to be predominantly located within the area currently under PWD jurisdiction, i.e., not currently used as park lands. A slight portion of the building footprint (estimated at somewhere between .05 and .10 acre) may extend beyond the current fence line onto a small portion of park land. It is understood that should the building footprint extend onto this small strip of park land, the substitute land requirement of the ordinance may be triggered. This requirement is addressed by opening almost 50 acres of land currently under the jurisdiction of PWD to permitted outdoor recreational uses consistent with management of the site as a wildlife sanctuary and outdoor recreation facility. The vision for the building includes the possibility

of an observation platform on the roof. Building plans will be subject to review and final approvals by P&R, the Commission, and other City agencies during the due diligence phase of the lease.

b. Parking and Traffic: Plans for parking will be finalized along with plans for the building and subject to review by the City, and other authorities with jurisdiction. It is estimated that less than one acre will be used for parking. Parking surfaces will be pervious and landscaping will mitigate storm water runoff. A traffic study prepared by McMahon Transportation Engineers and Planners is attached. Additional traffic studies will be submitted during the due diligence period when plans are finalized.

c. Trails: Plans for walking trails will be finalized along with plans for the building and subject to review by City agencies and the Department of Parks and Recreation. Please see Description of Uses below.

(4) Description of Uses

a. (building) The building will serve as the base of operations for Outward Bound Philadelphia and Audubon to provide nationally recognized programs annually to thousands of participants, the vast majority of whom will be Philadelphia public school students. In addition, it is anticipated that the facility will attract more than 25,000 visitors on an annual basis, the majority of whom will come from Philadelphia. Program participants and the public will begin their encounter with nature through the building and continue their explorations on the lakeside and park side. Conceptual plans for use of space in the building include:

- Viewing areas/exhibit room(s): Public areas for viewing birds and wildlife on the lake, including an observation platform adjacent to the building, and exhibits inspiring conservation and outdoor recreation activities.
- Multi-purpose room: Space shared by Audubon and Outward Bound Philadelphia for programs, skills-training seminars, week-end family programs, community programs, and events. This space will be offered for use by community groups from time to time in a manner consistent with the mission of the organizations, their programs, and management of the site as a wildlife sanctuary.
- Classrooms: Space for program participants, professionals and volunteers; meeting space.
- Open flexible office space for Audubon and Outward Bound staff members (and possibly workspace for a Philadelphia Department of Parks & Recreation employee).
- Storage and utility spaces.
- Rentals. Corporate retreats, gatherings, and possibly weddings.

b. (grounds) Conceptual plans for use of the grounds include:

- Habitat management reducing invasive species and encouraging native species.
- Walking trails and observation points/platforms; possible overnight sleepover sites for a small number of program participants.
- Challenge courses (including a ropes course) encouraging outdoor activity.
- Special places and spaces (possibly a bird blind, an outdoor classroom, native habitat gardens, a climbing wall) that will encourage exploration, discovery, outdoor activity, fun and repeat visits.
- Construction of a spillway at north end of the lake that will decommission the reservoir as a dam in compliance with DEP and PWD requirements.
- Access points will be planned for the north end of the lake (for maintenance of the spillway).
- Parking will be planned for the south end of the site near the building (see above).

c. Gateway areas will remain under the jurisdiction of Parks & Recreation but subject to Parks & Recreation approved uses and improvements by EPLACC. It is anticipated that these areas will be landscaped to create an inviting public entrance to East Fairmount Park and the Strawberry Mansion community. Enhancements to these areas are in the early planning stages. Possibilities for Audubon and Outward Bound support for these improvements will be explored in collaboration with the Department of Parks & Recreation, the Fairmount Park Conservancy, and other organizations invested in East Fairmount Park and the Strawberry Mansion community.

d. Access by program participants and the public.

The Center will be open for Outward Bound and Audubon business and program operations on a schedule that is coordinated by staff members from both organizations.

Depending on weather conditions and staff scheduling, the Center will have public viewing areas open and accessible several days during the week (including some weekend days), with special open-to-the-public hours (e.g. early morning hours for bird watching and late afternoon hours for enjoying sunsets) throughout the year as are yet to be determined. There will be no entrance fees to the public viewing areas.

Note: Because the site is within the Philadelphia Water Department's security perimeter and steep walls of the reservoir pose safety concerns, access to both the building and water must be tightly controlled. Safety and security concerns require that the public enter and exit the site through the Center building or managed public access ways. For conservation purposes, the Center cannot allow boating, fishing, or swimming in the lake by the general public, and fencing around the perimeter of the lake must remain in place, although more attractive options for security will be explored contingent upon funding.

The Center may offer carefully controlled water activities for program participants during periods when such activities will not disturb birds or wildlife. These activities, such as kayaking, canoeing and/or water testing, will be restricted to limited parts of the lake and be carefully supervised by trained Audubon and/or Outward Bound staff.

**B. Existing Condition and Site Uses:**

Most of the site for the project (50 acres) is currently under the jurisdiction of the Philadelphia Water Department (PWD) and is fenced from public access. Trees, shrubs and plants have gradually created vegetation along the interior slopes of the lake. PWD manages the perimeter of the lake to maintain access as part of its management of the entire East Park Reservoir.

**C. Projected Impacts of the Project:**

(1) Stormwater

*Existing Condition*

Given the nature of the berm and surrounding site, there are currently no active stormwater management strategies in place. Rainwater and snow melt run into the reservoir basins and into the adjacent stormwater infrastructure in the Park and stormwater inlets on Reservoir Drive and 33rd Street by way of sheet flow.

The existing berm structure around the entire perimeter of the East Park Reservoir is considered to be a dam by the Pennsylvania Department of Environmental Protection (DEP). Since 1996, PWD has actively maintained the west basin at a depth between 6 and 8 feet (water volume of approximately 300 acre-feet) with periodic drainage via a manually operated valve that discharges into the south basin. The west basin lake is "off-stream", meaning that it is only fed by direct precipitation and localized runoff, and does not serve as drainage for any waterways. As such, the basin is not subject to rapid rising of water levels in significant rain or melt events.

*Projected Impact*

The proposed construction of the EPLACC and modifications of the adjacent areas of the site will incorporate state of the art storm water management practices that will seek to meet or exceed local codes as defined by PWD and DEP. These strategies will minimize or eliminate runoff leaving the building and site during times of peak flow, and will increase the opportunity for storm water infiltration on site and the re-charging of ground water.

As a result of a cooperative arrangement between the project partners, PWD and DEP the berm will be de-commissioned as a dam by means of the construction of a passive drainage device, or 'spillway'. Located at the north east corner of the west basin lake, the spillway will maintain water level in the basin at a depth of 8' and will discharge via existing storm water infrastructure and natural drainage paths in the valley north of the basin. The spillway will also offer the critical ability to drain the basin quickly in the event of repairs, maintenance or seepage leaks.

(2) Water Pollution

*Existing Condition*

Due to the height of the berm and its relative elevation compared to surrounding streets, the site has maintained a pristine, if somewhat neglected condition, and as such is not subject to substantial infiltration of surface-borne pollutants, with the exception of those created by ongoing maintenance activities.

*Projected Impact*
The proposed project will incorporate the best storm water management practices and will meet or exceed state and local codes as defined by PWD and DEP. To offset the impact of this project, measures will be taken to ensure responsible management of runoff and water quality, such as bio-retention or other methods intended to reduce the level of pollutants entering the watershed.

(3) Canopy Preservation

*Existing Condition*

The Morris Arboretum's Urban Forestry Consultants were engaged to perform a tree inventory of the impacted areas of the site. It was found that there exists a mix of healthy mature trees, invasives, numerous smaller trees and saplings in the target areas in what appears to be a largely unmanaged urban woodland setting. Observed species include native and non-natives, mainly black cherry, white ash, black locust, red maple, ailanthus, and Norway maple.

*Projected Impact*

Site modifications and all construction activities will be undertaken with care and consideration for trees and vegetation determined to be of value. The goal of this intervention is will be to establish a harmonious landscape that is conducive to wildlife habitat preservation and the enjoyment of park visitors. As such, though some trees will have to be removed, the project partners will replace trees in compliance with the City of Philadelphia Tree Ordinance, and will seek to establish a diverse and healthy woodland focused on native and sustainable species appropriate for the setting and acceptable to the Department of Parks and Recreation.

(4) Natural Habitat

*Existing Condition*

Routine maintenance by PWD includes cutting grass, cutting trees, and removing vines and other vegetation that may obstruct PWD supervision of the area. Grass is cut inside and outside around the basin. This relatively low level of intervention over the years has allowed natural habitats to flourish, while it has also allowed invasive plant species to take hold in some areas.

*Projected Impact*

Site modifications and all construction activities will be undertaken with care and consideration for the existing natural habitats, and will be focused on improving them. Central to the educational and environment mission of the EPLACC is the creation, preservation and stewardship of a local, diverse and healthy landscape that will serve to provide habitat for birds, woodland creatures and aquatic wildlife.

(5) Noise

*Existing Condition*

Noise levels are generated by vehicular circulation and associated human activity in the surrounding park land. There is some minimal sound generated from the adjacent neighborhood and traffic on north 33rd Street, but this is minimized due to the distance and the relative elevation of the site. This noise is periodic, corresponding to times of occasional staged events.

*Projected Impact*

Noise levels generated by the proposed new Center will be minimal, as it is the intent for mechanical equipment to be contained within the new structure. Noise levels by program participants will be consistent with use for educational and recreation purposes while maintaining the site as a bird and wildlife sanctuary.

(6) Light

*Existing Condition*

There is no permanent lighting associated with the existing site. Ambient light spills over from street lights along Reservoir Drive with some minimal leakage from north 33rd Street and the adjacent neighborhood.

*Projected Impact*

The new Center will have exterior lighting appropriate for public safety during night time use of the facility. Light fixtures will be selected to be bird friendly, minimize glare, especially as may be visible from vehicular traffic along Reservoir Drive, and to comply with applicable dark-skies performance criteria.

(7) Traffic

*Existing Condition*

The site is located on Reservoir Drive, near the intersection of Oxford and north 33rd Streets, both major arterial roadways that offer convenient access to public transportation, on-street parking, as well as bike and pedestrian lanes. Reservoir Drive connects the site to the Fairmount Park roadway network and other major streets including Ridge Avenue and Kelly Drive, and is connected to a network of sidewalks and multi-use trails that provide good pedestrian access within the Park. This roadway also offers a paved shoulder which provides on-street parking during peak Park times.

*Projected Impact*

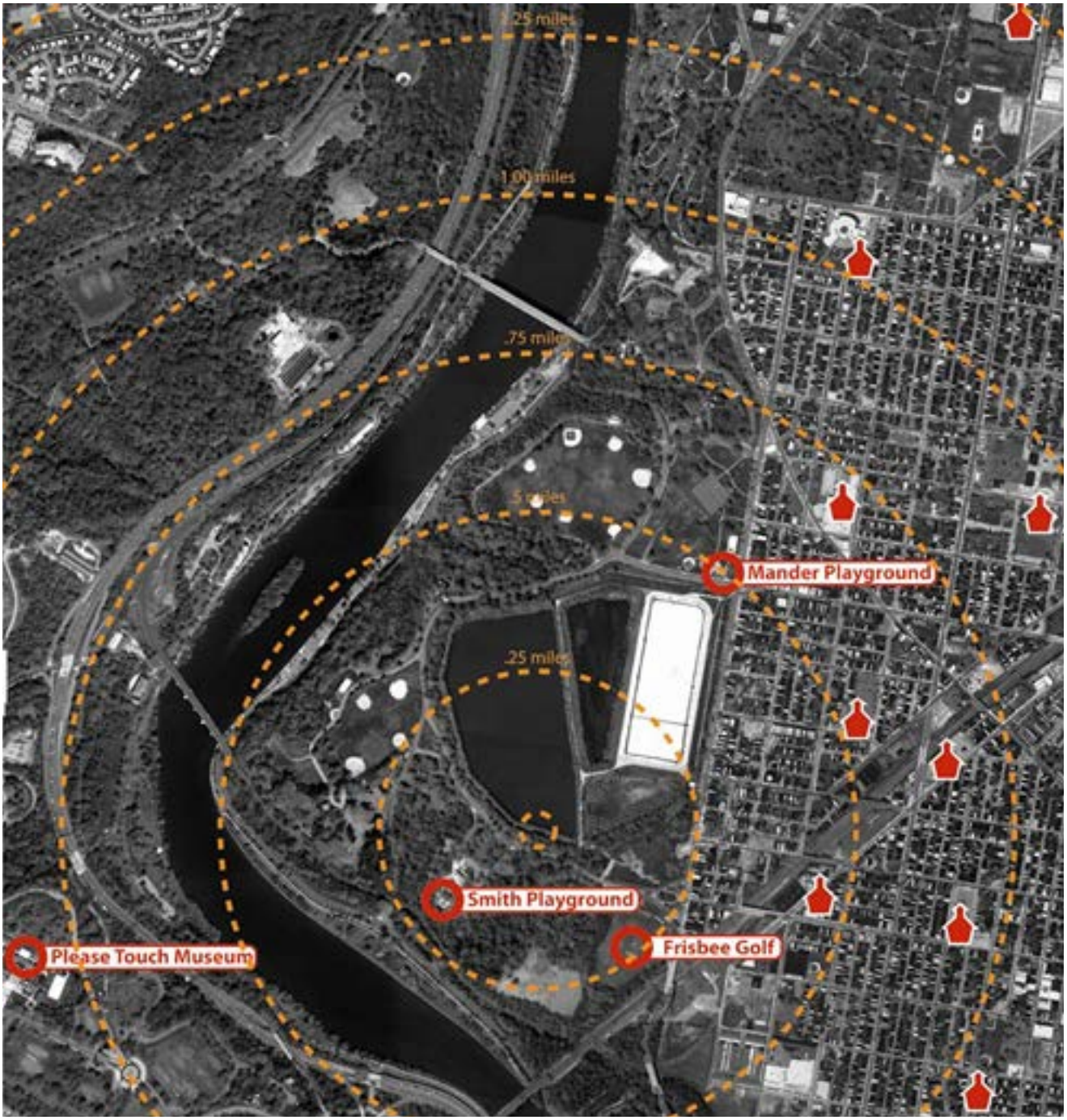
The project will not significantly alter the existing conditions in terms of the local roadway network, the type or volume of traffic generation, or the functionality of controlled intersections nearby. Parking and vehicle access for the site will be located within the project area, and will be designed in accordance with local codes and requirements and will be guided by best practices intended to minimize the impact to the natural setting.

**D. Conclusion:**

The proposed lease of 4.37 acres of parkland for permitted outdoor recreational uses and of .10 acre for use as a building that provides access to 49.75 acres now under PWD jurisdiction is in the public interest.

This project will have a net positive impact on the environmental quality of the Park, because it will:

- invest Audubon and Outward Bound in the stewardship and maintenance of the site;
- preserve, maintain and enhance a unique woodland and aquatic landscape including natural habitats;
- result in a net gain of 49.75 acres for permitted outdoor recreational uses consistent with management of the site as a bird and wildlife sanctuary;
- allow managed access to these natural resources for the general public.




# site context map


# site acreage plan

| | |
|---|---|
| INSIDE FENCE | 12.35 |
| OUTSIDE FENCE | 4.47 |
| WEST BASIN | 37.65 |
| GATEWAY 1 | 1.35 |
| GATEWAY 2 | 0.82 |
| TOTAL: | 56.64 |

EXISTING PWD FENCE LINE

PROPOSED AREA TO BE LEASED

GATEWAY 1 & 2
(NOT TO BE LEASED)

# Transportation Narrative for Audubon/Outward Bound Facility in Fairmount Park

*City of Philadelphia, Pennsylvania*



Prepared for

**CVM Construction**

Prepared by

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

**January 11, 2013**

**McMahon Project Number 812766.11**

**Transportation Setting**

*Existing Condition*

The proposed Audubon/Outward Bound facility will be located along the north side of Reservoir Drive, just east of 33rd Street, within Fairmount Park in the City of Philadelphia (**Figure 1**). The existing roadways and intersections in the vicinity of the site, which comprise the study area roadway network, are described in this section.

The majority of visitors to the proposed facility will utilize 33rd Street (U.S. Route 13) as they approach the site. In the vicinity of the site, 33rd Street is classified by the Delaware Valley Regional Planning Commission (DVRPC) as an "Other Principal Arterial" and traverses in a north-south direction and provides sidewalks, on-street parallel parking, a dedicated bicycle lane, and one vehicular travel lane in each direction. Also, auxiliary left turn lanes are provided at key intersections, including at the 33rd Street intersection with Reservoir Drive/Oxford Street. The posted speed limit along 33rd Street is 25 miles per hour.

Oxford Street is classified as an "Urban Collector" by DVRPC and will provide a route to the east for some visitors of the site. Oxford Street generally provides one vehicular travel lane in each direction with on-street parallel parking and sidewalks. The posted speed limit along Oxford Street is 25 miles per hour.

Reservoir Drive is part of the roadway network within Fairmount Park that provides access through this portion of the Fairmount Park System. These roadways provide access to other City and State streets, such as 33rd Street, Kelly Drive, and Ridge Avenue. Reservoir Drive provides one vehicular travel lane in each direction, with a paved shoulder area that accommodates on-street parallel parking during peak Park times. A series of sidewalks and multi-use trails are provided within the park, and in the vicinity of the site, Reservoir Drive provides a multi-use trail on the south side of the roadway and along the north side of the roadway a path is provided near 33rd Street. The posted speed limit along Reservoir Drive is 25 miles per hour.

Bus transit service is also provided in the area of the site via several routes. A SEPTA bus stop is located at the adjacent 33rd Street/Oxford Street intersection.

*Future Condition*

The proposed Audubon/Outward Bound facility will not significantly alter the existing conditions in terms of the transportation network or traffic generation. Access and a loop driveway will be provided along the north side of the Reservoir Drive, similar to the existing driving range and frisbee course parking lot situated on the south side of Reservoir Drive opposite the site. Park and site visitors will continue to be permitted to parallel park along Reservoir Drive. A secondary driveway will serve the facility for deliveries and emergency access. In addition, the path/trail along the north side of Reservoir

Road will be improved to connect the site to 33rd Street. At this time, it is our understanding that the existing basketball courts will remain on the site, and will be served by the trail and area parking.

**Traffic Volumes**

*Existing Condition*

A manual turning movement traffic count was performed at the 33rd Street/Reservoir Drive/Oxford Street intersection on Thursday, December 13, 2012 during the weekday morning (7:00 AM to 9:00 AM) and weekday afternoon (4:00 PM to 6:00 PM) commuter peak periods. A traffic count was also conducted during the Saturday midday peak period (noon to 3:00 PM) on December 15, 2012. While these traffic counts may not reflect typical traffic volumes along Reservoir Drive, when utilization of the park facilities are more prevalent, the off-season traffic counts likely provide a reasonable account of commuter traffic (or base conditions) along 33rd Street, Oxford Street, and even Reservoir Drive. It is noted that a construction project was occurring along Ridge Avenue during the time of the traffic counts, with a closure of a nearby section of that roadway with a detour to 33rd Street, so the existing traffic volumes are likely higher than typical conditions.

The results of the traffic counts are tabulated by 15-minute intervals and included in **Attachment A**. The four highest consecutive 15-minute peak intervals during these traffic count periods constitute the peak hours that are the basis of this traffic analysis. The resultant peak hour traffic volumes are illustrated in **Figure 2** for the weekday morning commuter peak hour, the weekday afternoon commuter peak hour, and the Saturday midday peak hour.

Review of the intersection traffic count reveals that, in front of the site, the combined peak hour traffic volumes along Reservoir Road (in both directions) are minimal with 99 vehicles per hour, 107 vehicles per hour, and 127 vehicles per hour during the weekday morning peak hour, the weekday afternoon peak hour, and the Saturday midday peak hour, respectively. Average Daily Traffic (ADT) data provided by the City Streets Department indicates that 33rd Street carries approximately 20,000 (2010) vehicles per day (vpd), Oxford Street carries approximately 2,600 (1998) vpd, and Reservoir Drive carries approximately 700 (2003) vpd.

*Future Condition*

The proposed Audubon/Outward Bound facility will continue to take advantage of the natural and environmental resources and amenities that Fairmount Park offers, and will generate a minimal amount of new traffic associated with increased visitors, as well as staff. The proposed facilities have unique operational characteristics that are best evaluated when estimating future traffic generation, as opposed to other common uses where already published data (e.g., the Institute of Transportation Engineer's *Trip Generation* publication) provides the most reasonable method for estimating trip generation. Accordingly,

both the Audubon Society and Outward Bound organization provided the following preliminary information for estimating trip generation:

Audubon Society

*Visitors*

Peak Season (April to October): 8 to 10 vehicles per weekday, 25 to 30 vehicles per day on weekends, with possibly one weekend a month having an additional 5 to 10 vehicles for a special program. It is expected that the number of visitors would be reduced by half during the off-peak season.

*Staff*

Approximately 5 vehicles would be associated with staff or business visitors on a daily basis.

*Buses*

Approximately 2 buses would bring visitors to the site from an off-site facility approximately 60 days throughout the year.

Outward Bound

*Visitors*

At this time, it is anticipated that visitors will be bused to the site.

*Staff*

Approximately 8 vehicles would be associated with staff or business visitors on a daily basis. Also, there will be 8 fleet vehicles for the facility.

*Buses*

Approximately one (1) bus would bring visitors to and from the site.

These trips to and from the site, as noted above, will represent an approximate daily traffic volume for the site (approximately 34 weekday daily trips and 54 to 64 Saturday daily trips). In order to evaluate the impacts to peak hour traffic conditions, it was conservatively assumed that all future site traffic will be added during the weekday study peak hours and that all visitor traffic will be added during the Saturday midday peak hour (assuming staff will arrive/depart off peak). As such, the peak hour trip generation evaluated in this analysis is as follows:

| | Weekday AM Peak Hour | | | Weekday PM Peak Hour | | | Saturday Midday Peak Hour | | |
|---|---|---|---|---|---|---|---|---|---|
| | In | Out | Total | In | Out | Total | In | Out | Total |
| Audubon Society | 17 | 0 | 17 | 0 | 17 | 17 | 15 | 15 | 47 |
| Outward Bound[1] | 9 | 8 | 17 | 8 | 9 | 17 | 9 | 9 | 18 |
| Total Trips | 26 | 8 | 34 | 8 | 26 | 34 | 24 | 24 | 48 |

1 – Assumes that all eight fleet vehicles depart site during AM peak hour, arrive during PM peak hour, and make a round trip during the Saturday peak hour.

The site-generated traffic will approach and depart the site via different routes depending on factors such as the existing traffic patterns, location of major roadways, and the location of the development's site access. The distribution percentages for the anticipated directions of approach and departure are illustrated in **Figure 3**.

It is noted that the existing traffic volumes, which were counted in December, were conservatively increased 100 percent to account for the seasonal park traffic that may be higher during warmer weather months. The traffic volumes with development of the proposed facility are illustrated in **Figure 4**.

**Traffic Operations**

*Existing Condition*

The peak hour traffic volumes were analyzed to determine the existing operating conditions in accordance with standard techniques contained in the *Highway Capacity Manual (2000)*. Based on the analysis, the adjacent 33rd Street/Reservoir Drive/Oxford Street intersection functions acceptably, or with a level of service (LOS) D or better during the study peak hours. Further, the analysis indicates that there are no adverse traffic congestion or vehicular queuing conditions that extend back from the intersection along Reservoir Drive past the site. Existing traffic operations are summarized in **Figure 5** for the study peak hours.

*Future Condition*

Upon completion of the proposed Audubon/Outward Bound facility, the analysis indicates that the 33rd Street/Reservoir Drive/Oxford Street intersection will continue to function acceptably during the study peak hours. Additionally, the proposed site driveway will also function acceptably during the peak hours. The continuation of on-street parking in front of the site will not have a significant impact on the traffic conditions along Reservoir Drive. This analysis assumes the conservative seasonal increase (100 percent increase) in Reservoir Drive traffic volumes. Future traffic operations are summarized in **Figure 6** for the study peak hours.

The existing and future traffic analysis worksheets are provided in **Attachment B**.

**Sight Distance**

The horizontal curvature and vertical grades of Reservoir Drive are moderate and should not create sight distance issues for the proposed site driveways. Vegetation should be limited to not restrict sight lines for vehicles exiting the proposed site driveways, and on-street parking should

be restricted in the vicinity of the proposed driveways in order to create sufficient sight lines for exiting traffic. Upon design of the site driveways, adequate sight distance must be provided in accordance with PennDOT criteria, PA Code Title 67, Chapter 441.8.h.2.iv.

**Parking**

Parking should be provided in accordance with the expected operational needs of both facilities in order to accommodate staff, visitors, and buses. As proposed, parking will be provided via a new parking lot and utilization of off-street parking. The anticipated on-street parking that will be used by the site is not anticipated to have an adverse impact on other park visitors.

**Conclusion**

Based on the operational information provided and the foregoing analyses, the proposed Audubon/Outward Bound facility will not have a significant transportation impact on the surrounding roadway network or within Fairmount Park. Visitors to the site will continue to take advantage of the natural and environmental resources offered by Fairmount Park, and therefore, the type of traffic generated by the site will not dramatically different from park traffic today.

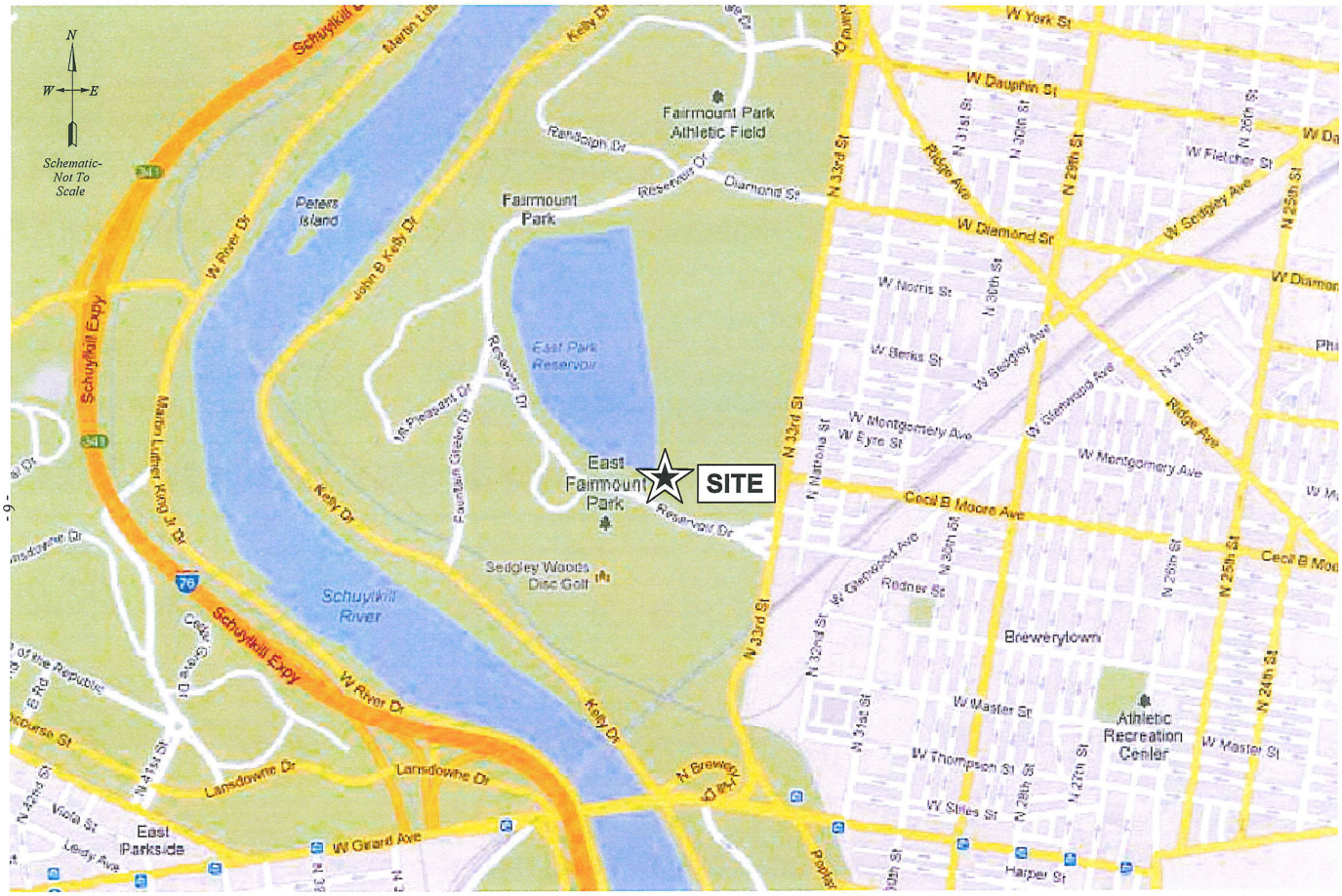



**FIGURE 1**
Site Location Map
AUDUBON/OUTWARD BOUND FACILITY IN FAIRMOUNT PARK
**CITY OF PHILADELPHIA, PENNSYLVANIA**

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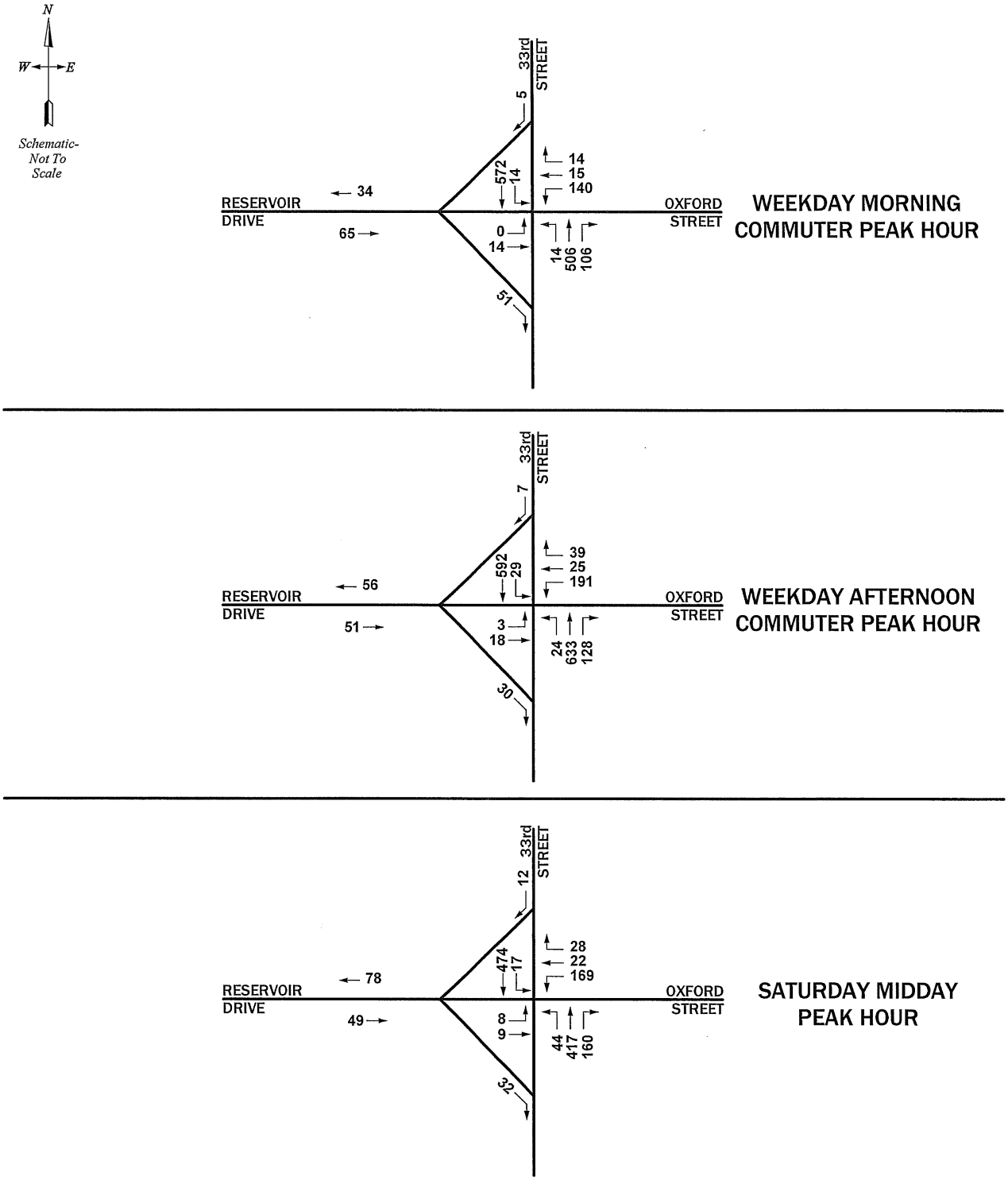


**FIGURE 2**
Existing Peak Hour Traffic Volumes
AUDUBON/OUTWARD BOUND FACILITY
IN FAIRMOUNT PARK
**CITY OF PHILADELPHIA, PENNSYLVANIA**

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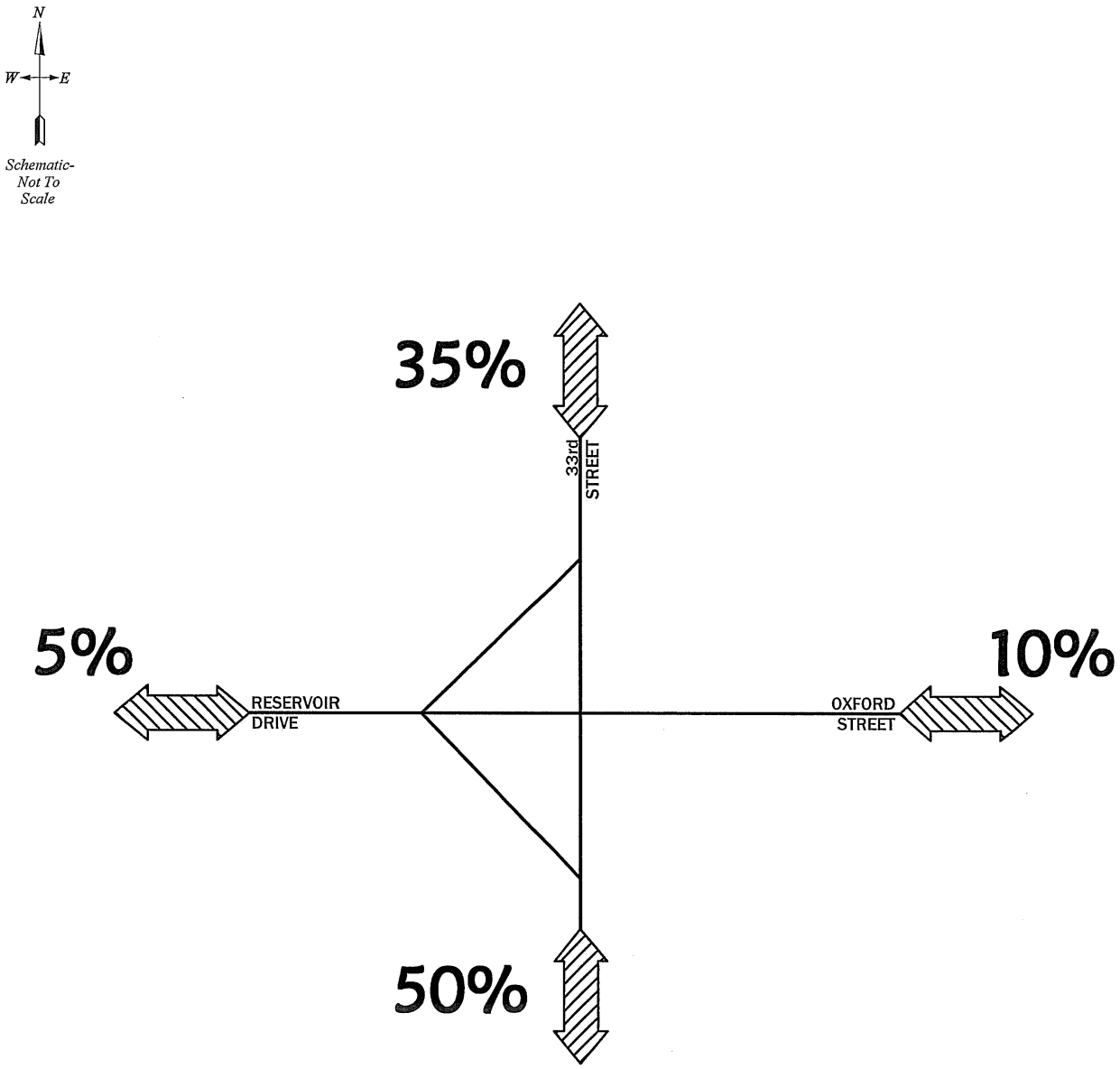


**FIGURE 3**
Directions of Approach & Departure
AUDUBON/OUTWARD BOUND FACILITY
IN FAIRMOUNT PARK
**CITY OF PHILADELPHIA, PENNSYLVANIA**

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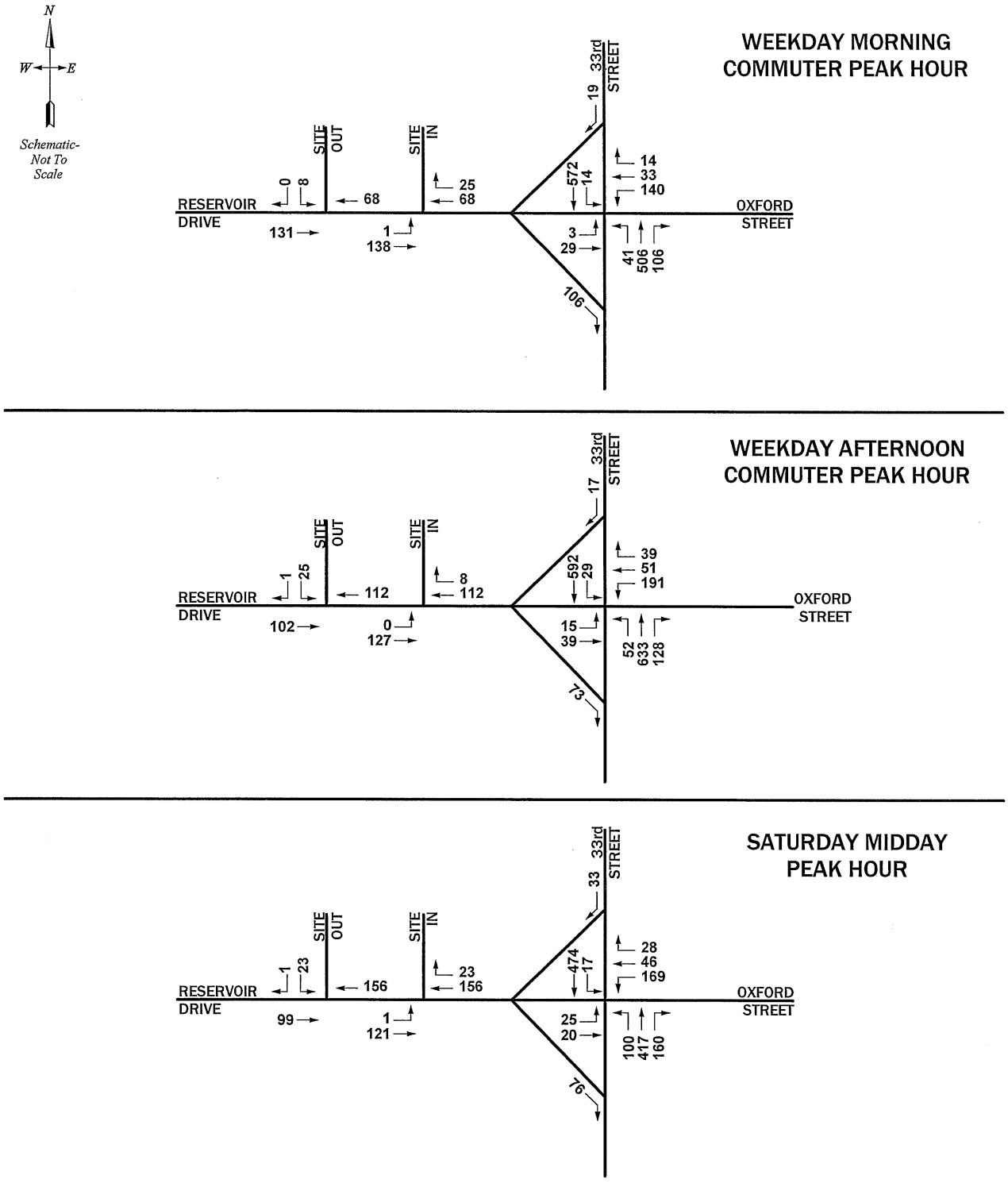


**FIGURE 4**
Peak Hour Traffic Volumes with Development
AUDUBON/OUTWARD BOUND FACILITY
IN FAIRMOUNT PARK
**CITY OF PHILADELPHIA, PENNSYLVANIA**

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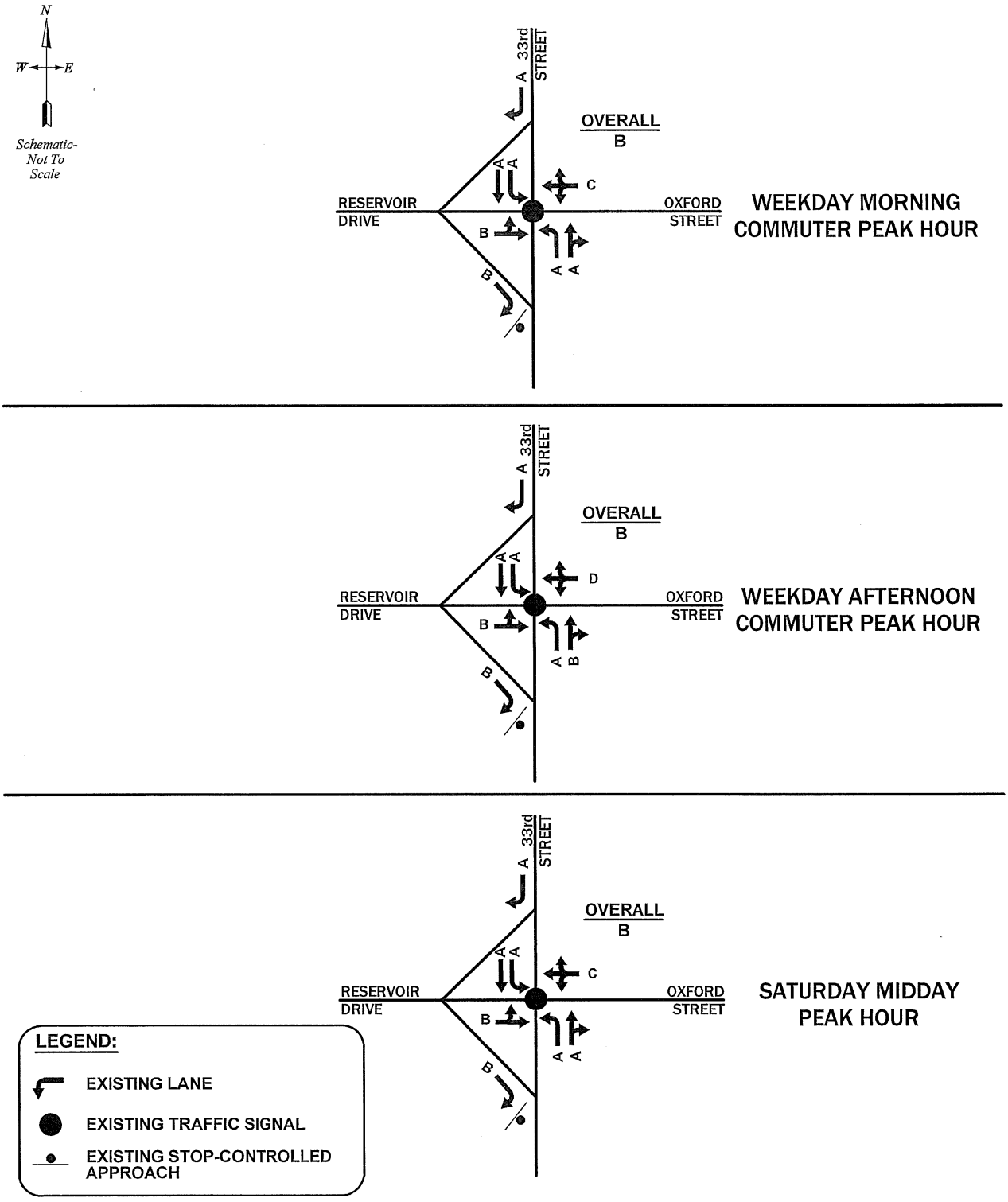


**FIGURE 5**
Existing Peak Hour Levels of Service
AUDUBON/OUTWARD BOUND FACILITY
IN FAIRMOUNT PARK
**CITY OF PHILADELPHIA, PENNSYLVANIA**

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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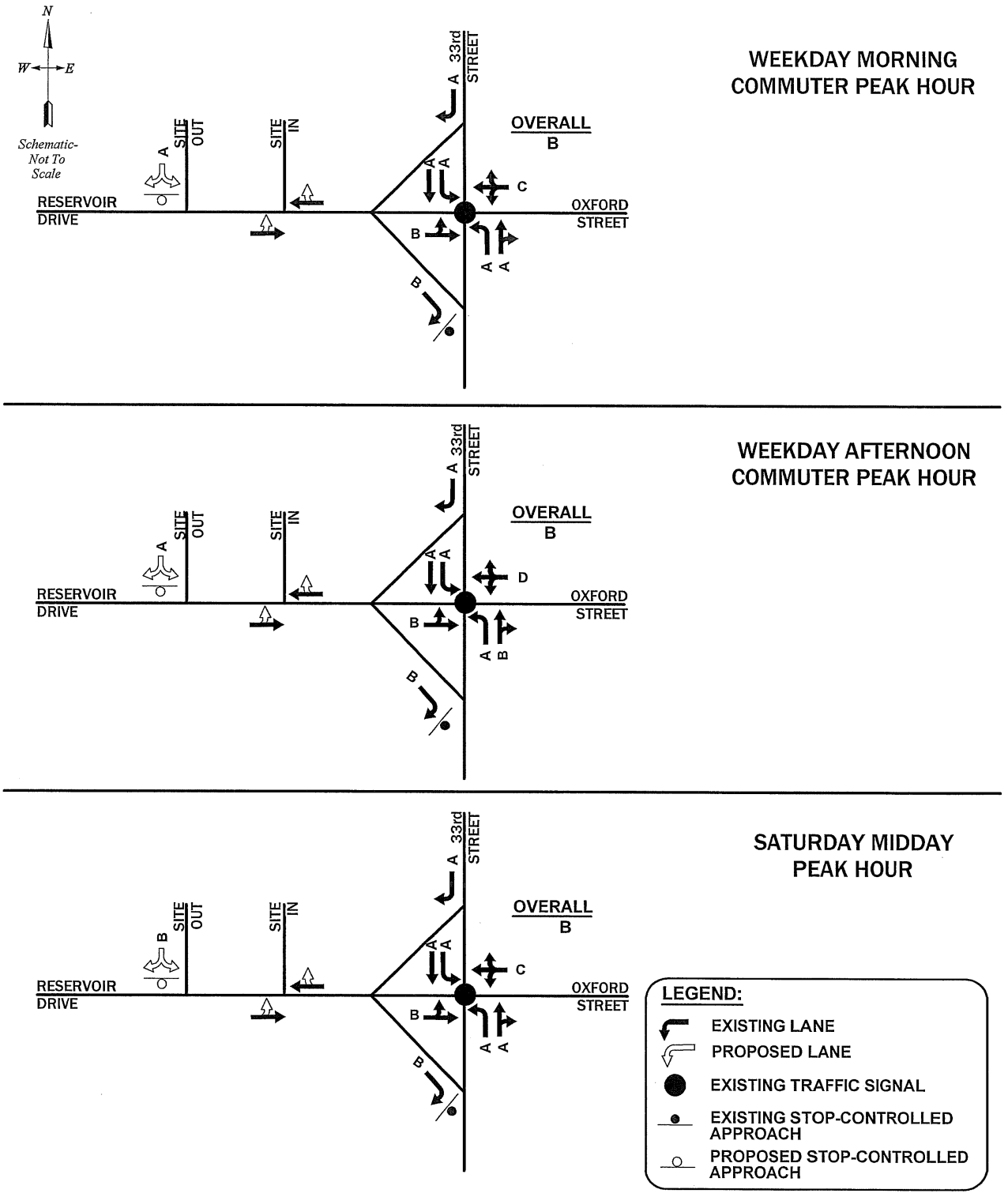


**FIGURE 6**
Future Peak Hour Levels of Service
AUDUBON/OUTWARD BOUND FACILITY
IN FAIRMOUNT PARK
**CITY OF PHILADELPHIA, PENNSYLVANIA**

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*(12/20/12-TML/AB) i:\Eng\812766\Dwg\Figures\Figure 6.dwg*

# ATTACHMENT A

# McMahon Associates, Inc.

Transportation Engineers and Planners

*425 Commerce Drive, Suite 200*
*Fort Washington, PA 19034*

Municipality: City of Philadelphia
Location: 33rd Street &
Reservior Dr / Oxford Street
Counter/Countboard No.: BW

File Name : fairmount01w
Site Code : 00000111
Start Date : 12/13/2012
Page No : 1

**Groups Printed- Passenger Vehicles - Heavy Vehicles**

| | 33rd Street Southbound | | | Oxford St Westbound | | | Oxford St Northbound | | | Reservior Dr Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Int. Total |
| 07:00 | 2 | 92 | 0 | 18 | 5 | 1 | 0 | 92 | 18 | 1 | 3 | 2 | 234 |
| 07:15 | 6 | 111 | 1 | 31 | 3 | 3 | 2 | 102 | 38 | 1 | 3 | 3 | 304 |
| 07:30 | 2 | 150 | 1 | 41 | 7 | 3 | 4 | 128 | 31 | 0 | 3 | 6 | 376 |
| 07:45 | 4 | 159 | 1 | 36 | 4 | 5 | 4 | 134 | 27 | 0 | 4 | 14 | 392 |
| Total | 14 | 512 | 3 | 126 | 19 | 12 | 10 | 456 | 114 | 2 | 13 | 25 | 1306 |
| 08:00 | 5 | 116 | 1 | 33 | 2 | 3 | 2 | 131 | 22 | 0 | 2 | 12 | 329 |
| 08:15 | 3 | 147 | 2 | 30 | 2 | 3 | 4 | 113 | 26 | 0 | 5 | 19 | 354 |
| 08:30 | 6 | 135 | 1 | 26 | 4 | 3 | 4 | 123 | 30 | 0 | 4 | 15 | 351 |
| 08:45 | 3 | 149 | 1 | 34 | 2 | 5 | 3 | 110 | 33 | 0 | 2 | 5 | 347 |
| Total | 17 | 547 | 5 | 123 | 10 | 14 | 13 | 477 | 111 | 0 | 13 | 51 | 1381 |
| 16:00 | 10 | 142 | 2 | 32 | 8 | 8 | 7 | 146 | 27 | 1 | 3 | 4 | 390 |
| 16:15 | 4 | 140 | 4 | 33 | 6 | 5 | 5 | 137 | 32 | 2 | 2 | 10 | 380 |
| 16:30 | 5 | 148 | 1 | 48 | 8 | 9 | 6 | 158 | 32 | 0 | 2 | 3 | 420 |
| 16:45 | 10 | 156 | 1 | 49 | 6 | 8 | 5 | 152 | 34 | 1 | 6 | 9 | 437 |
| Total | 29 | 586 | 8 | 162 | 28 | 30 | 23 | 593 | 125 | 4 | 13 | 26 | 1627 |
| 17:00 | 4 | 131 | 1 | 41 | 4 | 5 | 4 | 162 | 35 | 2 | 6 | 11 | 406 |
| 17:15 | 10 | 157 | 4 | 53 | 7 | 17 | 9 | 161 | 27 | 0 | 4 | 7 | 456 |
| 17:30 | 5 | 152 | 2 | 38 | 6 | 8 | 4 | 130 | 20 | 2 | 2 | 7 | 376 |
| 17:45 | 8 | 152 | 1 | 33 | 2 | 7 | 7 | 116 | 28 | 1 | 2 | 7 | 364 |
| Total | 27 | 592 | 8 | 165 | 19 | 37 | 24 | 569 | 110 | 5 | 14 | 32 | 1602 |
| Grand Total | 87 | 2237 | 24 | 576 | 76 | 93 | 70 | 2095 | 460 | 11 | 53 | 134 | 5916 |
| Apprch % | 3.7 | 95.3 | 1 | 77.3 | 10.2 | 12.5 | 2.7 | 79.8 | 17.5 | 5.6 | 26.8 | 67.7 | |
| Total % | 1.5 | 37.8 | 0.4 | 9.7 | 1.3 | 1.6 | 1.2 | 35.4 | 7.8 | 0.2 | 0.9 | 2.3 | |
| Passenger Vehicles | 86 | 2074 | 24 | 540 | 76 | 91 | 70 | 1925 | 428 | 11 | 53 | 134 | 5512 |
| % Passenger Vehicles | 98.9 | 92.7 | 100 | 93.8 | 100 | 97.8 | 100 | 91.9 | 93 | 100 | 100 | 100 | 93.2 |
| Heavy Vehicles | 1 | 163 | 0 | 36 | 0 | 2 | 0 | 170 | 32 | 0 | 0 | 0 | 404 |
| % Heavy Vehicles | 1.1 | 7.3 | 0 | 6.2 | 0 | 2.2 | 0 | 8.1 | 7 | 0 | 0 | 0 | 6.8 |

# McMahon Associates, Inc.

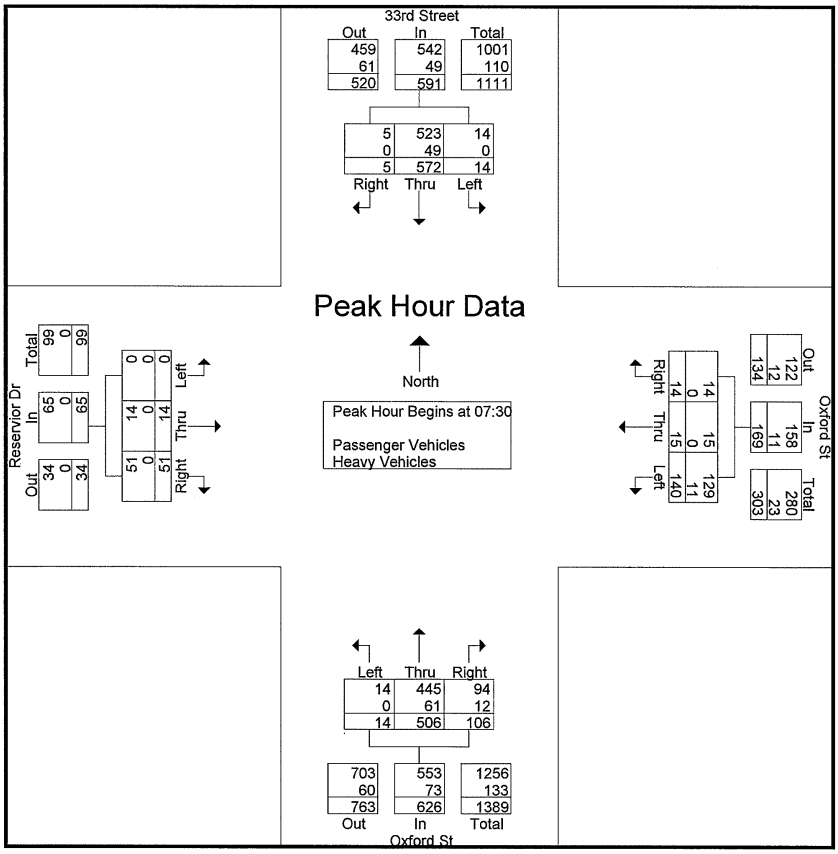
Transportation Engineers and Planners

*425 Commerce Drive, Suite 200*
*Fort Washington, PA 19034*

Municipality: City of Philadelphia
Location: 33rd Street &
Reservior Dr / Oxford Street
Counter/Countboard No.: BW

File Name : fairmount01w
Site Code : 00000111
Start Date : 12/13/2012
Page No : 2

| | 33rd Street Southbound | | | | Oxford St Westbound | | | | Oxford St Northbound | | | | Reservior Dr Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 | | | | | | | | | | | | | | | | | |
| 07:30 | 2 | 150 | 1 | 153 | **41** | **7** | 3 | **51** | 4 | 128 | **31** | 163 | 0 | 3 | 6 | 9 | 376 |
| 07:45 | 4 | **159** | 1 | **164** | 36 | 4 | **5** | 45 | 4 | **134** | 27 | **165** | 0 | 4 | 14 | 18 | **392** |
| 08:00 | **5** | 116 | 1 | 122 | 33 | 2 | 3 | 38 | 2 | 131 | 22 | 155 | 0 | 2 | 12 | 14 | 329 |
| 08:15 | 3 | 147 | **2** | 152 | 30 | 2 | 3 | 35 | 4 | 113 | 26 | 143 | 0 | **5** | **19** | **24** | 354 |
| Total Volume | 14 | 572 | 5 | 591 | 140 | 15 | 14 | 169 | 14 | 506 | 106 | 626 | 0 | 14 | 51 | 65 | 1451 |
| % App. Total | 2.4 | 96.8 | 0.8 | | 82.8 | 8.9 | 8.3 | | 2.2 | 80.8 | 16.9 | | 0 | 21.5 | 78.5 | | |
| PHF | .700 | .899 | .625 | .901 | .854 | .536 | .700 | .828 | .875 | .944 | .855 | .948 | .000 | .700 | .671 | .677 | .925 |
| Passenger Vehicles | 14 | 523 | 5 | 542 | 129 | 15 | 14 | 158 | 14 | 445 | 94 | 553 | 0 | 14 | 51 | 65 | 1318 |
| % Passenger Vehicles | 100 | 91.4 | 100 | 91.7 | 92.1 | 100 | 100 | 93.5 | 100 | 87.9 | 88.7 | 88.3 | 0 | 100 | 100 | 100 | 90.8 |
| Heavy Vehicles | 0 | 49 | 0 | 49 | 11 | 0 | 0 | 11 | 0 | 61 | 12 | 73 | 0 | 0 | 0 | 0 | 133 |
| % Heavy Vehicles | 0 | 8.6 | 0 | 8.3 | 7.9 | 0 | 0 | 6.5 | 0 | 12.1 | 11.3 | 11.7 | 0 | 0 | 0 | 0 | 9.2 |



# McMahon Associates, Inc.

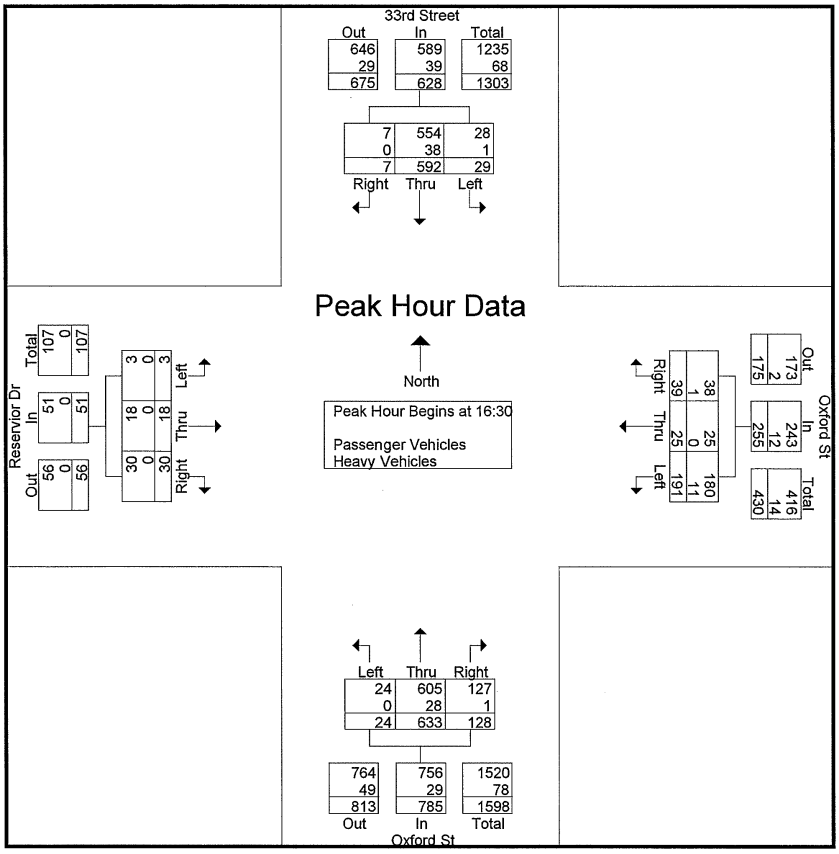
Transportation Engineers and Planners

*425 Commerce Drive, Suite 200*
*Fort Washington, PA 19034*

Municipality: City of Philadelphia
Location: 33rd Street &
Reservior Dr / Oxford Street
Counter/Countboard No.: BW

File Name : fairmount01w
Site Code : 00000111
Start Date : 12/13/2012
Page No : 3

| | 33rd Street Southbound | | | | Oxford St Westbound | | | | Oxford St Northbound | | | | Reservior Dr Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Int. Total |
| Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 16:30 | | | | | | | | | | | | | | | | | |
| 16:30 | 5 | 148 | 1 | 154 | 48 | **8** | 9 | 65 | 6 | 158 | 32 | 196 | 0 | 2 | 3 | 5 | 420 |
| 16:45 | **10** | 156 | 1 | 167 | 49 | 6 | 8 | 63 | 5 | 152 | 34 | 191 | 1 | **6** | 9 | 16 | 437 |
| 17:00 | 4 | 131 | 1 | 136 | 41 | 4 | 5 | 50 | 4 | **162** | **35** | **201** | **2** | 6 | **11** | **19** | 406 |
| 17:15 | 10 | **157** | **4** | **171** | **53** | 7 | **17** | **77** | **9** | 161 | 27 | 197 | 0 | 4 | 7 | 11 | **456** |
| Total Volume | 29 | 592 | 7 | 628 | 191 | 25 | 39 | 255 | 24 | 633 | 128 | 785 | 3 | 18 | 30 | 51 | 1719 |
| % App. Total | 4.6 | 94.3 | 1.1 | | 74.9 | 9.8 | 15.3 | | 3.1 | 80.6 | 16.3 | | 5.9 | 35.3 | 58.8 | | |
| PHF | .725 | .943 | .438 | .918 | .901 | .781 | .574 | .828 | .667 | .977 | .914 | .976 | .375 | .750 | .682 | .671 | .942 |
| Passenger Vehicles | 28 | 554 | 7 | 589 | 180 | 25 | 38 | 243 | 24 | 605 | 127 | 756 | 3 | 18 | 30 | 51 | 1639 |
| % Passenger Vehicles | 96.6 | 93.6 | 100 | 93.8 | 94.2 | 100 | 97.4 | 95.3 | 100 | 95.6 | 99.2 | 96.3 | 100 | 100 | 100 | 100 | 95.3 |
| Heavy Vehicles | 1 | 38 | 0 | 39 | 11 | 0 | 1 | 12 | 0 | 28 | 1 | 29 | 0 | 0 | 0 | 0 | 80 |
| % Heavy Vehicles | 3.4 | 6.4 | 0 | 6.2 | 5.8 | 0 | 2.6 | 4.7 | 0 | 4.4 | 0.8 | 3.7 | 0 | 0 | 0 | 0 | 4.7 |



# McMahon Associates, Inc.

Transportation Engineers and Planners

*425 Commerce Drive, Suite 200*
*Fort Washington, PA 19034*

Municipality: City of Philadelphia
Location: 33rd Street &
Reservior Dr / Oxford Street
Counter/Countboard No.: BW

File Name : fairmount01w
Site Code : 00000111
Start Date : 12/13/2012
Page No : 1

**Groups Printed- Passenger Vehicles**

| | 33rd Street Southbound | | | Oxford St Westbound | | | Oxford St Northbound | | | Reservior Dr Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Int. Total |
| 07:00 | 2 | 84 | 0 | 17 | 5 | 1 | 0 | 76 | 15 | 1 | 3 | 2 | 206 |
| 07:15 | 6 | 100 | 1 | 28 | 3 | 3 | 2 | 93 | 33 | 1 | 3 | 3 | 276 |
| 07:30 | 2 | 139 | 1 | 37 | 7 | 3 | 4 | 112 | 24 | 0 | 3 | 6 | 338 |
| 07:45 | 4 | 147 | 1 | 34 | 4 | 5 | 4 | 119 | 24 | 0 | 4 | 14 | 360 |
| Total | 14 | 470 | 3 | 116 | 19 | 12 | 10 | 400 | 96 | 2 | 13 | 25 | 1180 |
| 08:00 | 5 | 107 | 1 | 32 | 2 | 3 | 2 | 115 | 21 | 0 | 2 | 12 | 302 |
| 08:15 | 3 | 130 | 2 | 26 | 2 | 3 | 4 | 99 | 25 | 0 | 5 | 19 | 318 |
| 08:30 | 6 | 128 | 1 | 24 | 4 | 3 | 4 | 111 | 26 | 0 | 4 | 15 | 326 |
| 08:45 | 3 | 141 | 1 | 33 | 2 | 5 | 3 | 101 | 32 | 0 | 2 | 5 | 328 |
| Total | 17 | 506 | 5 | 115 | 10 | 14 | 13 | 426 | 104 | 0 | 13 | 51 | 1274 |
| 16:00 | 10 | 121 | 2 | 29 | 8 | 8 | 7 | 131 | 25 | 1 | 3 | 4 | 349 |
| 16:15 | 4 | 127 | 4 | 32 | 6 | 5 | 5 | 128 | 30 | 2 | 2 | 10 | 355 |
| 16:30 | 5 | 142 | 1 | 44 | 8 | 9 | 6 | 152 | 31 | 0 | 2 | 3 | 403 |
| 16:45 | 10 | 141 | 1 | 44 | 6 | 8 | 5 | 141 | 34 | 1 | 6 | 9 | 406 |
| Total | 29 | 531 | 8 | 149 | 28 | 30 | 23 | 552 | 120 | 4 | 13 | 26 | 1513 |
| 17:00 | 4 | 125 | 1 | 41 | 4 | 4 | 4 | 158 | 35 | 2 | 6 | 11 | 395 |
| 17:15 | 9 | 146 | 4 | 51 | 7 | 17 | 9 | 154 | 27 | 0 | 4 | 7 | 435 |
| 17:30 | 5 | 147 | 2 | 36 | 6 | 7 | 4 | 125 | 19 | 2 | 2 | 7 | 362 |
| 17:45 | 8 | 149 | 1 | 32 | 2 | 7 | 7 | 110 | 27 | 1 | 2 | 7 | 353 |
| Total | 26 | 567 | 8 | 160 | 19 | 35 | 24 | 547 | 108 | 5 | 14 | 32 | 1545 |
| Grand Total | 86 | 2074 | 24 | 540 | 76 | 91 | 70 | 1925 | 428 | 11 | 53 | 134 | 5512 |
| Apprch % | 3.9 | 95 | 1.1 | 76.4 | 10.7 | 12.9 | 2.9 | 79.4 | 17.7 | 5.6 | 26.8 | 67.7 | |
| Total % | 1.6 | 37.6 | 0.4 | 9.8 | 1.4 | 1.7 | 1.3 | 34.9 | 7.8 | 0.2 | 1 | 2.4 | |

# McMahon Associates, Inc.

Transportation Engineers and Planners

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*Fort Washington, PA 19034*

Municipality: City of Philadelphia
Location: 33rd Street &
Reservior Dr / Oxford Street
Counter/Countboard No.: BW

File Name : fairmount01w
Site Code : 00000111
Start Date : 12/13/2012
Page No : 1

**Groups Printed- Heavy Vehicles**

| | 33rd Street Southbound | | | Oxford St Westbound | | | Oxford St Northbound | | | Reservior Dr Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Int. Total |
| 07:00 | 0 | 8 | 0 | 1 | 0 | 0 | 0 | 16 | 3 | 0 | 0 | 0 | 28 |
| 07:15 | 0 | 11 | 0 | 3 | 0 | 0 | 0 | 9 | 5 | 0 | 0 | 0 | 28 |
| 07:30 | 0 | 11 | 0 | 4 | 0 | 0 | 0 | 16 | 7 | 0 | 0 | 0 | 38 |
| 07:45 | 0 | 12 | 0 | 2 | 0 | 0 | 0 | 15 | 3 | 0 | 0 | 0 | 32 |
| Total | 0 | 42 | 0 | 10 | 0 | 0 | 0 | 56 | 18 | 0 | 0 | 0 | 126 |
| 08:00 | 0 | 9 | 0 | 1 | 0 | 0 | 0 | 16 | 1 | 0 | 0 | 0 | 27 |
| 08:15 | 0 | 17 | 0 | 4 | 0 | 0 | 0 | 14 | 1 | 0 | 0 | 0 | 36 |
| 08:30 | 0 | 7 | 0 | 2 | 0 | 0 | 0 | 12 | 4 | 0 | 0 | 0 | 25 |
| 08:45 | 0 | 8 | 0 | 1 | 0 | 0 | 0 | 9 | 1 | 0 | 0 | 0 | 19 |
| Total | 0 | 41 | 0 | 8 | 0 | 0 | 0 | 51 | 7 | 0 | 0 | 0 | 107 |
| 16:00 | 0 | 21 | 0 | 3 | 0 | 0 | 0 | 15 | 2 | 0 | 0 | 0 | 41 |
| 16:15 | 0 | 13 | 0 | 1 | 0 | 0 | 0 | 9 | 2 | 0 | 0 | 0 | 25 |
| 16:30 | 0 | 6 | 0 | 4 | 0 | 0 | 0 | 6 | 1 | 0 | 0 | 0 | 17 |
| 16:45 | 0 | 15 | 0 | 5 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 31 |
| Total | 0 | 55 | 0 | 13 | 0 | 0 | 0 | 41 | 5 | 0 | 0 | 0 | 114 |
| 17:00 | 0 | 6 | 0 | 0 | 0 | 1 | 0 | 4 | 0 | 0 | 0 | 0 | 11 |
| 17:15 | 1 | 11 | 0 | 2 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 21 |
| 17:30 | 0 | 5 | 0 | 2 | 0 | 1 | 0 | 5 | 1 | 0 | 0 | 0 | 14 |
| 17:45 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 6 | 1 | 0 | 0 | 0 | 11 |
| Total | 1 | 25 | 0 | 5 | 0 | 2 | 0 | 22 | 2 | 0 | 0 | 0 | 57 |
| Grand Total | 1 | 163 | 0 | 36 | 0 | 2 | 0 | 170 | 32 | 0 | 0 | 0 | 404 |
| Apprch % | 0.6 | 99.4 | 0 | 94.7 | 0 | 5.3 | 0 | 84.2 | 15.8 | 0 | 0 | 0 | |
| Total % | 0.2 | 40.3 | 0 | 8.9 | 0 | 0.5 | 0 | 42.1 | 7.9 | 0 | 0 | 0 | |

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Transportation Engineers and Planners

*425 Commerce Drive, Suite 200*
*Fort Washington, PA 19034*

Municipality: City of Philadelphia
Location: 33rd Street &
Reservior Dr / Oxford Street
Counter/Countboard No.: BW

File Name : fairmount01w
Site Code : 00000111
Start Date : 12/13/2012
Page No : 1

**Groups Printed- Pedestrians**

| | 33rd Street Southbound | Oxford St Westbound | Oxford St Northbound | Reservior Dr Eastbound | |
|---|---|---|---|---|---|
| Start Time | E/W | N/S | E/W | N/S | Int. Total |
| 07:00 | 0 | 1 | 0 | 0 | 1 |
| 07:15 | 1 | 0 | 0 | 0 | 1 |
| 07:30 | 2 | 6 | 0 | 0 | 8 |
| 07:45 | 6 | 3 | 0 | 0 | 9 |
| Total | 9 | 10 | 0 | 0 | 19 |
| 08:00 | 0 | 0 | 0 | 1 | 1 |
| 08:15 | 1 | 3 | 0 | 0 | 4 |
| 08:30 | 0 | 2 | 0 | 0 | 2 |
| 08:45 | 1 | 2 | 0 | 0 | 3 |
| Total | 2 | 7 | 0 | 1 | 10 |
| 16:00 | 1 | 3 | 3 | 0 | 7 |
| 16:15 | 1 | 2 | 2 | 0 | 5 |
| 16:30 | 0 | 6 | 2 | 1 | 9 |
| 16:45 | 0 | 2 | 0 | 0 | 2 |
| Total | 2 | 13 | 7 | 1 | 23 |
| 17:00 | 0 | 1 | 0 | 1 | 2 |
| 17:15 | 0 | 5 | 0 | 1 | 6 |
| 17:30 | 0 | 4 | 0 | 0 | 4 |
| Total | 0 | 10 | 0 | 2 | 12 |
| Grand Total | 13 | 40 | 7 | 4 | 64 |
| Apprch % | 100 | 100 | 100 | 100 | |
| Total % | 20.3 | 62.5 | 10.9 | 6.2 | |

# McMahon Associates, Inc.

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*425 Commerce Drive, Suite 200*
*Fort Washington, PA 19034*

Municipality: City of Philadelphia
Location: 33rd Street &
Reservior Drive / Oxford Street
Counter/Countboard No.: BW

File Name : fairmount01s
Site Code : 00000111
Start Date : 12/15/2012
Page No : 1

**Groups Printed- Passenger Vehicles - Heavy Vehicles**

| | 33rd Street Southbound | | | Oxford St Westbound | | | 33rd Street Northbound | | | Reservior Dr Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Int. Total |
| 12:00 | 6 | 106 | 4 | 30 | 5 | 3 | 6 | 114 | 44 | 2 | 3 | 8 | 331 |
| 12:15 | 3 | 121 | 5 | 40 | 6 | 6 | 6 | 130 | 29 | 2 | 1 | 6 | 355 |
| 12:30 | 11 | 112 | 2 | 27 | 2 | 7 | 2 | 125 | 42 | 2 | 2 | 5 | 339 |
| 12:45 | 4 | 109 | 1 | 24 | 3 | 12 | 4 | 125 | 38 | 2 | 4 | 7 | 333 |
| Total | 24 | 448 | 12 | 121 | 16 | 28 | 18 | 494 | 153 | 8 | 10 | 26 | 1358 |
| 13:00 | 9 | 113 | 3 | 36 | 5 | 10 | 8 | 129 | 38 | 0 | 2 | 7 | 360 |
| 13:15 | 5 | 105 | 3 | 40 | 7 | 3 | 11 | 106 | 33 | 3 | 1 | 2 | 319 |
| 13:30 | 1 | 115 | 4 | 51 | 4 | 13 | 14 | 108 | 43 | 0 | 5 | 10 | 368 |
| 13:45 | 4 | 120 | 2 | 38 | 2 | 3 | 6 | 98 | 39 | 2 | 2 | 9 | 325 |
| Total | 19 | 453 | 12 | 165 | 18 | 29 | 39 | 441 | 153 | 5 | 10 | 28 | 1372 |
| 14:00 | 7 | 134 | 3 | 40 | 9 | 9 | 13 | 105 | 45 | 3 | 1 | 11 | 380 |
| 14:15 | 2 | 106 | 2 | 29 | 2 | 3 | 10 | 112 | 25 | 1 | 5 | 11 | 308 |
| 14:30 | 5 | 108 | 5 | 31 | 3 | 2 | 4 | 111 | 24 | 2 | 1 | 8 | 304 |
| 14:45 | 6 | 115 | 4 | 34 | 2 | 3 | 13 | 104 | 16 | 4 | 1 | 5 | 307 |
| Total | 20 | 463 | 14 | 134 | 16 | 17 | 40 | 432 | 110 | 10 | 8 | 35 | 1299 |
| Grand Total | 63 | 1364 | 38 | 420 | 50 | 74 | 97 | 1367 | 416 | 23 | 28 | 89 | 4029 |
| Apprch % | 4.3 | 93.1 | 2.6 | 77.2 | 9.2 | 13.6 | 5.2 | 72.7 | 22.1 | 16.4 | 20 | 63.6 | |
| Total % | 1.6 | 33.9 | 0.9 | 10.4 | 1.2 | 1.8 | 2.4 | 33.9 | 10.3 | 0.6 | 0.7 | 2.2 | |
| Passenger Vehicles | 63 | 1328 | 38 | 413 | 50 | 74 | 97 | 1323 | 409 | 23 | 28 | 89 | 3935 |
| % Passenger Vehicles | 100 | 97.4 | 100 | 98.3 | 100 | 100 | 100 | 96.8 | 98.3 | 100 | 100 | 100 | 97.7 |
| Heavy Vehicles | 0 | 36 | 0 | 7 | 0 | 0 | 0 | 44 | 7 | 0 | 0 | 0 | 94 |
| % Heavy Vehicles | 0 | 2.6 | 0 | 1.7 | 0 | 0 | 0 | 3.2 | 1.7 | 0 | 0 | 0 | 2.3 |

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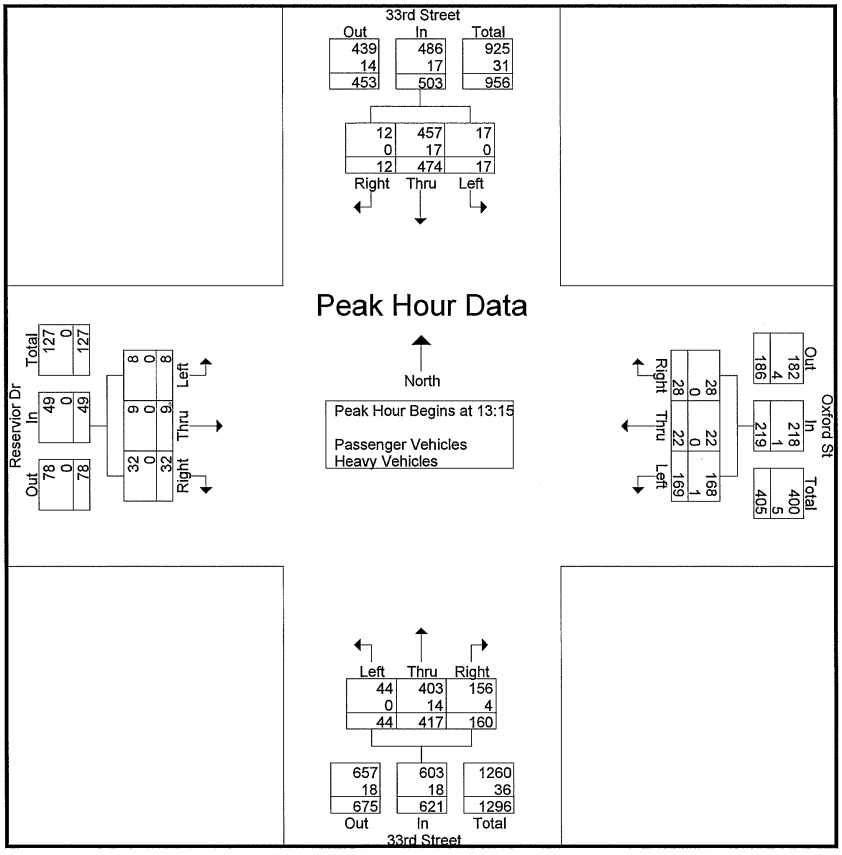
Counter/Countboard No.: BW

File Name : fairmount01s
Site Code : 00000111
Start Date : 12/15/2012
Page No : 2

| | 33rd Street Southbound | | | | Oxford St Westbound | | | | 33rd Street Northbound | | | | Reservior Dr Eastbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Int. Total |
| Peak Hour Analysis From 12:00 to 14:45 - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 13:15 | | | | | | | | | | | | | | | | | |
| 13:15 | 5 | 105 | 3 | 113 | 40 | 7 | 3 | 50 | 11 | 106 | 33 | 150 | **3** | 1 | 2 | 6 | 319 |
| 13:30 | 1 | 115 | **4** | 120 | **51** | 4 | **13** | **68** | **14** | **108** | 43 | **165** | 0 | **5** | 10 | **15** | 368 |
| 13:45 | 4 | 120 | 2 | 126 | 38 | 2 | 3 | 43 | 6 | 98 | 39 | 143 | 2 | 2 | 9 | 13 | 325 |
| 14:00 | **7** | **134** | 3 | **144** | 40 | **9** | 9 | 58 | 13 | 105 | **45** | 163 | 3 | 1 | **11** | 15 | **380** |
| Total Volume | 17 | 474 | 12 | 503 | 169 | 22 | 28 | 219 | 44 | 417 | 160 | 621 | 8 | 9 | 32 | 49 | 1392 |
| % App. Total | 3.4 | 94.2 | 2.4 | | 77.2 | 10 | 12.8 | | 7.1 | 67.1 | 25.8 | | 16.3 | 18.4 | 65.3 | | |
| PHF | .607 | .884 | .750 | .873 | .828 | .611 | .538 | .805 | .786 | .965 | .889 | .941 | .667 | .450 | .727 | .817 | .916 |
| Passenger Vehicles | 17 | 457 | 12 | 486 | 168 | 22 | 28 | 218 | 44 | 403 | 156 | 603 | 8 | 9 | 32 | 49 | 1356 |
| % Passenger Vehicles | 100 | 96.4 | 100 | 96.6 | 99.4 | 100 | 100 | 99.5 | 100 | 96.6 | 97.5 | 97.1 | 100 | 100 | 100 | 100 | 97.4 |
| Heavy Vehicles | 0 | 17 | 0 | 17 | 1 | 0 | 0 | 1 | 0 | 14 | 4 | 18 | 0 | 0 | 0 | 0 | 36 |
| % Heavy Vehicles | 0 | 3.6 | 0 | 3.4 | 0.6 | 0 | 0 | 0.5 | 0 | 3.4 | 2.5 | 2.9 | 0 | 0 | 0 | 0 | 2.6 |



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Counter/Countboard No.: BW

File Name : fairmount01s
Site Code : 00000111
Start Date : 12/15/2012
Page No : 1

**Groups Printed- Passenger Vehicles**

| | 33rd Street Southbound | | | Oxford St Westbound | | | 33rd Street Northbound | | | Reservior Dr Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Int. Total |
| 12:00 | 6 | 103 | 4 | 29 | 5 | 3 | 6 | 111 | 43 | 2 | 3 | 8 | 323 |
| 12:15 | 3 | 119 | 5 | 37 | 6 | 6 | 6 | 127 | 29 | 2 | 1 | 6 | 347 |
| 12:30 | 11 | 107 | 2 | 27 | 2 | 7 | 2 | 117 | 42 | 2 | 2 | 5 | 326 |
| 12:45 | 4 | 106 | 1 | 23 | 3 | 12 | 4 | 121 | 38 | 2 | 4 | 7 | 325 |
| Total | 24 | 435 | 12 | 116 | 16 | 28 | 18 | 476 | 152 | 8 | 10 | 26 | 1321 |
| 13:00 | 9 | 112 | 3 | 36 | 5 | 10 | 8 | 126 | 36 | 0 | 2 | 7 | 354 |
| 13:15 | 5 | 103 | 3 | 40 | 7 | 3 | 11 | 103 | 32 | 3 | 1 | 2 | 313 |
| 13:30 | 1 | 109 | 4 | 50 | 4 | 13 | 14 | 104 | 42 | 0 | 5 | 10 | 356 |
| 13:45 | 4 | 113 | 2 | 38 | 2 | 3 | 6 | 95 | 37 | 2 | 2 | 9 | 313 |
| Total | 19 | 437 | 12 | 164 | 18 | 29 | 39 | 428 | 147 | 5 | 10 | 28 | 1336 |
| 14:00 | 7 | 132 | 3 | 40 | 9 | 9 | 13 | 101 | 45 | 3 | 1 | 11 | 374 |
| 14:15 | 2 | 104 | 2 | 29 | 2 | 3 | 10 | 106 | 25 | 1 | 5 | 11 | 300 |
| 14:30 | 5 | 107 | 5 | 30 | 3 | 2 | 4 | 109 | 24 | 2 | 1 | 8 | 300 |
| 14:45 | 6 | 113 | 4 | 34 | 2 | 3 | 13 | 103 | 16 | 4 | 1 | 5 | 304 |
| Total | 20 | 456 | 14 | 133 | 16 | 17 | 40 | 419 | 110 | 10 | 8 | 35 | 1278 |
| Grand Total | 63 | 1328 | 38 | 413 | 50 | 74 | 97 | 1323 | 409 | 23 | 28 | 89 | 3935 |
| Apprch % | 4.4 | 92.9 | 2.7 | 76.9 | 9.3 | 13.8 | 5.3 | 72.3 | 22.4 | 16.4 | 20 | 63.6 | |
| Total % | 1.6 | 33.7 | 1 | 10.5 | 1.3 | 1.9 | 2.5 | 33.6 | 10.4 | 0.6 | 0.7 | 2.3 | |

# McMahon Associates, Inc.

Transportation Engineers and Planners

*425 Commerce Drive, Suite 200*
*Fort Washington, PA 19034*

Municipality: City of Philadelphia
Location: 33rd Street &
Reservior Drive / Oxford Street
Counter/Countboard No.: BW

File Name : fairmount01s
Site Code : 00000111
Start Date : 12/15/2012
Page No : 1

**Groups Printed- Heavy Vehicles**

| | 33rd Street Southbound | | | Oxford St Westbound | | | 33rd Street Northbound | | | Reservior Dr Eastbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Int. Total |
| 12:00 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 8 |
| 12:15 | 0 | 2 | 0 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 8 |
| 12:30 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 13 |
| 12:45 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 8 |
| Total | 0 | 13 | 0 | 5 | 0 | 0 | 0 | 18 | 1 | 0 | 0 | 0 | 37 |
| 13:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 6 |
| 13:15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 6 |
| 13:30 | 0 | 6 | 0 | 1 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 12 |
| 13:45 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 12 |
| Total | 0 | 16 | 0 | 1 | 0 | 0 | 0 | 13 | 6 | 0 | 0 | 0 | 36 |
| 14:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 6 |
| 14:15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 8 |
| 14:30 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 4 |
| 14:45 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 |
| Total | 0 | 7 | 0 | 1 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 21 |
| Grand Total | 0 | 36 | 0 | 7 | 0 | 0 | 0 | 44 | 7 | 0 | 0 | 0 | 94 |
| Apprch % | 0 | 100 | 0 | 100 | 0 | 0 | 0 | 86.3 | 13.7 | 0 | 0 | 0 | |
| Total % | 0 | 38.3 | 0 | 7.4 | 0 | 0 | 0 | 46.8 | 7.4 | 0 | 0 | 0 | |

# McMahon Associates, Inc.

Transportation Engineers and Planners

*425 Commerce Drive, Suite 200*
*Fort Washington, PA 19034*

Municipality: City of Philadelphia
Location: 33rd Street &
Reservior Drive / Oxford Street
Counter/Countboard No.: BW

File Name : fairmount01s
Site Code : 00000111
Start Date : 12/15/2012
Page No : 1

**Groups Printed- Pedestrians**

| | 33rd Street Southbound | Oxford St Westbound | 33rd Street Northbound | Reservior Dr Eastbound | |
|---|---|---|---|---|---|
| Start Time | E/W | N/S | E/W | N/S | Int. Total |
| 12:00 | 0 | 1 | 0 | 0 | 1 |
| 12:15 | 0 | 2 | 0 | 0 | 2 |
| 12:30 | 0 | 2 | 0 | 2 | 4 |
| 12:45 | 0 | 2 | 0 | 1 | 3 |
| Total | 0 | 7 | 0 | 3 | 10 |
| | | | | | |
| 13:00 | 0 | 3 | 0 | 0 | 3 |
| 13:15 | 1 | 3 | 0 | 0 | 4 |
| 13:30 | 4 | 3 | 0 | 1 | 8 |
| 13:45 | 0 | 1 | 0 | 2 | 3 |
| Total | 5 | 10 | 0 | 3 | 18 |
| | | | | | |
| 14:00 | 0 | 3 | 2 | 1 | 6 |
| 14:15 | 1 | 2 | 0 | 1 | 4 |
| 14:30 | 5 | 3 | 2 | 0 | 10 |
| 14:45 | 0 | 3 | 0 | 2 | 5 |
| Total | 6 | 11 | 4 | 4 | 25 |
| | | | | | |
| Grand Total | 11 | 28 | 4 | 10 | 53 |
| Apprch % | 100 | 100 | 100 | 100 | |
| Total % | 20.8 | 52.8 | 7.5 | 18.9 | |

# ATTACHMENT B

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 14 | 51 | 140 | 15 | 14 | 14 | 506 | 106 | 14 | 572 | 5 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 16 | 16 | 16 | 16 | 16 | 16 | 9 | 10 | 10 | 9 | 11 | 11 |
| Grade (%) | | -1% | | | -1% | | | 1% | | | -2% | |
| Storage Length (ft) | 0 | | 150 | 0 | | 0 | 100 | | 0 | 100 | | 150 |
| Storage Lanes | 0 | | 1 | 0 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (ft) | 75 | | 50 | 75 | | 75 | 60 | | 75 | 65 | | 50 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | | | | | | | |
| Frt | | | 0.850 | | 0.989 | | | 0.974 | | | | 0.850 |
| Flt Protected | | | | | 0.960 | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 2122 | 1803 | 0 | 2014 | 0 | 1585 | 1685 | 0 | 1609 | 1819 | 1546 |
| Flt Permitted | | | | | 0.752 | | 0.353 | | | 0.326 | | |
| Satd. Flow (perm) | 0 | 2122 | 1803 | 0 | 1578 | 0 | 589 | 1685 | 0 | 552 | 1819 | 1546 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 57 | | 7 | | | 34 | | | | 6 |
| Link Speed (mph) | | 25 | | | 25 | | | 25 | | | 25 | |
| Link Distance (ft) | | 454 | | | 361 | | | 768 | | | 667 | |
| Travel Time (s) | | 12.4 | | | 9.8 | | | 20.9 | | | 18.2 | |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Confl. Bikes (#/hr) | | | | | | | | | | | | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | | | | | | | |
| Mid-Block Traffic (%) | | 0% | | | 0% | | | 0% | | | 0% | |
| Adj. Flow (vph) | 0 | 16 | 57 | 156 | 17 | 16 | 16 | 562 | 118 | 16 | 636 | 6 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 16 | 57 | 0 | 189 | 0 | 16 | 680 | 0 | 16 | 636 | 6 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | | 1 | 2 | | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | | Left | Thru | | Left | Thru | Right |
| Leading Detector (ft) | 20 | 100 | 20 | 20 | 100 | | 20 | 100 | | 20 | 100 | 20 |
| Trailing Detector (ft) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | 8 | | 2 | 2 | | 6 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Minimum Split (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | 21.0 |
| Total Split (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 0.0 | 42.0 | 42.0 | 0.0 | 42.0 | 42.0 | 42.0 |
| Total Split (%) | 30.0% | 30.0% | 30.0% | 30.0% | 30.0% | 0.0% | 70.0% | 70.0% | 0.0% | 70.0% | 70.0% | 70.0% |
| Maximum Green (s) | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | | 37.5 | 37.5 | | 37.5 | 37.5 | 37.5 |
| Yellow Time (s) | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | | 2.5 | 2.5 | | 2.5 | 2.5 | 2.5 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.0 | 4.5 | 4.5 | 4.0 | 4.5 | 4.5 | 4.5 |



McMahon Associates, Inc. Audubon/Outward Bound Facility
3: Reservior Dr & 33rd Street Existing Weekday AM

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Minimum Gap (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Time Before Reduce (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Time To Reduce (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Recall Mode | Min | Min | Min | Min | Min | | C-Max | C-Max | | C-Max | C-Max | C-Max |
| Walk Time (s) | | | | | | | | | | | | |
| Flash Dont Walk (s) | | | | | | | | | | | | |
| Pedestrian Calls (#/hr) | | | | | | | | | | | | |
| v/c Ratio | | 0.04 | 0.15 | | 0.63 | | 0.04 | 0.60 | | 0.04 | 0.53 | 0.01 |
| Control Delay | | 18.7 | 7.3 | | 30.8 | | 4.6 | 8.8 | | 4.7 | 7.8 | 2.8 |
| Queue Delay | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | | 18.7 | 7.3 | | 30.8 | | 4.6 | 8.8 | | 4.7 | 7.8 | 2.8 |
| Queue Length 50th (ft) | | 5 | 0 | | 60 | | 2 | 111 | | 2 | 103 | 0 |
| Queue Length 95th (ft) | | 17 | 24 | | 114 | | 8 | 216 | | 8 | 188 | 3 |
| Internal Link Dist (ft) | | 374 | | | 281 | | | 688 | | | 587 | |
| Turn Bay Length (ft) | | | 150 | | | | 100 | | | 100 | | 150 |
| Base Capacity (vph) | | 477 | 450 | | 360 | | 390 | 1127 | | 366 | 1205 | 1026 |
| 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 | | 0.03 | 0.13 | | 0.53 | | 0.04 | 0.60 | | 0.04 | 0.53 | 0.01 |

Intersection Summary
Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 3: Reservior Dr & 33rd Street


Lanes, Volumes, Timings 3: Reservior Dr & 33rd Street
I:\eng\812766\Traffic\Analysis\Existing\Weekday AM.syn Synchro 7

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 14 | 51 | 140 | 15 | 14 | 14 | 506 | 106 | 14 | 572 | 5 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 16 | 16 | 16 | 16 | 16 | 16 | 9 | 10 | 10 | 9 | 11 | 11 |
| Grade (%) | | -1% | | | -1% | | | 1% | | | -2% | |
| Total Lost time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | 1.00 | | 0.96 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 2122 | 1803 | | 2014 | | 1585 | 1685 | | 1609 | 1819 | 1546 |
| Flt Permitted | | 1.00 | 1.00 | | 0.75 | | 0.35 | 1.00 | | 0.33 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2122 | 1803 | | 1578 | | 589 | 1685 | | 553 | 1819 | 1546 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 0 | 16 | 57 | 156 | 17 | 16 | 16 | 562 | 118 | 16 | 636 | 6 |
| RTOR Reduction (vph) | 0 | 0 | 46 | 0 | 6 | 0 | 0 | 12 | 0 | 0 | 0 | 2 |
| Lane Group Flow (vph) | 0 | 16 | 11 | 0 | 183 | 0 | 16 | 668 | 0 | 16 | 636 | 4 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | | 11.3 | 11.3 | | 11.3 | | 39.7 | 39.7 | | 39.7 | 39.7 | 39.7 |
| Effective Green, g (s) | | 11.3 | 11.3 | | 11.3 | | 39.7 | 39.7 | | 39.7 | 39.7 | 39.7 |
| Actuated g/C Ratio | | 0.19 | 0.19 | | 0.19 | | 0.66 | 0.66 | | 0.66 | 0.66 | 0.66 |
| Clearance Time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 400 | 340 | | 297 | | 390 | 1115 | | 366 | 1204 | 1023 |
| v/s Ratio Prot | | 0.01 | | | | | | c0.40 | | | 0.35 | |
| v/s Ratio Perm | | | 0.01 | | c0.12 | | 0.03 | | | 0.03 | | 0.00 |
| v/c Ratio | | 0.04 | 0.03 | | 0.62 | | 0.04 | 0.60 | | 0.04 | 0.53 | 0.00 |
| Uniform Delay, d1 | | 19.9 | 19.9 | | 22.4 | | 3.5 | 5.7 | | 3.5 | 5.3 | 3.4 |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.0 | 0.0 | | 3.8 | | 0.2 | 2.4 | | 0.2 | 1.7 | 0.0 |
| Delay (s) | | 20.0 | 19.9 | | 26.2 | | 3.7 | 8.1 | | 3.8 | 6.9 | 3.4 |
| Level of Service | | B | B | | C | | A | A | | A | A | A |
| Approach Delay (s) | | 19.9 | | | 26.2 | | | 8.0 | | | 6.8 | |
| Approach LOS | | B | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 56.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 3 | 18 | 30 | 191 | 25 | 39 | 24 | 633 | 128 | 29 | 592 | 7 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 16 | 16 | 16 | 16 | 16 | 16 | 9 | 10 | 10 | 9 | 11 | 11 |
| Grade (%) | | -1% | | | -1% | | | 1% | | | -2% | |
| Storage Length (ft) | 0 | | 150 | 0 | | 0 | 100 | | 0 | 100 | | 150 |
| Storage Lanes | 0 | | 1 | 0 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (ft) | 75 | | 50 | 75 | | 75 | 60 | | 75 | 65 | | 50 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | | | | | | | |
| Frt | | | 0.850 | | 0.979 | | | 0.975 | | | | 0.850 |
| Flt Protected | | 0.994 | | | 0.964 | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 2109 | 1803 | 0 | 2002 | 0 | 1585 | 1687 | 0 | 1609 | 1819 | 1546 |
| Flt Permitted | | 0.966 | | | 0.765 | | 0.327 | | | 0.214 | | |
| Satd. Flow (perm) | 0 | 2050 | 1803 | 0 | 1589 | 0 | 545 | 1687 | 0 | 362 | 1819 | 1546 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 33 | | 14 | | | 32 | | | | 8 |
| Link Speed (mph) | | 25 | | | 25 | | | 25 | | | 25 | |
| Link Distance (ft) | | 454 | | | 361 | | | 768 | | | 667 | |
| Travel Time (s) | | 12.4 | | | 9.8 | | | 20.9 | | | 18.2 | |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Confl. Bikes (#/hr) | | | | | | | | | | | | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | | | | | | | |
| Mid-Block Traffic (%) | | 0% | | | 0% | | | 0% | | | 0% | |
| Adj. Flow (vph) | 3 | 20 | 33 | 212 | 28 | 43 | 27 | 703 | 142 | 32 | 658 | 8 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 23 | 33 | 0 | 283 | 0 | 27 | 845 | 0 | 32 | 658 | 8 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | | 1 | 2 | | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | | Left | Thru | | Left | Thru | Right |
| Leading Detector (ft) | 20 | 100 | 20 | 20 | 100 | | 20 | 100 | | 20 | 100 | 20 |
| Trailing Detector (ft) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | 8 | | 2 | 2 | | 6 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Minimum Split (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | 21.0 |
| Total Split (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 0.0 | 42.0 | 42.0 | 0.0 | 42.0 | 42.0 | 42.0 |
| Total Split (%) | 30.0% | 30.0% | 30.0% | 30.0% | 30.0% | 0.0% | 70.0% | 70.0% | 0.0% | 70.0% | 70.0% | 70.0% |
| Maximum Green (s) | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | | 37.5 | 37.5 | | 37.5 | 37.5 | 37.5 |
| Yellow Time (s) | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | | 2.5 | 2.5 | | 2.5 | 2.5 | 2.5 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.0 | 4.5 | 4.5 | 4.0 | 4.5 | 4.5 | 4.5 |

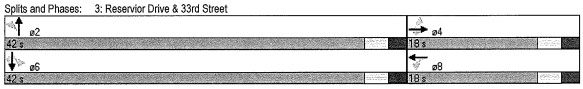


McMahon Associates, Inc. Audubon/Outward Bound Facility
3: Reservior Drive & 33rd Street Existing Weekday PM

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Minimum Gap (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Time Before Reduce (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Time To Reduce (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Recall Mode | Min | Min | Min | Min | Min | | C-Max | C-Max | | C-Max | C-Max | C-Max |
| Walk Time (s) | | | | | | | | | | | | |
| Flash Dont Walk (s) | | | | | | | | | | | | |
| Pedestrian Calls (#/hr) | | | | | | | | | | | | |
| v/c Ratio | | 0.05 | 0.08 | | 0.81 | | 0.08 | 0.78 | | 0.14 | 0.57 | 0.01 |
| Control Delay | | 18.7 | 8.2 | | 41.4 | | 5.2 | 14.7 | | 6.4 | 8.9 | 2.7 |
| Queue Delay | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | | 18.7 | 8.2 | | 41.4 | | 5.2 | 14.7 | | 6.4 | 8.9 | 2.7 |
| Queue Length 50th (ft) | | 7 | 0 | | 91 | | 3 | 184 | | 4 | 119 | 0 |
| Queue Length 95th (ft) | | 22 | 18 | | #202 | | 11 | #376 | | 15 | 199 | 4 |
| Internal Link Dist (ft) | | 374 | | | 281 | | | 688 | | | 587 | |
| Turn Bay Length (ft) | | | 150 | | | | 100 | | | 100 | | 150 |
| Base Capacity (vph) | | 461 | 431 | | 368 | | 347 | 1085 | | 230 | 1158 | 987 |
| 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 | | 0.05 | 0.08 | | 0.77 | | 0.08 | 0.78 | | 0.14 | 0.57 | 0.01 |

Intersection Summary
Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Reservior Drive & 33rd Street




Lanes, Volumes, Timings 3: Reservior Drive & 33rd Street
I:\eng\812766\Traffic\Analysis\Existing\Weekday PM.syn Synchro 7

McMahon Associates, Inc. Audubon/Outward Bound Facility
3: Reservior Drive & 33rd Street Existing Weekday PM

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 3 | 18 | 30 | 191 | 25 | 39 | 24 | 633 | 128 | 29 | 592 | 7 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 16 | 16 | 16 | 16 | 16 | 16 | 9 | 10 | 10 | 9 | 11 | 11 |
| Grade (%) | | -1% | | | -1% | | | 1% | | | -2% | |
| Total Lost time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | | 0.98 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.99 | 1.00 | | 0.96 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 2108 | 1803 | | 2003 | | 1585 | 1686 | | 1609 | 1819 | 1546 |
| Flt Permitted | | 0.97 | 1.00 | | 0.77 | | 0.33 | 1.00 | | 0.21 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2048 | 1803 | | 1590 | | 546 | 1686 | | 362 | 1819 | 1546 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 3 | 20 | 33 | 212 | 28 | 43 | 27 | 703 | 142 | 32 | 658 | 8 |
| RTOR Reduction (vph) | 0 | 0 | 26 | 0 | 11 | 0 | 0 | 12 | 0 | 0 | 0 | 3 |
| Lane Group Flow (vph) | 0 | 23 | 7 | 0 | 272 | 0 | 27 | 833 | 0 | 32 | 658 | 5 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | | 12.8 | 12.8 | | 12.8 | | 38.2 | 38.2 | | 38.2 | 38.2 | 38.2 |
| Effective Green, g (s) | | 12.8 | 12.8 | | 12.8 | | 38.2 | 38.2 | | 38.2 | 38.2 | 38.2 |
| Actuated g/C Ratio | | 0.21 | 0.21 | | 0.21 | | 0.64 | 0.64 | | 0.64 | 0.64 | 0.64 |
| Clearance Time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 437 | 385 | | 339 | | 348 | 1073 | | 230 | 1158 | 984 |
| v/s Ratio Prot | | | | | | | | c0.49 | | | 0.36 | |
| v/s Ratio Perm | | 0.01 | 0.00 | | c0.17 | | 0.05 | | | 0.09 | | 0.00 |
| v/c Ratio | | 0.05 | 0.02 | | 0.80 | | 0.08 | 0.78 | | 0.14 | 0.57 | 0.01 |
| Uniform Delay, d1 | | 18.8 | 18.6 | | 22.4 | | 4.2 | 7.8 | | 4.3 | 6.2 | 4.0 |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.1 | 0.0 | | 12.8 | | 0.4 | 5.5 | | 1.3 | 2.0 | 0.0 |
| Delay (s) | | 18.8 | 18.7 | | 35.2 | | 4.6 | 13.4 | | 5.6 | 8.2 | 4.0 |
| Level of Service | | B | B | | D | | A | B | | A | A | A |
| Approach Delay (s) | | 18.7 | | | 35.2 | | | 13.1 | | | 8.1 | |
| Approach LOS | | B | | | D | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 69.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

HCM Signalized Intersection Capacity Analysis 3: Reservior Drive & 33rd Street
I:\eng\812766\Traffic\Analysis\Existing\Weekday PM.syn Synchro 7

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 8 | 9 | 32 | 169 | 22 | 28 | 44 | 417 | 160 | 17 | 474 | 12 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 16 | 16 | 16 | 16 | 16 | 16 | 9 | 10 | 10 | 9 | 11 | 11 |
| Grade (%) | | -1% | | | -1% | | | 1% | | | -2% | |
| Storage Length (ft) | 0 | | 150 | 0 | | 0 | 100 | | 0 | 100 | | 150 |
| Storage Lanes | 0 | | 1 | 0 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (ft) | 75 | | 50 | 75 | | 75 | 60 | | 75 | 65 | | 50 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | | | | | | | |
| Frt | | | 0.850 | | 0.983 | | | 0.958 | | | | 0.850 |
| Flt Protected | | 0.977 | | | 0.963 | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 2073 | 1803 | 0 | 2008 | 0 | 1585 | 1657 | 0 | 1609 | 1819 | 1546 |
| Flt Permitted | | 0.883 | | | 0.762 | | 0.417 | | | 0.343 | | |
| Satd. Flow (perm) | 0 | 1873 | 1803 | 0 | 1589 | 0 | 696 | 1657 | 0 | 581 | 1819 | 1546 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 36 | | 11 | | | 62 | | | | 13 |
| Link Speed (mph) | | 25 | | | 25 | | | 25 | | | 25 | |
| Link Distance (ft) | | 454 | | | 361 | | | 768 | | | 667 | |
| Travel Time (s) | | 12.4 | | | 9.8 | | | 20.9 | | | 18.2 | |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Confl. Bikes (#/hr) | | | | | | | | | | | | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | | | | | | | |
| Mid-Block Traffic (%) | | 0% | | | 0% | | | 0% | | | 0% | |
| Adj. Flow (vph) | 9 | 10 | 36 | 188 | 24 | 31 | 49 | 463 | 178 | 19 | 527 | 13 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 19 | 36 | 0 | 243 | 0 | 49 | 641 | 0 | 19 | 527 | 13 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | | 1 | 2 | | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | | Left | Thru | | Left | Thru | Right |
| Leading Detector (ft) | 20 | 100 | 20 | 20 | 100 | | 20 | 100 | | 20 | 100 | 20 |
| Trailing Detector (ft) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | 8 | | 2 | 2 | | 6 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Minimum Split (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | 21.0 |
| Total Split (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 0.0 | 42.0 | 42.0 | 0.0 | 42.0 | 42.0 | 42.0 |
| Total Split (%) | 30.0% | 30.0% | 30.0% | 30.0% | 30.0% | 0.0% | 70.0% | 70.0% | 0.0% | 70.0% | 70.0% | 70.0% |
| Maximum Green (s) | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | | 37.5 | 37.5 | | 37.5 | 37.5 | 37.5 |
| Yellow Time (s) | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | | 2.5 | 2.5 | | 2.5 | 2.5 | 2.5 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.0 | 4.5 | 4.5 | 4.0 | 4.5 | 4.5 | 4.5 |

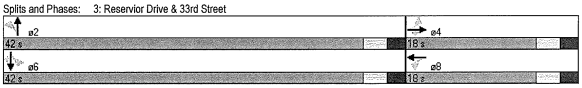


McMahon Associates, Inc. Audubon/Outward Bound Facility
3: Reservior Drive & 33rd Street Existing Saturday Midday

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Minimum Gap (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Time Before Reduce (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Time To Reduce (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Recall Mode | Min | Min | Min | Min | Min | | C-Max | C-Max | | C-Max | C-Max | C-Max |
| Walk Time (s) | | | | | | | | | | | | |
| Flash Dont Walk (s) | | | | | | | | | | | | |
| Pedestrian Calls (#/hr) | | | | | | | | | | | | |
| v/c Ratio | | 0.05 | 0.09 | | 0.73 | | 0.11 | 0.59 | | 0.05 | 0.45 | 0.01 |
| Control Delay | | 18.7 | 8.1 | | 35.6 | | 5.3 | 8.4 | | 4.8 | 7.1 | 2.4 |
| Queue Delay | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | | 18.7 | 8.1 | | 35.6 | | 5.3 | 8.4 | | 4.8 | 7.1 | 2.4 |
| Queue Length 50th (ft) | | 5 | 0 | | 77 | | 6 | 105 | | 2 | 85 | 0 |
| Queue Length 95th (ft) | | 20 | 19 | | #165 | | 17 | 189 | | 9 | 142 | 5 |
| Internal Link Dist (ft) | | 374 | | | 281 | | | 688 | | | 587 | |
| Turn Bay Length (ft) | | | 150 | | | | 100 | | | 100 | | 150 |
| Base Capacity (vph) | | 421 | 434 | | 366 | | 450 | 1093 | | 376 | 1176 | 1004 |
| 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 | | 0.05 | 0.08 | | 0.66 | | 0.11 | 0.59 | | 0.05 | 0.45 | 0.01 |

Intersection Summary
Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
#_ 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Reservior Drive & 33rd Street




Lanes, Volumes, Timings 3: Reservior Drive & 33rd Street
I:\eng\812766\Traffic\Analysis\Existing\Saturday Midday.syn Synchro 7

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 8 | 9 | 32 | 169 | 22 | 28 | 44 | 417 | 160 | 17 | 474 | 12 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 16 | 16 | 16 | 16 | 16 | 16 | 9 | 10 | 10 | 9 | 11 | 11 |
| Grade (%) | | -1% | | | -1% | | | 1% | | | -2% | |
| Total Lost time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | | 0.98 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.98 | 1.00 | | 0.96 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 2073 | 1803 | | 2007 | | 1585 | 1658 | | 1609 | 1819 | 1546 |
| Flt Permitted | | 0.88 | 1.00 | | 0.76 | | 0.42 | 1.00 | | 0.34 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1873 | 1803 | | 1589 | | 695 | 1658 | | 581 | 1819 | 1546 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 9 | 10 | 36 | 188 | 24 | 31 | 49 | 463 | 178 | 19 | 527 | 13 |
| RTOR Reduction (vph) | 0 | 0 | 29 | 0 | 9 | 0 | 0 | 22 | 0 | 0 | 0 | 5 |
| Lane Group Flow (vph) | 0 | 19 | 7 | 0 | 234 | 0 | 49 | 619 | 0 | 19 | 527 | 8 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | | 12.2 | 12.2 | | 12.2 | | 38.8 | 38.8 | | 38.8 | 38.8 | 38.8 |
| Effective Green, g (s) | | 12.2 | 12.2 | | 12.2 | | 38.8 | 38.8 | | 38.8 | 38.8 | 38.8 |
| Actuated g/C Ratio | | 0.20 | 0.20 | | 0.20 | | 0.65 | 0.65 | | 0.65 | 0.65 | 0.65 |
| Clearance Time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 381 | 367 | | 323 | | 449 | 1072 | | 376 | 1176 | 1000 |
| v/s Ratio Prot | | | | | | | | c0.37 | | | 0.29 | |
| v/s Ratio Perm | | 0.01 | 0.00 | | c0.15 | | 0.07 | | | 0.03 | | 0.01 |
| v/c Ratio | | 0.05 | 0.02 | | 0.73 | | 0.11 | 0.58 | | 0.05 | 0.45 | 0.01 |
| Uniform Delay, d1 | | 19.2 | 19.1 | | 22.3 | | 4.0 | 6.0 | | 3.9 | 5.3 | 3.8 |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.1 | 0.0 | | 7.9 | | 0.5 | 2.3 | | 0.3 | 1.2 | 0.0 |
| Delay (s) | | 19.3 | 19.1 | | 30.2 | | 4.5 | 8.2 | | 4.1 | 6.5 | 3.8 |
| Level of Service | | B | B | | C | | A | A | | A | A | A |
| Approach Delay (s) | | 19.2 | | | 30.2 | | | 8.0 | | | 6.4 | |
| Approach LOS | | B | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 63.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 3 | 29 | 106 | 140 | 33 | 14 | 41 | 506 | 106 | 14 | 572 | 19 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 16 | 16 | 16 | 16 | 16 | 16 | 9 | 10 | 10 | 9 | 11 | 11 |
| Grade (%) | | -1% | | | -1% | | | 1% | | | -2% | |
| Storage Length (ft) | 0 | | 150 | 0 | | 0 | 100 | | 0 | 100 | | 150 |
| Storage Lanes | 0 | | 1 | 0 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (ft) | 75 | | 50 | 75 | | 75 | 60 | | 75 | 65 | | 50 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | | | | | | | |
| Frt | | | 0.850 | | 0.990 | | | 0.974 | | | | 0.850 |
| Flt Protected | | 0.996 | | | 0.964 | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 2113 | 1803 | 0 | 2025 | 0 | 1585 | 1685 | 0 | 1609 | 1819 | 1546 |
| Flt Permitted | | 0.971 | | | 0.758 | | 0.351 | | | 0.324 | | |
| Satd. Flow (perm) | 0 | 2060 | 1803 | 0 | 1592 | 0 | 585 | 1685 | 0 | 549 | 1819 | 1546 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 118 | | 6 | | | 34 | | | | 21 |
| Link Speed (mph) | | 25 | | | 25 | | | 25 | | | 25 | |
| Link Distance (ft) | | 504 | | | 361 | | | 768 | | | 667 | |
| Travel Time (s) | | 13.7 | | | 9.8 | | | 20.9 | | | 18.2 | |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Confl. Bikes (#/hr) | | | | | | | | | | | | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | | | | | | | |
| Mid-Block Traffic (%) | | 0% | | | 0% | | | 0% | | | 0% | |
| Adj. Flow (vph) | 3 | 32 | 118 | 156 | 37 | 16 | 46 | 562 | 118 | 16 | 636 | 21 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 35 | 118 | 0 | 209 | 0 | 46 | 680 | 0 | 16 | 636 | 21 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | | 1 | 2 | | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | | Left | Thru | | Left | Thru | Right |
| Leading Detector (ft) | 20 | 100 | 20 | 20 | 100 | | 20 | 100 | | 20 | 100 | 20 |
| Trailing Detector (ft) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | 8 | | 2 | 2 | | 6 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Minimum Split (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | 21.0 |
| Total Split (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 0.0 | 42.0 | 42.0 | 0.0 | 42.0 | 42.0 | 42.0 |
| Total Split (%) | 30.0% | 30.0% | 30.0% | 30.0% | 30.0% | 0.0% | 70.0% | 70.0% | 0.0% | 70.0% | 70.0% | 70.0% |
| Maximum Green (s) | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | | 37.5 | 37.5 | | 37.5 | 37.5 | 37.5 |
| Yellow Time (s) | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | | 2.5 | 2.5 | | 2.5 | 2.5 | 2.5 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.0 | 4.5 | 4.5 | 4.0 | 4.5 | 4.5 | 4.5 |

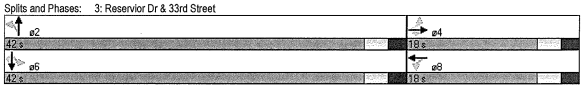


McMahon Associates, Inc. Audubon/Outward Bound Facility
3: Reservior Dr & 33rd Street Weekday AM with Development

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Minimum Gap (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Time Before Reduce (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Time To Reduce (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Recall Mode | Min | Min | Min | Min | Min | | C-Max | C-Max | | C-Max | C-Max | C-Max |
| Walk Time (s) | | | | | | | | | | | | |
| Flash Dont Walk (s) | | | | | | | | | | | | |
| Pedestrian Calls (#/hr) | | | | | | | | | | | | |
| v/c Ratio | | 0.09 | 0.27 | | 0.67 | | 0.12 | 0.61 | | 0.04 | 0.53 | 0.02 |
| Control Delay | | 19.3 | 6.4 | | 32.4 | | 5.4 | 9.0 | | 4.8 | 8.0 | 2.2 |
| Queue Delay | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | | 19.3 | 6.4 | | 32.4 | | 5.4 | 9.0 | | 4.8 | 8.0 | 2.2 |
| Queue Length 50th (ft) | | 10 | 0 | | 67 | | 6 | 117 | | 2 | 108 | 0 |
| Queue Length 95th (ft) | | 29 | 34 | | 126 | | 17 | 216 | | 8 | 188 | 6 |
| Internal Link Dist (ft) | | 424 | | | 281 | | | 688 | | | 587 | |
| Turn Bay Length (ft) | | | 150 | | | | 100 | | | 100 | | 150 |
| Base Capacity (vph) | | 464 | 497 | | 363 | | 384 | 1118 | | 360 | 1194 | 1022 |
| 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 | | 0.08 | 0.24 | | 0.58 | | 0.12 | 0.61 | | 0.04 | 0.53 | 0.02 |

Intersection Summary
Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

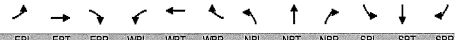
Splits and Phases: 3: Reservior Dr & 33rd Street




Lanes, Volumes, Timings 3: Reservior Dr & 33rd Street
I:\eng\812766\Traffic\Analysis\Existing & Trip Gen\Weekday AM.syn Synchro 7

McMahon Associates, Inc.
3: Reservior Dr & 33rd Street

Audubon/Outward Bound Facility
Weekday AM with Development



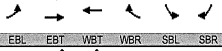
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 3 | 29 | 106 | 140 | 33 | 14 | 41 | 506 | 106 | 14 | 572 | 19 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 16 | 16 | 16 | 16 | 16 | 16 | 9 | 10 | 10 | 9 | 11 | 11 |
| Grade (%) | | -1% | | | -1% | | | 1% | | | -2% | |
| Total Lost time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | 1.00 | | 0.96 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 2113 | 1803 | | 2024 | | 1585 | 1685 | | 1609 | 1819 | 1546 |
| Flt Permitted | | 0.97 | 1.00 | | 0.76 | | 0.35 | 1.00 | | 0.32 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2059 | 1803 | | 1592 | | 585 | 1685 | | 548 | 1819 | 1546 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 3 | 32 | 118 | 156 | 37 | 16 | 46 | 562 | 118 | 16 | 636 | 21 |
| RTOR Reduction (vph) | 0 | 0 | 95 | 0 | 5 | 0 | 0 | 12 | 0 | 0 | 0 | 7 |
| Lane Group Flow (vph) | 0 | 35 | 23 | 0 | 204 | 0 | 46 | 668 | 0 | 16 | 636 | 14 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | | 11.6 | 11.6 | | 11.6 | | 39.4 | 39.4 | | 39.4 | 39.4 | 39.4 |
| Effective Green, g (s) | | 11.6 | 11.6 | | 11.6 | | 39.4 | 39.4 | | 39.4 | 39.4 | 39.4 |
| Actuated g/C Ratio | | 0.19 | 0.19 | | 0.19 | | 0.66 | 0.66 | | 0.66 | 0.66 | 0.66 |
| Clearance Time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 398 | 349 | | 308 | | 384 | 1106 | | 360 | 1194 | 1015 |
| v/s Ratio Prot | | | | | | | | c0.40 | | | 0.35 | |
| v/s Ratio Perm | | 0.02 | 0.01 | | c0.13 | | 0.08 | | | 0.03 | | 0.01 |
| v/c Ratio | | 0.09 | 0.07 | | 0.66 | | 0.12 | 0.60 | | 0.04 | 0.53 | 0.01 |
| Uniform Delay, d1 | | 19.9 | 19.8 | | 22.4 | | 3.8 | 5.9 | | 3.6 | 5.4 | 3.6 |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.1 | 0.1 | | 5.3 | | 0.6 | 2.5 | | 0.2 | 1.7 | 0.0 |
| Delay (s) | | 20.0 | 19.9 | | 27.7 | | 4.5 | 8.3 | | 3.9 | 7.1 | 3.6 |
| Level of Service | | B | B | | C | | A | A | | A | A | A |
| Approach Delay (s) | | 19.9 | | | 27.7 | | | 8.1 | | | 7.0 | |
| Approach LOS | | B | | | C | | | A | | | A | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| HCM Average Control Delay | 11.0 | HCM Level of Service | B | |
| HCM Volume to Capacity ratio | 0.62 | | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 | |
| Intersection Capacity Utilization | 58.6% | ICU Level of Service | B | |
| Analysis Period (min) | 15 | | | |
| c Critical Lane Group | | | | |



McMahon Associates, Inc.
5: Reservior Dr & Site Access (In)

Audubon/Outward Bound Facility
Weekday AM with Development



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 1 | 138 | 68 | 25 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 12 | 12 | 12 | 12 | 12 | 12 |
| Grade (%) | | -1% | 0% | | 0% | |
| Storage Length (ft) | 0 | | | 0 | 0 | 0 |
| Storage Lanes | 0 | | | 0 | 0 | 0 |
| Taper Length (ft) | 75 | | | 75 | 75 | 75 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | | | 0.964 | | | |
| Flt Protected | | | | | | |
| Satd. Flow (prot) | 0 | 1872 | 1796 | 0 | 0 | 0 |
| Flt Permitted | | | | | | |
| Satd. Flow (perm) | 0 | 1872 | 1796 | 0 | 0 | 0 |
| Link Speed (mph) | | 25 | 25 | | 25 | |
| Link Distance (ft) | | 318 | 504 | | 168 | |
| Travel Time (s) | | 8.7 | 13.7 | | 4.6 | |
| Confl. Peds. (#/hr) | | | | | | |
| Confl. Bikes (#/hr) | | | | | | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 2% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | |
| Mid-Block Traffic (%) | | 0% | 0% | | 0% | |
| Adj. Flow (vph) | 1 | 153 | 76 | 28 | 0 | 0 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 154 | 104 | 0 | 0 | 0 |
| Sign Control | | Free | Free | | Free | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Control Type: Unsignalized | |

Intersection Sign configuration not allowed in HCM analysis.

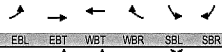




| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑ | ↑ | | ↑ | |
| Volume (vph) | 0 | 131 | 68 | 0 | 8 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 12 | 12 | 12 | 12 | 12 | 12 |
| Grade (%) | | -1% | 0% | | 0% | |
| Storage Length (ft) | 0 | | | 0 | 0 | 0 |
| Storage Lanes | 0 | | | 0 | 1 | 0 |
| Taper Length (ft) | 75 | | | 75 | 75 | 75 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | | | | | | |
| Flt Protected | | | | | 0.950 | |
| Satd. Flow (prot) | 0 | 1872 | 1863 | 0 | 1770 | 0 |
| Flt Permitted | | | | | 0.950 | |
| Satd. Flow (perm) | 0 | 1872 | 1863 | 0 | 1770 | 0 |
| Link Speed (mph) | | 25 | 25 | | 25 | |
| Link Distance (ft) | | 529 | 318 | | 164 | |
| Travel Time (s) | | 14.4 | 8.7 | | 4.5 | |
| Confl. Peds. (#/hr) | | | | | | |
| Confl. Bikes (#/hr) | | | | | | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 2% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | |
| Mid-Block Traffic (%) | | 0% | 0% | | 0% | |
| Adj. Flow (vph) | 0 | 146 | 76 | 0 | 9 | 0 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 146 | 76 | 0 | 9 | 0 |
| Sign Control | | Free | Free | | Stop | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |

Control Type: Unsignalized



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑ | ↑ | | Y | |
| Volume (veh/h) | 0 | 131 | 68 | 0 | 8 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | -1% | 0% | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 0 | 146 | 76 | 0 | 9 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 822 | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 76 | | | | 221 | 76 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 76 | | | | 221 | 76 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 99 | 100 |
| cM capacity (veh/h) | 1524 | | | | 767 | 986 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 146 | 76 | 9 |
| Volume Left | 0 | 0 | 9 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1700 | 767 |
| Volume to Capacity | 0.09 | 0.04 | 0.01 |
| Queue Length 95th (ft) | 0 | 0 | 1 |
| Control Delay (s) | 0.0 | 0.0 | 9.7 |
| Lane LOS | | | A |
| Approach Delay (s) | 0.0 | 0.0 | 9.7 |
| Approach LOS | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.4 | | |
| Intersection Capacity Utilization | 16.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

McMahon Associates, Inc. — Audubon/Outward Bound Facility
3: Reservior Dr & 33rd Street — Weekday PM with Development

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 15 | 39 | 73 | 191 | 51 | 39 | 52 | 633 | 128 | 29 | 592 | 17 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 16 | 16 | 16 | 16 | 16 | 16 | 9 | 10 | 10 | 9 | 11 | 11 |
| Grade (%) | | -1% | | | -1% | | | 1% | | | -2% | |
| Storage Length (ft) | 0 | | 150 | 0 | | 0 | 100 | | 0 | 100 | | 150 |
| Storage Lanes | 0 | | 1 | 0 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (ft) | 75 | | 50 | 75 | | 75 | 60 | | 75 | 65 | | 50 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | | | | | | | |
| Frt | | | 0.850 | | 0.981 | | | 0.975 | | | | 0.850 |
| Flt Protected | | 0.986 | | | 0.967 | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 2092 | 1803 | 0 | 2013 | 0 | 1585 | 1687 | 0 | 1609 | 1819 | 1546 |
| Flt Permitted | | 0.902 | | | 0.759 | | 0.324 | | | 0.209 | | |
| Satd. Flow (perm) | 0 | 1914 | 1803 | 0 | 1580 | 0 | 540 | 1687 | 0 | 354 | 1819 | 1546 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 81 | | 12 | | | 32 | | | | 19 |
| Link Speed (mph) | | 25 | | | 25 | | | 25 | | | 25 | |
| Link Distance (ft) | | 504 | | | 361 | | | 768 | | | 667 | |
| Travel Time (s) | | 13.7 | | | 9.8 | | | 20.9 | | | 18.2 | |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Confl. Bikes (#/hr) | | | | | | | | | | | | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | | | | | | | |
| Mid-Block Traffic (%) | | 0% | | | 0% | | | 0% | | | 0% | |
| Adj. Flow (vph) | 17 | 43 | 81 | 212 | 57 | 43 | 58 | 703 | 142 | 32 | 658 | 19 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 60 | 81 | 0 | 312 | 0 | 58 | 845 | 0 | 32 | 658 | 19 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | | 1 | 2 | | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | | Left | Thru | | Left | Thru | Right |
| Leading Detector (ft) | 20 | 100 | 20 | 20 | 100 | | 20 | 100 | | 20 | 100 | 20 |
| Trailing Detector (ft) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | 8 | | 2 | 2 | | 6 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Minimum Split (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | 21.0 |
| Total Split (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 0.0 | 42.0 | 42.0 | 0.0 | 42.0 | 42.0 | 42.0 |
| Total Split (%) | 30.0% | 30.0% | 30.0% | 30.0% | 30.0% | 0.0% | 70.0% | 70.0% | 0.0% | 70.0% | 70.0% | 70.0% |
| Maximum Green (s) | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | | 37.5 | 37.5 | | 37.5 | 37.5 | 37.5 |
| Yellow Time (s) | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | | 2.5 | 2.5 | | 2.5 | 2.5 | 2.5 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.0 | 4.5 | 4.5 | 4.0 | 4.5 | 4.5 | 4.5 |



McMahon Associates, Inc. — Audubon/Outward Bound Facility
3: Reservior Dr & 33rd Street — Weekday PM with Development

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Minimum Gap (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Time Before Reduce (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Time To Reduce (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Recall Mode | Min | Min | Min | Min | Min | | C-Max | C-Max | | C-Max | C-Max | C-Max |
| Walk Time (s) | | | | | | | | | | | | |
| Flash Dont Walk (s) | | | | | | | | | | | | |
| Pedestrian Calls (#/hr) | | | | | | | | | | | | |
| v/c Ratio | 0.14 | 0.18 | | 0.88 | | | 0.17 | 0.79 | | 0.14 | 0.57 | 0.02 |
| Control Delay | 19.7 | 6.6 | | 49.8 | | | 6.2 | 15.1 | | 6.5 | 9.0 | 2.2 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 19.7 | 6.6 | | 49.8 | | | 6.2 | 15.1 | | 6.5 | 9.0 | 2.2 |
| Queue Length 50th (ft) | 18 | 0 | | 105 | | | 8 | 184 | | 4 | 119 | 0 |
| Queue Length 95th (ft) | 43 | 28 | | #233 | | | 22 | #376 | | 15 | 199 | 6 |
| Internal Link Dist (ft) | 424 | | | 281 | | | | 688 | | | 587 | |
| Turn Bay Length (ft) | | 150 | | | | | 100 | | | 100 | | 150 |
| Base Capacity (vph) | 431 | 468 | | 365 | | | 341 | 1075 | | 223 | 1147 | 982 |
| 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 | 0.14 | 0.17 | | 0.85 | | | 0.17 | 0.79 | | 0.14 | 0.57 | 0.02 |

Intersection Summary
Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Reservior Dr & 33rd Street


Lanes, Volumes, Timings — 3: Reservior Dr & 33rd Street
I:\eng\812766\Traffic\Analysis\Existing & Trip Gen\Weekday PM.syn — Synchro 7

McMahon Associates, Inc. — Audubon/Outward Bound Facility
3: Reservior Dr & 33rd Street — Weekday PM with Development

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 15 | 39 | 73 | 191 | 51 | 39 | 52 | 633 | 128 | 29 | 592 | 17 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 16 | 16 | 16 | 16 | 16 | 16 | 9 | 10 | 10 | 9 | 11 | 11 |
| Grade (%) | | -1% | | | -1% | | | 1% | | | -2% | |
| Total Lost time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | | 0.98 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.99 | 1.00 | | 0.97 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 2092 | 1803 | | 2014 | | 1585 | 1686 | | 1609 | 1819 | 1546 |
| Flt Permitted | | 0.90 | 1.00 | | 0.76 | | 0.32 | 1.00 | | 0.21 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1915 | 1803 | | 1581 | | 540 | 1686 | | 354 | 1819 | 1546 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 17 | 43 | 81 | 212 | 57 | 43 | 58 | 703 | 142 | 32 | 658 | 19 |
| RTOR Reduction (vph) | 0 | 0 | 63 | 0 | 9 | 0 | 0 | 12 | 0 | 0 | 0 | 7 |
| Lane Group Flow (vph) | 0 | 60 | 18 | 0 | 303 | 0 | 58 | 833 | 0 | 32 | 658 | 12 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | | 13.2 | 13.2 | | 13.2 | | 37.8 | 37.8 | | 37.8 | 37.8 | 37.8 |
| Effective Green, g (s) | | 13.2 | 13.2 | | 13.2 | | 37.8 | 37.8 | | 37.8 | 37.8 | 37.8 |
| Actuated g/C Ratio | | 0.22 | 0.22 | | 0.22 | | 0.63 | 0.63 | | 0.63 | 0.63 | 0.63 |
| Clearance Time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 421 | 397 | | 348 | | 340 | 1062 | | 223 | 1146 | 974 |
| v/s Ratio Prot | | | | | | | | c0.49 | | | 0.36 | |
| v/s Ratio Perm | | 0.03 | 0.01 | | c0.19 | | 0.11 | | | 0.09 | | 0.01 |
| v/c Ratio | | 0.14 | 0.04 | | 0.87 | | 0.17 | 0.78 | | 0.14 | 0.57 | 0.01 |
| Uniform Delay, d1 | | 18.8 | 18.4 | | 22.6 | | 4.6 | 8.1 | | 4.5 | 6.4 | 4.1 |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.2 | 0.0 | | 20.0 | | 1.1 | 5.8 | | 1.3 | 2.1 | 0.0 |
| Delay (s) | | 19.0 | 18.5 | | 42.5 | | 5.7 | 13.9 | | 5.9 | 8.5 | 4.2 |
| Level of Service | | B | B | | D | | A | B | | A | A | A |
| Approach Delay (s) | | 18.7 | | | 42.5 | | | 13.4 | | | 8.3 | |
| Approach LOS | | B | | | D | | | B | | | A | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| HCM Average Control Delay | 16.4 | HCM Level of Service | B | |
| HCM Volume to Capacity ratio | 0.81 | | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 | |
| Intersection Capacity Utilization | 73.0% | ICU Level of Service | D | |
| Analysis Period (min) | 15 | | | |
| c Critical Lane Group | | | | |

HCM Signalized Intersection Capacity Analysis — 3: Reservior Dr & 33rd Street
I:\eng\812766\Traffic\Analysis\Existing & Trip Gen\Weekday PM.syn — Synchro 7

McMahon Associates, Inc. — Audubon/Outward Bound Facility
5: Reservior Dr & Site Access (In) — Weekday PM with Development

| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 0 | 127 | 112 | 8 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 12 | 12 | 12 | 12 | 12 | 12 |
| Grade (%) | | -1% | 0% | | 0% | |
| Storage Length (ft) | 0 | | | 0 | 0 | 0 |
| Storage Lanes | 0 | | | 0 | 0 | 0 |
| Taper Length (ft) | 75 | | | 75 | 75 | 75 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | | | 0.991 | | | |
| Flt Protected | | | | | | |
| Satd. Flow (prot) | 0 | 1872 | 1846 | 0 | 0 | 0 |
| Flt Permitted | | | | | | |
| Satd. Flow (perm) | 0 | 1872 | 1846 | 0 | 0 | 0 |
| Link Speed (mph) | | 25 | 25 | | 25 | |
| Link Distance (ft) | | 318 | 504 | | 168 | |
| Travel Time (s) | | 8.7 | 13.7 | | 4.6 | |
| Confl. Peds. (#/hr) | | | | | | |
| Confl. Bikes (#/hr) | | | | | | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 2% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | |
| Mid-Block Traffic (%) | | 0% | 0% | | 0% | |
| Adj. Flow (vph) | 0 | 141 | 124 | 9 | 0 | 0 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 141 | 133 | 0 | 0 | 0 |
| Sign Control | | Free | Free | | Free | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Control Type: Unsignalized | |

Lanes, Volumes, Timings — 5: Reservior Dr & Site Access (In)
I:\eng\812766\Traffic\Analysis\Existing & Trip Gen\Weekday PM.syn — Synchro 7

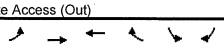
Intersection Sign configuration not allowed in HCM analysis.





| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑ | ↑ | | ↱ | |
| Volume (vph) | 0 | 102 | 112 | 0 | 25 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 12 | 12 | 12 | 12 | 12 | 12 |
| Grade (%) | | -1% | 0% | | 0% | |
| Storage Length (ft) | 0 | | | 0 | 0 | 0 |
| Storage Lanes | 0 | | | 0 | 1 | 0 |
| Taper Length (ft) | 75 | | | 75 | 75 | 75 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | | | | | 0.995 | |
| Flt Protected | | | | | 0.954 | |
| Satd. Flow (prot) | 0 | 1872 | 1863 | 0 | 1768 | 0 |
| Flt Permitted | | | | | 0.954 | |
| Satd. Flow (perm) | 0 | 1872 | 1863 | 0 | 1768 | 0 |
| Link Speed (mph) | | 25 | 25 | | 25 | |
| Link Distance (ft) | | 529 | 318 | | 164 | |
| Travel Time (s) | | 14.4 | 8.7 | | 4.5 | |
| Confl. Peds. (#/hr) | | | | | | |
| Confl. Bikes (#/hr) | | | | | | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 2% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | |
| Mid-Block Traffic (%) | | 0% | 0% | | 0% | |
| Adj. Flow (vph) | 0 | 113 | 124 | 0 | 28 | 1 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 113 | 124 | 0 | 29 | 0 |
| Sign Control | | Free | Free | | Stop | |

Intersection Summary
Area Type: Other
Control Type: Unsignalized



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑ | ↑ | | ↓ | |
| Volume (veh/h) | 0 | 102 | 112 | 0 | 25 | 1 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | -1% | 0% | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 0 | 113 | 124 | 0 | 28 | 1 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 822 | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 124 | | | | 238 | 124 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 124 | | | | 238 | 124 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 96 | 100 |
| cM capacity (veh/h) | 1462 | | | | 750 | 926 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 113 | 124 | 29 |
| Volume Left | 0 | 0 | 28 |
| Volume Right | 0 | 0 | 1 |
| cSH | 1700 | 1700 | 756 |
| Volume to Capacity | 0.07 | 0.07 | 0.04 |
| Queue Length 95th (ft) | 0 | 0 | 3 |
| Control Delay (s) | 0.0 | 0.0 | 10.0 |
| Lane LOS | | | A |
| Approach Delay (s) | 0.0 | 0.0 | 10.0 |
| Approach LOS | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.1 | | |
| Intersection Capacity Utilization | 15.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 25 | 20 | 76 | 169 | 46 | 28 | 100 | 417 | 160 | 17 | 474 | 33 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 16 | 16 | 16 | 16 | 16 | 16 | 9 | 10 | 10 | 9 | 11 | 11 |
| Grade (%) | | -1% | | | -1% | | | 1% | | | -2% | |
| Storage Length (ft) | 0 | | 150 | 0 | | 0 | 100 | | 0 | 100 | | 150 |
| Storage Lanes | 0 | | 1 | 0 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (ft) | 75 | | 50 | 75 | | 75 | 60 | | 75 | 65 | | 50 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | | | | | | | |
| Frt | | | 0.850 | | 0.985 | | | 0.958 | | | | 0.850 |
| Flt Protected | | 0.973 | | | 0.966 | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 2064 | 1803 | 0 | 2019 | 0 | 1585 | 1657 | 0 | 1609 | 1819 | 1546 |
| Flt Permitted | | 0.814 | | | 0.761 | | 0.414 | | | 0.340 | | |
| Satd. Flow (perm) | 0 | 1727 | 1803 | 0 | 1590 | 0 | 691 | 1657 | 0 | 576 | 1819 | 1546 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 84 | | 10 | | | 62 | | | | 37 |
| Link Speed (mph) | | 25 | | | 25 | | | 25 | | | 25 | |
| Link Distance (ft) | | 504 | | | 361 | | | 768 | | | 667 | |
| Travel Time (s) | | 13.7 | | | 9.8 | | | 20.9 | | | 18.2 | |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Confl. Bikes (#/hr) | | | | | | | | | | | | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | | | | | | | |
| Mid-Block Traffic (%) | | 0% | | | 0% | | | 0% | | | 0% | |
| Adj. Flow (vph) | 28 | 22 | 84 | 188 | 51 | 31 | 111 | 463 | 178 | 19 | 527 | 37 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 50 | 84 | 0 | 270 | 0 | 111 | 641 | 0 | 19 | 527 | 37 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | | 1 | 2 | | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | | Left | Thru | | Left | Thru | Right |
| Leading Detector (ft) | 20 | 100 | 20 | 20 | 100 | | 20 | 100 | | 20 | 100 | 20 |
| Trailing Detector (ft) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | 8 | | 2 | 2 | | 6 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Minimum Split (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | | 21.0 | 21.0 | | 21.0 | 21.0 | 21.0 |
| Total Split (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 0.0 | 42.0 | 42.0 | 0.0 | 42.0 | 42.0 | 42.0 |
| Total Split (%) | 30.0% | 30.0% | 30.0% | 30.0% | 30.0% | 0.0% | 70.0% | 70.0% | 0.0% | 70.0% | 70.0% | 70.0% |
| Maximum Green (s) | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | | 37.5 | 37.5 | | 37.5 | 37.5 | 37.5 |
| Yellow Time (s) | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | | 2.5 | 2.5 | | 2.5 | 2.5 | 2.5 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.0 | 4.5 | 4.5 | 4.0 | 4.5 | 4.5 | 4.5 |

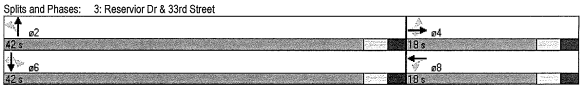


McMahon Associates, Inc. Audubon/Outward Bound Facility
3: Reservior Dr & 33rd Street Saturday Midday with Development

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Minimum Gap (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Time Before Reduce (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Time To Reduce (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Recall Mode | Min | Min | Min | Min | Min | | C-Max | C-Max | | C-Max | C-Max | C-Max |
| Walk Time (s) | | | | | | | | | | | | |
| Flash Dont Walk (s) | | | | | | | | | | | | |
| Pedestrian Calls (#/hr) | | | | | | | | | | | | |
| v/c Ratio | | 0.14 | 0.19 | | 0.79 | | 0.25 | 0.59 | | 0.05 | 0.45 | 0.04 |
| Control Delay | | 19.8 | 6.6 | | 39.9 | | 6.8 | 8.7 | | 4.9 | 7.3 | 1.8 |
| Queue Delay | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | | 19.8 | 6.6 | | 39.9 | | 6.8 | 8.7 | | 4.9 | 7.3 | 1.8 |
| Queue Length 50th (ft) | | 15 | 0 | | 88 | | 15 | 105 | | 2 | 85 | 0 |
| Queue Length 95th (ft) | | 38 | 29 | | #192 | | 37 | 189 | | 9 | 142 | 8 |
| Internal Link Dist (ft) | | 424 | | | 281 | | | 688 | | | 587 | |
| Turn Bay Length (ft) | | | 150 | | | | 100 | | | 100 | | 150 |
| Base Capacity (vph) | | 389 | 471 | | 366 | | 442 | 1082 | | 368 | 1163 | 1002 |
| 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 | | 0.13 | 0.18 | | 0.74 | | 0.25 | 0.59 | | 0.05 | 0.45 | 0.04 |

Intersection Summary
Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Reservior Dr & 33rd Street




Lanes, Volumes, Timings 3: Reservior Dr & 33rd Street
I:\eng\812766\Traffic\Analysis\Existing & Trip Gen\Weekday SAT.syn Synchro 7

McMahon Associates, Inc. — Audubon/Outward Bound Facility
3: Reservior Dr & 33rd Street — Saturday Midday with Development

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 25 | 20 | 76 | 169 | 46 | 28 | 100 | 417 | 160 | 17 | 474 | 33 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 16 | 16 | 16 | 16 | 16 | 16 | 9 | 10 | 10 | 9 | 11 | 11 |
| Grade (%) | | -1% | | | -1% | | | 1% | | | -2% | |
| Total Lost time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | | 0.98 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.97 | 1.00 | | 0.97 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 2064 | 1803 | | 2019 | | 1585 | 1658 | | 1609 | 1819 | 1546 |
| Flt Permitted | | 0.81 | 1.00 | | 0.76 | | 0.41 | 1.00 | | 0.34 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1726 | 1803 | | 1590 | | 691 | 1658 | | 575 | 1819 | 1546 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 28 | 22 | 84 | 188 | 51 | 31 | 111 | 463 | 178 | 19 | 527 | 37 |
| RTOR Reduction (vph) | 0 | 0 | 66 | 0 | 8 | 0 | 0 | 22 | 0 | 0 | 0 | 13 |
| Lane Group Flow (vph) | 0 | 50 | 18 | 0 | 262 | 0 | 111 | 619 | 0 | 19 | 527 | 24 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | | 12.6 | 12.6 | | 12.6 | | 38.4 | 38.4 | | 38.4 | 38.4 | 38.4 |
| Effective Green, g (s) | | 12.6 | 12.6 | | 12.6 | | 38.4 | 38.4 | | 38.4 | 38.4 | 38.4 |
| Actuated g/C Ratio | | 0.21 | 0.21 | | 0.21 | | 0.64 | 0.64 | | 0.64 | 0.64 | 0.64 |
| Clearance Time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 362 | 379 | | 334 | | 442 | 1061 | | 368 | 1164 | 989 |
| v/s Ratio Prot | | | | | | | | c0.37 | | | 0.29 | |
| v/s Ratio Perm | | 0.03 | 0.01 | | c0.16 | | 0.16 | | | 0.03 | | 0.02 |
| v/c Ratio | | 0.14 | 0.05 | | 0.78 | | 0.25 | 0.58 | | 0.05 | 0.45 | 0.02 |
| Uniform Delay, d1 | | 19.3 | 18.9 | | 22.4 | | 4.6 | 6.2 | | 4.0 | 5.5 | 3.9 |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.2 | 0.1 | | 11.5 | | 1.4 | 2.3 | | 0.3 | 1.3 | 0.0 |
| Delay (s) | | 19.5 | 19.0 | | 33.9 | | 6.0 | 8.5 | | 4.3 | 6.7 | 4.0 |
| Level of Service | | B | B | | C | | A | A | | A | A | A |
| Approach Delay (s) | | 19.1 | | | 33.9 | | | 8.2 | | | 6.5 | |
| Approach LOS | | B | | | C | | | A | | | A | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| HCM Average Control Delay | 12.4 | HCM Level of Service | B | |
| HCM Volume to Capacity ratio | 0.63 | | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 | |
| Intersection Capacity Utilization | 66.4% | ICU Level of Service | C | |
| Analysis Period (min) | 15 | | | |

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — 3: Reservior Dr & 33rd Street
I:\eng\812766\Traffic\Analysis\Existing & Trip Gen\Weekday SAT.syn — Synchro 7

McMahon Associates, Inc. — Audubon/Outward Bound Facility
5: Reservior Dr & Site Access (In) — Saturday Midday with Development

| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 1 | 121 | 156 | 23 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 12 | 12 | 12 | 12 | 12 | 12 |
| Grade (%) | | -1% | 0% | | 0% | |
| Storage Length (ft) | 0 | | | 0 | 0 | 0 |
| Storage Lanes | 0 | | | 0 | 0 | 0 |
| Taper Length (ft) | 75 | | | 75 | 75 | 75 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | | | 0.982 | | | |
| Flt Protected | | | | | | |
| Satd. Flow (prot) | 0 | 1872 | 1829 | 0 | 0 | 0 |
| Flt Permitted | | | | | | |
| Satd. Flow (perm) | 0 | 1872 | 1829 | 0 | 0 | 0 |
| Link Speed (mph) | | 25 | 25 | | 25 | |
| Link Distance (ft) | | 318 | 504 | | 168 | |
| Travel Time (s) | | 8.7 | 13.7 | | 4.6 | |
| Confl. Peds. (#/hr) | | | | | | |
| Confl. Bikes (#/hr) | | | | | | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 2% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | |
| Mid-Block Traffic (%) | | 0% | 0% | | 0% | |
| Adj. Flow (vph) | 1 | 134 | 173 | 26 | 0 | 0 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 135 | 199 | 0 | 0 | 0 |
| Sign Control | | Free | Free | | Free | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Control Type: Unsignalized | |

Lanes, Volumes, Timings — 5: Reservior Dr & Site Access (In)
I:\eng\812766\Traffic\Analysis\Existing & Trip Gen\Weekday SAT.syn — Synchro 7

Intersection Sign configuration not allowed in HCM analysis.

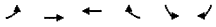




| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑ | ↑ | | Y | |
| Volume (vph) | 0 | 99 | 156 | 0 | 23 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 12 | 12 | 12 | 12 | 12 | 12 |
| Grade (%) | | -1% | 0% | | 0% | |
| Storage Length (ft) | 0 | | | 0 | 0 | 0 |
| Storage Lanes | 0 | | | 0 | 1 | 0 |
| Taper Length (ft) | 75 | | | 75 | 75 | 75 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | | | | | 0.995 | |
| Flt Protected | | | | | 0.954 | |
| Satd. Flow (prot) | 0 | 1872 | 1863 | 0 | 1768 | 0 |
| Flt Permitted | | | | | 0.954 | |
| Satd. Flow (perm) | 0 | 1872 | 1863 | 0 | 1768 | 0 |
| Link Speed (mph) | | 25 | 25 | | 25 | |
| Link Distance (ft) | | 529 | 318 | | 164 | |
| Travel Time (s) | | 14.4 | 8.7 | | 4.5 | |
| Confl. Peds. (#/hr) | | | | | | |
| Confl. Bikes (#/hr) | | | | | | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 2% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | |
| Mid-Block Traffic (%) | | 0% | 0% | | 0% | |
| Adj. Flow (vph) | 0 | 110 | 173 | 0 | 26 | 1 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 110 | 173 | 0 | 27 | 0 |
| Sign Control | | Free | Free | | Stop | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |

Control Type: Unsignalized



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑ | ↑ | | ↑ | |
| Volume (veh/h) | 0 | 99 | 156 | 0 | 23 | 1 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | -1% | 0% | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 0 | 110 | 173 | 0 | 26 | 1 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 822 | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 173 | | | | 283 | 173 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 173 | | | | 283 | 173 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 96 | 100 |
| cM capacity (veh/h) | 1403 | | | | 707 | 870 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 110 | 173 | 27 |
| Volume Left | 0 | 0 | 26 |
| Volume Right | 0 | 0 | 1 |
| cSH | 1700 | 1700 | 712 |
| Volume to Capacity | 0.06 | 0.10 | 0.04 |
| Queue Length 95th (ft) | 0 | 0 | 3 |
| Control Delay (s) | 0.0 | 0.0 | 10.2 |
| Lane LOS | | | B |
| Approach Delay (s) | 0.0 | 0.0 | 10.2 |
| Approach LOS | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.9 | | |
| Intersection Capacity Utilization | 18.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |