

CHICAGO CHILDREN'S MUSEUM

Traffic Impact Analysis

Chicago, Illinois

June 19, 2007

Prepared for:

Jones Lang LaSalle

Chicago Children's Museum

Prepared by:

Metro Transportation Group, Inc.

EXECUTIVE SUMMARY

Metro Transportation Group, Inc. was retained by Jones Lang LaSalle to evaluate the traffic and parking impact related to the proposed relocation of the Chicago Children's Museum to Grant Park in Chicago, Illinois. The subject site is located on the northern edge of the park, immediately adjacent to Randolph Street and east of Columbus Drive.

The following summarizes the general findings of Metro's review and analyses:

- > The peak hours associated with the Children's Museum do not coincide with the morning and evening peak hours of traffic on the surrounding streets. Peak traffic volumes on the adjacent streets generated by downtown residential, office, and retail uses are considerably higher than the periods representing the museum's peak hours (10:00 - 11:00 AM and 1:00 - 2:00 PM).
- > Due to the peak hours of visitor arrivals and departures occurring outside of the typical peak hours of the surrounding roadways, traffic generated by the Children's Museum will have a minimal impact on the capacity of the intermediate-level and upper-level Randolph Street/Columbus Drive intersections.
- > Compared to the existing facility, the proposed museum location is better served by public transportation with closer proximity to Metra stations and more CTA rail stations, along or near many CTA bus routes, and planned to continuation of Trolley service.
- > The East Monroe Parking Garage is underutilized and can accommodate construction of the museum and the associated parking demand.
- > Visitors arriving/departing the museum via personal auto will use intermediate-level Columbus Drive and Randolph Street. This is consistent with the intended design of the multi-level Randolph Street system.
- > Buses dropping off and picking up museum visitors will use a dedicated bus pick-up/drop-off lane along the south side of mid-level Randolph Street adjacent to the museum. Bus pick-up/drop-off activity will not occur on upper-level Randolph Street.
- > In order to provide a designated and protected pick-up/drop-off area for buses, modifications are proposed along the south side of intermediate-level Randolph Street to eliminate the southern eastbound travel lane along the site frontage and convert it to a bus pick-up/drop-off lane. The modified curb would transition back to the existing condition east of the site approaching the Lake Shore Drive ramp intersections at Randolph Street.
- > Traffic on upper-level Randolph Street will be limited to taxis and occasional handicap vehicles and drop-offs. This is consistent with the intended design of the multi-level Randolph Street system.
- > Loading operations will occur on lower-level Randolph Street. This is consistent with the intended design of the multi-level Randolph Street system.

INTRODUCTION

Metro Transportation Group, Inc. was retained by Jones Lang LaSalle to review traffic and parking impact related to the proposed relocation of the Chicago Children's Museum to Grant Park in Chicago, Illinois. The subject site is located on the northern edge of the park, immediately adjacent to Randolph Street and east of Columbus Drive. The site also includes an existing Park District field house. The site location is illustrated in **Figure 1**. Metro's review of plans for the Chicago Children's Museum includes evaluation of traffic and parking impact, pedestrian access and circulation, and bus pick-up/drop-off operations.

The following report presents and documents Metro's methodology, data collection, analyses, and identifies improvements, as necessary, to mitigate impacts the proposed relocation of the Chicago Children's Museum may have on the adjacent roadway network.

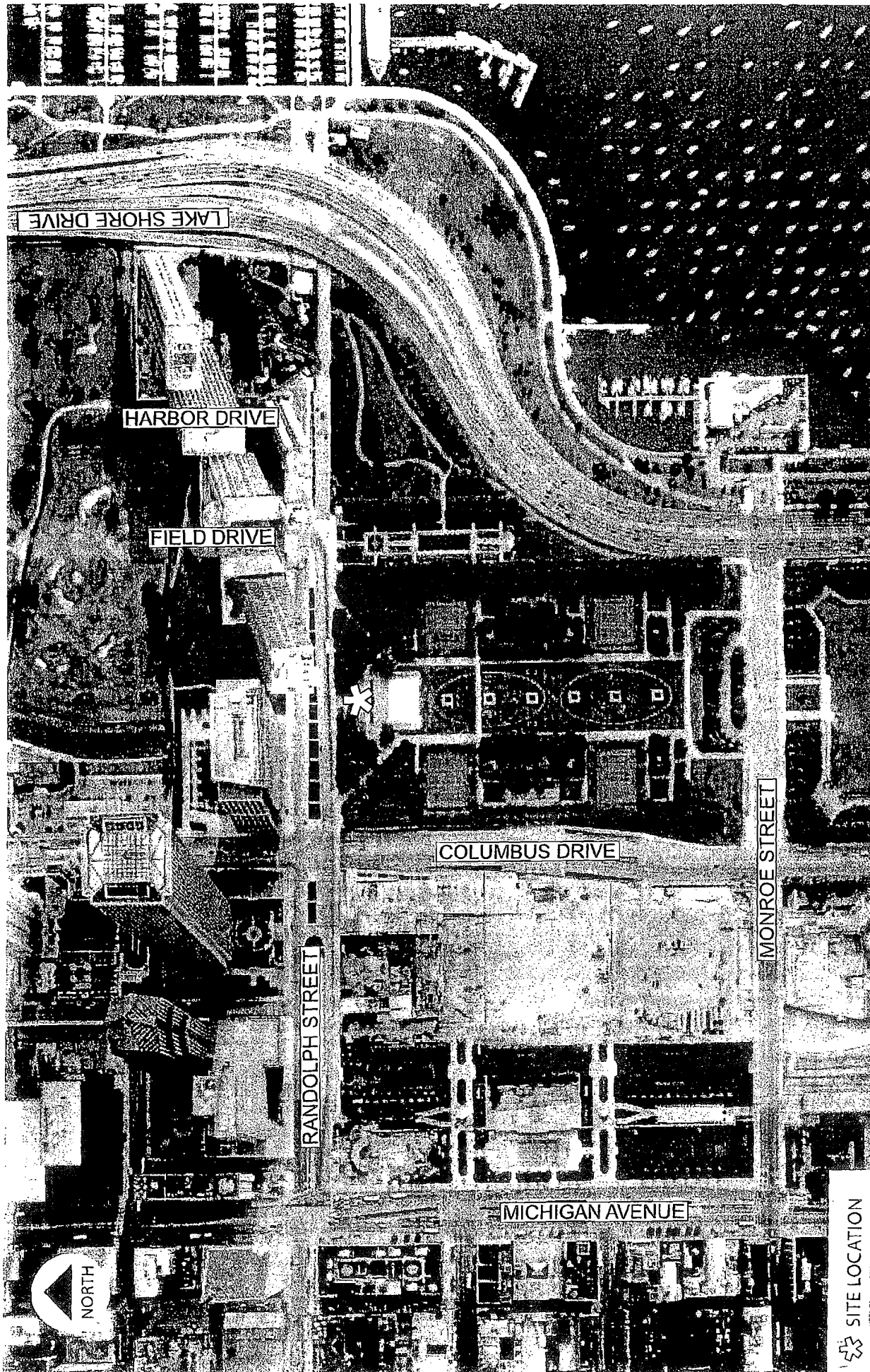
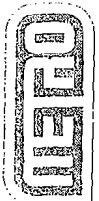


FIGURE 1

SITE LOCATION MAP



★ SITE LOCATION

EXISTING CONDITIONS

Metro conducted a field survey to collect current information relating to the site, surrounding area land uses, adjacent roadway network, traffic control, and current traffic volumes. This section of the report discusses these issues.

Area Land Use

The proposed site is generally located on Chicago's lakefront. Millennium Park is located immediately west of the site and Grant Park extends south of the site. Lake Michigan is east of the site. Multi-story residential and office buildings are located north of the site. The site currently includes a Park District field house and an ice skating rink.

Area Roadways

The roadway system in the vicinity of the site includes Randolph Street and Columbus Drive. These roadways are described below in more detail.

Randolph Street is an east/west roadway along the northern site boundary. In the site vicinity, Randolph Street provides a system of three roadway levels; upper-level, intermediate-level, and lower-level. The upper-level serves local traffic including access to the adjacent neighborhood and taxi/pick-up/drop-off activity. Upper-level Randolph Street does not serve thru traffic. Along the frontage of the site, upper-level Randolph Street provides two vehicular traffic lanes and a bike lane in each direction with on-street parking along the south curb and loading activity (taxis and buses) along the north curb. Intermediate-level serves thru traffic and access to/from Lake Shore Drive and nearby parking facilities. Intermediate-level Randolph Street along the site frontage generally provides three lanes in each direction. Lower-level is a low-volume roadway primarily used by service vehicles. Randolph Street at the lower-level operates as a single lane in each direction accommodating delivery and loading activities.

At its upper-level signalized intersection with Columbus Drive, the eastbound approach of Randolph Street provides a separate left-turn lane and two thru lanes. The westbound approach provides two thru lanes with a shared right-turn movement. At its intermediate-level signalized intersection with Columbus Drive, the eastbound approach of Randolph Street includes a separate left-turn lane and two thru lanes with a shared right-turn movement. The westbound approach includes a separate left-turn lane, two thru lanes, and a separate right-turn lane. The eastbound and westbound approaches of the lower-level intersection Randolph Street/Columbus Drive intersection each provide one thru lane with shared turn movements under stop control. CDOT maintains illustrations of the lane configurations and pavement markings for upper-level and intermediate-level Randolph Street near the site vicinity. These illustrations are presented in **Figure 2** and **Figure 3**. Randolph Street is under the jurisdiction of the City of Chicago.

Columbus Drive is a north/south roadway just west of the site also providing three roadway levels; upper-level (north of Randolph Street), intermediate-level, and lower-level (north of Randolph Street). At its upper-level signalized "T" intersection with Randolph Street, the southbound approach of Columbus Drive provides four lanes with a separate left-turn lane, an unmarked lane typically used as a second left-turn lane, and dual right-turn lanes. At its intermediate-level signalized intersection with Randolph Street, the northbound approach of Columbus Drive includes a separate left-turn lane, two thru lanes, and dual right-turn lanes with a shared right-turn movement. The southbound approach of the intersection provides a separate left-turn lane and two thru lanes. Columbus Drive is under the jurisdiction of the City of Chicago.

Existing Traffic and Pedestrian Counts

In order to determine current vehicular traffic and pedestrian volumes on Randolph Street and Columbus Drive adjacent to the subject site, Metro conducted vehicular traffic and pedestrian counts at the upper and intermediate-levels of the Randolph Street/Columbus Drive intersection. The intersection counts were conducted on Saturday June 2, 2007 from 10:00 AM to 4:00 PM and Wednesday June 6, 2007 and Tuesday June 12, 2007 from 10:00 AM to 6:00 PM. These time periods coincide with the peak hours of the Chicago Children's Museum and the evening peak hours on the adjacent roadways. The typical morning peak period at the study intersections was not included in the traffic counts due to the museum being closed during that time of day and not generating visitor traffic. It should be noted that typical peak hours of traffic on the surrounding roadways, generated by residential, office, and retail uses, are considerably higher than, and do not coincide with, the hours representing the museum's peak hours.

As part of Metro's intersection traffic counts at the upper- and intermediate-level intersections of Randolph Street and Columbus Drive, the numbers of pedestrians crossing each approach of the two intersections were recorded. The intermediate-level Randolph Street/Columbus Drive intersection experiences very low pedestrian activity. The upper-level intersection serves pedestrians from the nearby office and condominium buildings as well as Grant Park. Based on the pedestrian counts and observations at the intersections, pedestrians are easily accommodated with sidewalks and pedestrian phases of the traffic signals.

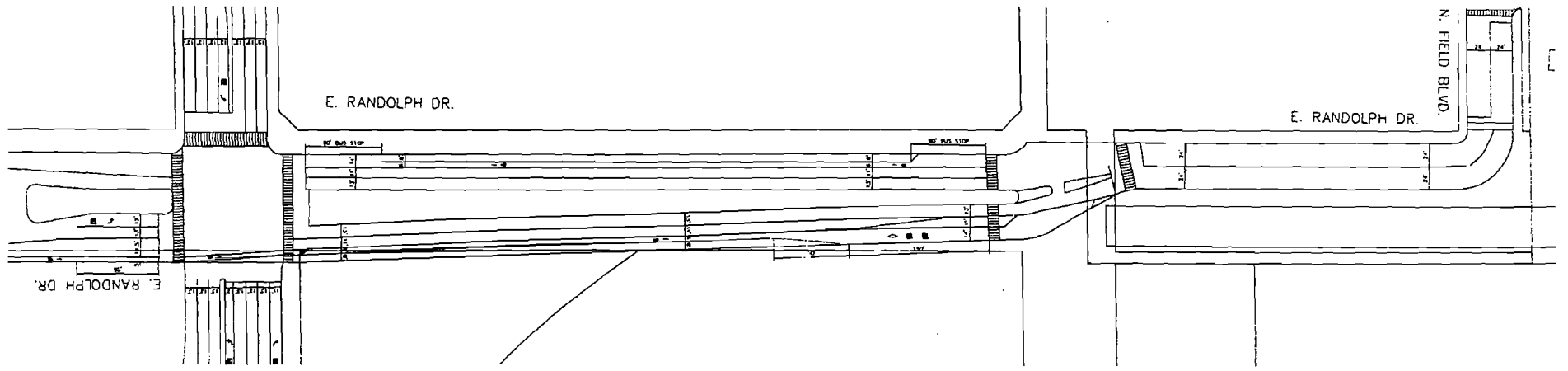
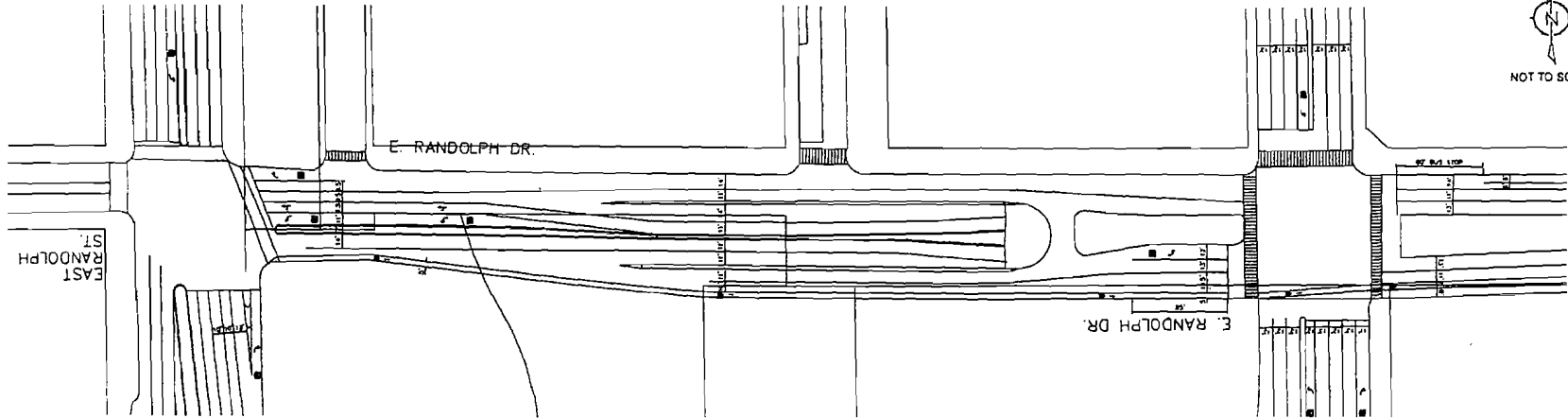
Based on historical attendance characteristics at the current Chicago Children's Museum, the hours of peak arrival and departure occur from 10:00 AM to 11:00 AM and 1:00 PM to 2:00 PM, respectively. The existing vehicular and pedestrian traffic volumes for these time periods are shown in **Figure 4** and **Figure 5**.

Existing Parking Demand

In order to evaluate current parking characteristics at the East Monroe Parking Garage in Grant Park, Metro referenced parking data provided by the Chicago Park District. The parking data included weekly parking counts for the Year 2005. In addition, hourly garage ingress and egress counts were

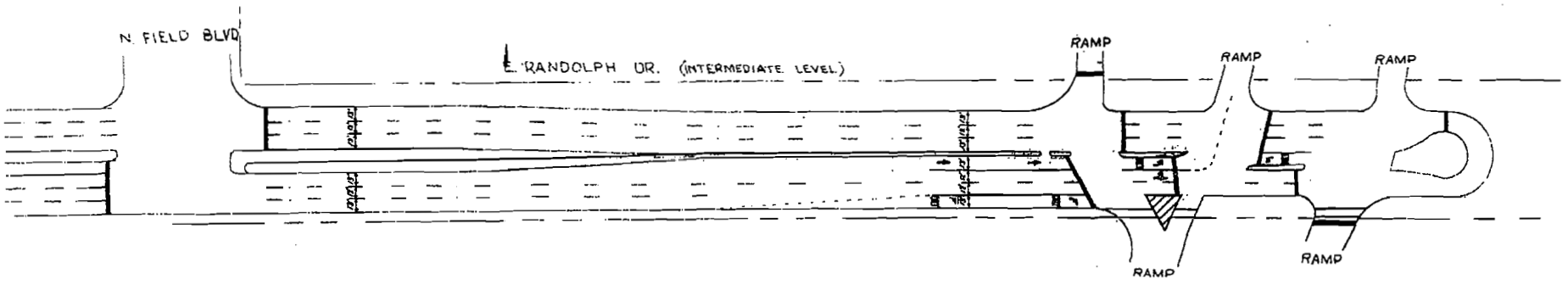
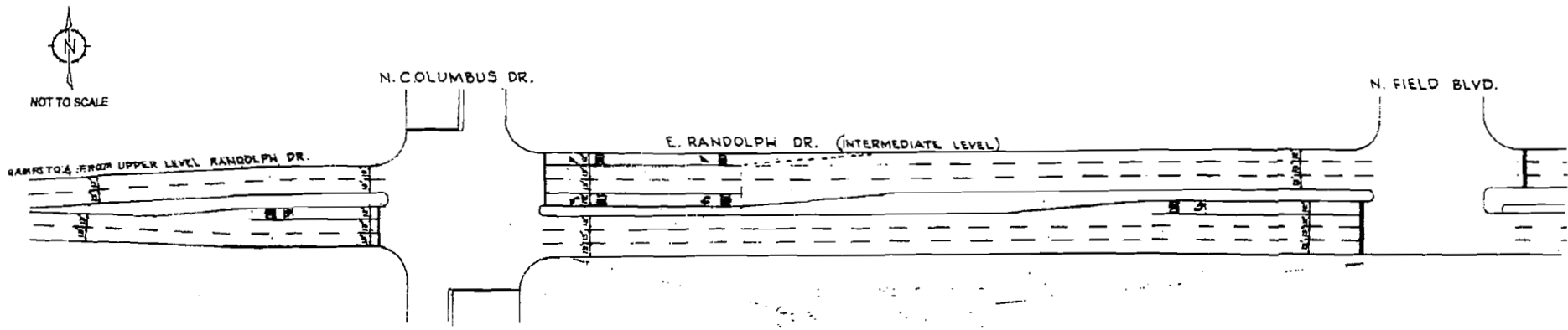
provided for the month of August 2005, which coincides with the highest monthly attendance of the year based on attendance characteristics at the current Chicago Children's Museum.

With the exception of a few days during the year in 2005 (weeks of July 4th and Labor Day), the 3,800-space East Monroe Parking Garage was considerably underutilized. During the month of August 2005, the average peak parking occupancy was 18 percent. **Table 1** summarizes the peak parking data for August 2005.



PAVEMENT MARKINGS
UPPER-LEVEL RANDOLPH STREET

FIGURE: 2

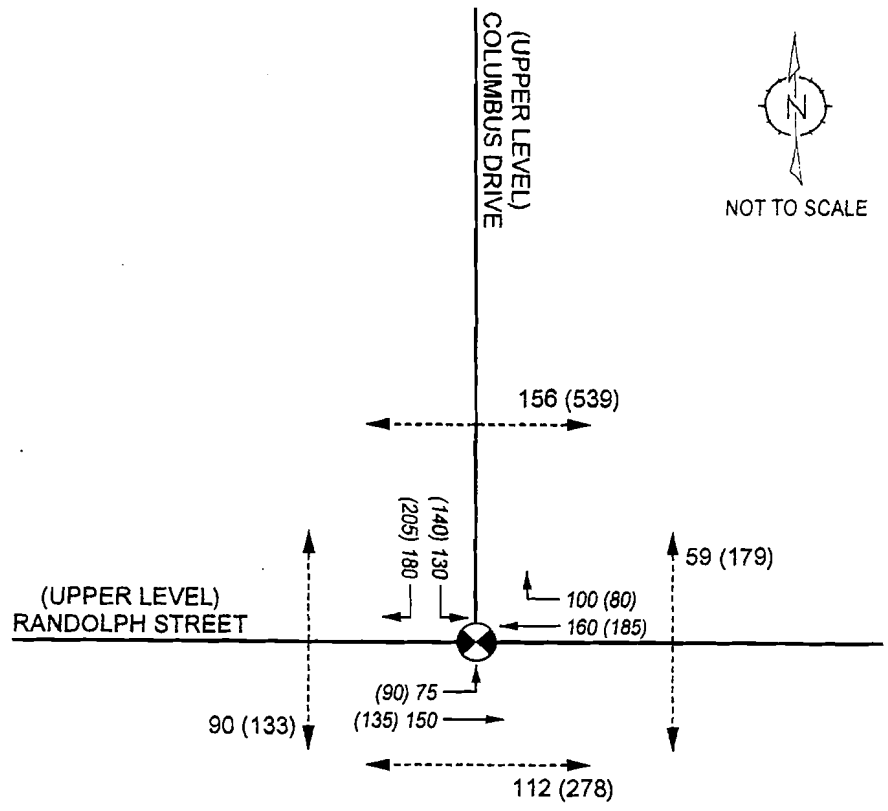
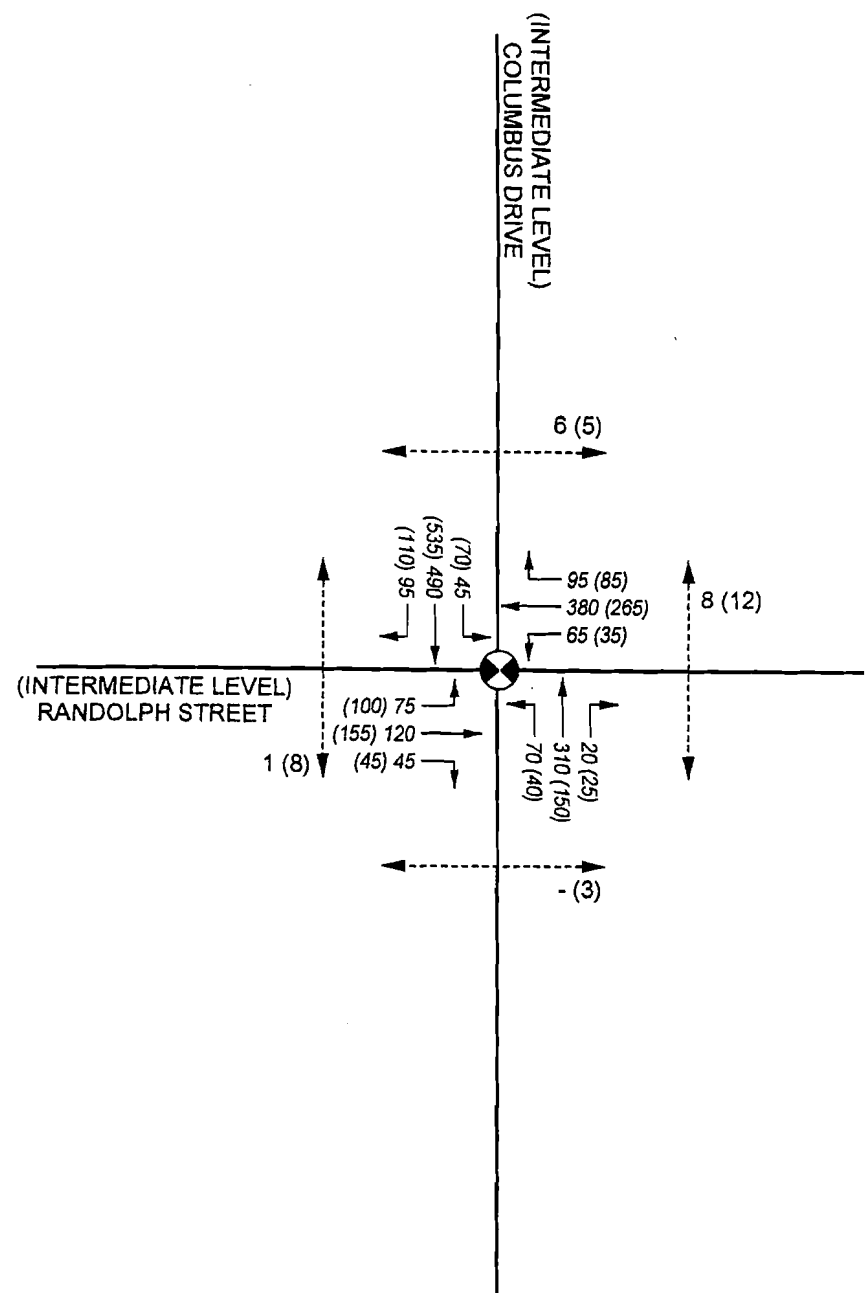


PAVEMENT MARKINGS
INTERMEDIATE LEVEL RANDOLPH STREET

FIGURE: 3



NOT TO SCALE



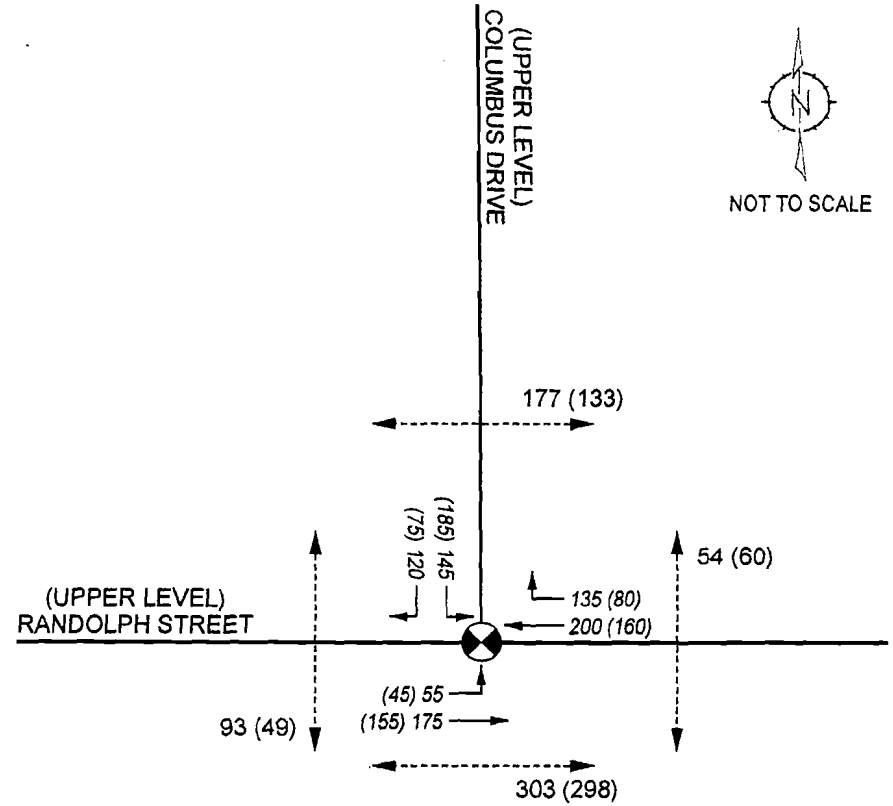
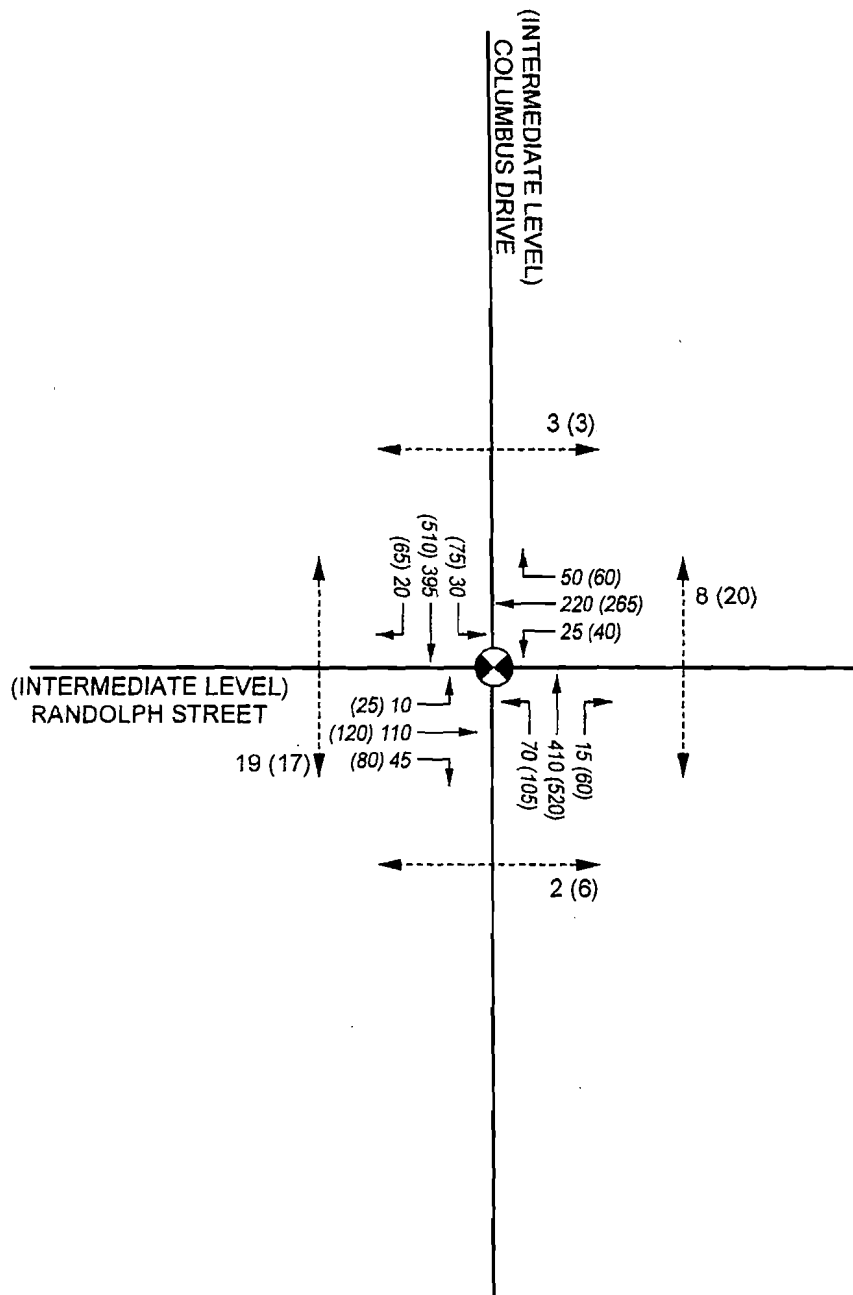
LEGEND

- XX - Weekday A.M. Peak Hour (10:00-11:00 AM)
- (XX) - Weekday P.M. Peak Hour (1:00-2:00 PM)
- - Less Than 5 Vehicles
- ⊗ - Existing Signal
- XX (XX) - Pedestrian Crosswalk and Counts




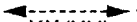
EXISTING TRAFFIC VOLUMES
WEEKDAY

FIGURE: 4



NOT TO SCALE

LEGEND

- XX - Saturday A.M. Peak Hour (10:00-11:00 AM)
- (XX) - Saturday P.M. Peak Hour (1:00-2:00 PM)
- - - - - Less Than 5 Vehicles
-  Existing Signal
-  Pedestrian Crosswalk and Counts XX(XX)



EXISTING TRAFFIC VOLUMES
SATURDAY

FIGURE: 5

Table 1. Peak Parking Characteristics (August 2005) - East Monroe Garage (3,800 total spaces)

Date	Day of Week	Peak Hour		
		Parking Demand	Parking Occupancy	Spaces Available
1-Aug-05	Monday	572	15.1%	3,228
2-Aug-05	Tuesday	1,126	29.6%	2,674
3-Aug-05	Wednesday	572	15.1%	3,228
4-Aug-05	Thursday	589	15.5%	3,211
5-Aug-05	Friday	783	20.6%	3,017
6-Aug-05	Saturday	399	10.5%	3,401
7-Aug-05	Sunday	347	9.1%	3,453
8-Aug-05	Monday	612	16.1%	3,188
9-Aug-05	Tuesday	604	15.9%	3,196
10-Aug-05	Wednesday	645	17.0%	3,155
11-Aug-05	Thursday	558	14.7%	3,242
12-Aug-05	Friday	575	15.1%	3,225
13-Aug-05	Saturday	235	6.2%	3,565
14-Aug-05	Sunday	253	6.7%	3,547
15-Aug-05	Monday	556	14.6%	3,244
16-Aug-05	Tuesday	647	17.0%	3,153
17-Aug-05	Wednesday	603	15.9%	3,197
18-Aug-05	Thursday	566	14.9%	3,234
19-Aug-05	Friday	808	21.3%	2,992
20-Aug-05	Saturday	784	20.6%	3,016
21-Aug-05	Sunday	836	22.0%	2,964
22-Aug-05	Monday	801	21.1%	2,999
23-Aug-05	Tuesday	1,382	36.4%	2,418
24-Aug-05	Wednesday	578	15.2%	3,222
25-Aug-05	Thursday	613	16.1%	3,187
26-Aug-05	Friday	1,956	51.5%	1,844
27-Aug-05	Saturday	619	16.3%	3,181
28-Aug-05	Sunday	1,002	26.4%	2,798
29-Aug-05	Monday	547	14.4%	3,253
30-Aug-05	Tuesday	610	16.1%	3,190
31-Aug-05	Wednesday	520	13.7%	3,280
Average		687	18.1%	3,113

Source: Chicago Park District and Standard Parking

DEVELOPMENT TRAFFIC CHARACTERISTICS

This section of the report presents the proposed site access, traffic, and parking characteristics associated with the proposed Chicago Children's Museum and background development near the subject site.

Site Access

Given the location of the proposed site along Chicago's lakefront and within close proximity to various other attractions, hotels, and public transportation, museum visitors will use multiple modes of transportation to access the proposed site. Visitors arriving by auto will park in the East Monroe Parking Garage and enter/exit the parking facility via intermediate-level Columbus Drive between Randolph Street and Monroe Street. This is consistent with the intent of the multi-level Randolph Street roadway system.

Public transportation options such as CTA bus, CTA rail, and Metra rail provide excellent access to the proposed site. CTA bus routes operate along Randolph Street, Columbus Drive, and Michigan Avenue. Free trolley serving visitors along Michigan Avenue and Navy Pier will also serve the proposed site. CTA rail stations are located three blocks west of the site at Wabash/Randolph (Brown, Green, Orange, Purple, and Pink Lines) and four blocks west of the site on State Street (Red Line) and five blocks west of the site on Dearborn Street (Blue Line). In addition to the Millennium station at the north end of the Metra Electric South Shore Line, Metra stations at Union Station, Ogilvie Transportation Center, and LaSalle Street are accessible via bus, walking, and free trolley.

Buses associated with student or other organized groups are planned to pick-up/drop-off museum visitors using a dedicated bus loading area along the south side of intermediate-level Randolph Street. Proposed modifications to the curb along the south side of the street would create a protected and designated bus lane for pick-up/drop-off activities.

Based on the May 2006 report titled *Attendance Potential of the New Chicago Children's Museum at Daley Bicentennial Plaza* prepared by ConsultEcon, Inc., approximately nine percent of museum visitors are expected to arrive/depart via taxi. Similar to the many office buildings just north of Randolph Street, most taxi drop-offs will likely occur on upper-level Randolph Street near the museum entrance. However, it is expected that many visitors will also visit adjacent attractions such as Millennium Park, the lakefront, or shopping along Michigan Avenue and may be dropped off or picked up at other locations within close proximity to their other destinations.

Visitors arriving by foot may access the museum via the upper-level of Randolph Street, from the Millennium Park via the BP Pedestrian Bridge, and from the south through Daley Bicentennial Plaza. The BP Pedestrian Bridge spans Columbus Drive south of Randolph Street and links Millennium Park on the west to Daley Bicentennial Plaza on the east. This bridge provides an

important connection between the potential site of the Chicago Children's Museum, Daley Bicentennial Plaza, Millennium Park, and other attractions west of Columbus Drive.

Table 2 summarizes the access locations for the various modes of transportation generated by the Chicago Children's Museum.

Table 2. Museum Access Locations

Transportation Mode	Access Location
Pedestrians	Upper-Level Randolph Street(primary) South Side Access via Grant Park(recommended)
Cars	East Monroe Parking Garage via Columbus Drive
Buses / Group	Intermediate-level Randolph Street within the designated pick-up/drop-off lane along south curb
Taxi / Limo and Visitor Drop-Off	Upper-Level Randolph Street
Transit	Millennium Station at Randolph Street(Metra Electric Line) Randolph Street/Wabash Street(CTA Brown, Green, Orange Purple and Pink Lines) State Street/Lake Street(CTA Red Line) Dearborn Street/Washington Street(CTA Blue Line) Routes 4, 20, and 60.....(CTA Bus)
Trolleys	Upper/Intermediate-Level Randolph Street ¹ ..(Recommended) Michigan Avenue.....(Existing)
Loading Area / Trucks	Lower-Level Randolph Street

1 - Location of future trolley stop is not yet determined and is currently under discussion

Trip Generation

To develop estimates of how much traffic the proposed Chicago Children's Museum would generate, Metro referenced information provided by the Chicago Children's Museum and a report titled *Attendance Potential of the New Chicago Children's Museum at Daley Bicentennial Plaza* prepared by ConsultEcon, Inc., dated May 2006. The ConsultEcon report provides attendance projection and transportation mode split data for the proposed museum.

The first step in estimating the trip generation includes determining the average number of visitors per vehicle as summarized below:

> Current Annual Visits ¹	=	500,000
> % Arrival by Auto (car) ² via East Monroe Garage	=	55%
> % Arrival by Auto (taxi) ²	=	9%
> Annual Visitors Arriving by Auto (annual visits x % auto)	=	320,000
> Estimated Annual Parked Vehicles ¹	=	125,000
> Estimated Current Average Visitors / Vehicle	=	2.56

1 - Source: Chicago Children's Museum

2 - Source: *Attendance Potential of the New Chicago Children's Museum at Daley Bicentennial Plaza*, ConsultEcon, Inc., May 2006

Based on the average visitors per vehicle and the mid-range projected attendance scenario (811,000 annual stabilized attendance) presented in the *Attendance Potential of the New Chicago Children's Museum at Daley Bicentennial Plaza* report, Metro estimated 519,040 annual visitors arriving by auto. Metro then applied the 2.56 visitors/vehicle factor and daily and hourly distribution characteristics of visitor arrivals and departures, based on the *Potential Attendance Patterns Evaluation for the Chicago Children's Museum* report prepared by ConsultEcon, Inc. in May 2004, to estimate the museum peak arrival and departure auto (cars + taxis) trip generation. Table 3 presents the estimated Average Day and Peak Day museum peak hour trip generation for the Chicago Children's Museum.

Table 3. Trip Generation Estimate - Peak Museum Hours¹

Time Period	Scenario			
	Average Day ²		Peak Day ²	
	In	Out	In	Out
10:00 AM - 11:00 AM	120	0	465	0
1:00 PM - 2:00 PM	110	105	420	410

1 - Based on Mid-Range Attendance Scenario (811,000 annual stabilized attendance) from *Attendance Potential of the New Chicago Children's Museum at Daley Bicentennial Plaza*, May 2006, prepared by ConsultEcon, Inc.

2 - Per distribution of arrivals and departures from *Potential Attendance Patterns Evaluation for the Chicago Children's Museum*, May 2004, prepared by ConsultEcon, Inc.

As previously stated, the typical peak hours of traffic on the surrounding roadways do not coincide with the museum's peak hours.

Directional Distribution

The directional distribution of site traffic is dependent upon various factors, including the proposed land use, the nature of the adjacent roadway network, access configurations, and local population centers. The expected directional distribution of site traffic for the proposed Chicago Children's Museum is summarized in Table 4 and illustrated in Figure 6.

Table 4. Directional Distribution

To / From	Percent Distribution
North on Lake Shore Drive	30%
South on Lake Shore Drive	15%
North on Columbus Drive (Intermediate-Level)	10%
South on Columbus Drive (Intermediate-Level)	25%
North on Michigan Avenue	10%
South on Michigan Avenue	10%
Total	100%

Site-Generated Traffic Assignment

The assignment of site-generated traffic on the surrounding roadways and intersections represents the museum's trip generation estimate in conjunction with the anticipated directional distribution. In order to be conservative in the analysis, Metro assigned the site-generated traffic associated with a Peak Day at the Chicago Children's Museum, as presented in Table 3. A Peak Day condition at the Chicago Children's Museum represents a Saturday during the summer season.

The morning and afternoon peak hour site traffic assignments associated with a Peak Day at the museum are presented in Figure 7.

Background Development Growth

Within recent years, growth in new development, particularly residential development, has occurred north of the proposed site as part of the Lakeshore East development. Overall, the master plan for the Lakeshore East development includes 4,834 residential units (condominium and apartment), almost 1.9 million square feet of office space, and 1,112 hotel rooms. To date, a portion of Lakeshore East development has been constructed and occupied. Other components of the development are either under construction or have yet to begin construction.

In order to reflect the traffic growth associated with the Lakeshore East development in the analysis of future conditions at the study intersections, Metro referenced a traffic study for the Lakeshore East development, prepared by Kenig, Lindgren, O'Hara, Aboona, Inc. and dated December 8, 2000. Projected weekday peak hour traffic volumes associated with the Lakeshore East development and representing the overall development plan, as presented in the study, were included in the weekday and Saturday analysis of future conditions for the Chicago Children's Museum study.

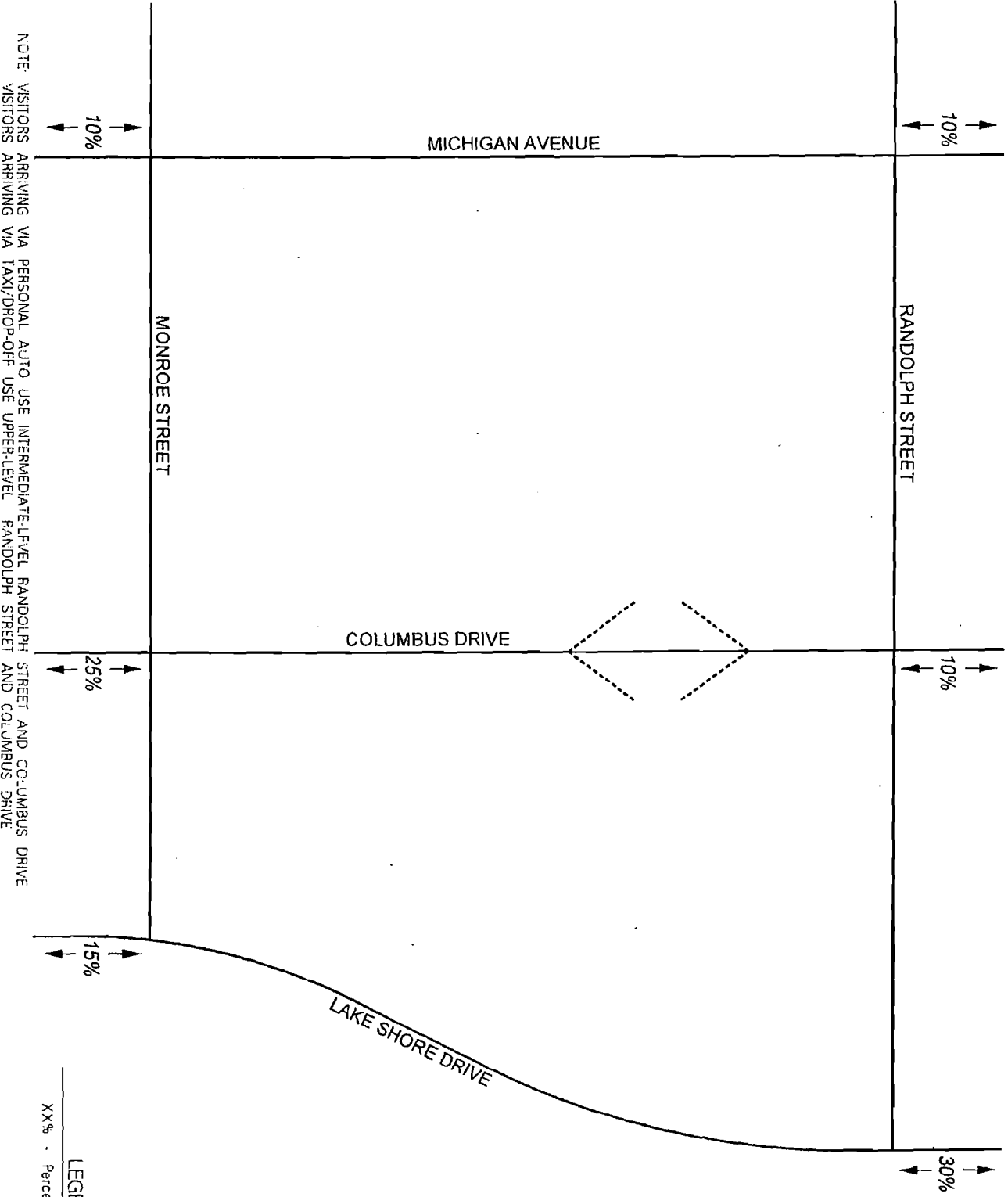
However, a portion of the Lakeshore East development is currently constructed, occupied, and generating traffic. The traffic currently being generated by completed portions of the development is included in the traffic counts conducted for this study and accounted for in the existing traffic volumes (Figure 2 and Figure 3). Thus, including all peak hour traffic associated with the entire

Lakeshore East development in the analysis of future conditions is very conservative and double-counts the existing Lakeshore East traffic.

In addition, the peak hours for the museum are 10:00 AM to 11:00 AM and 1:00 PM to 2:00 PM. These peak hours do not coincide with the typical weekday peak hours of traffic on the adjacent roadway network. The traffic study for the Lakeshore East development included weekday peak hour traffic projections that coincide with the typical peak hours of the adjacent street, which is appropriate considering that residential and office uses have similar peak hours as the surrounding streets. However, the analysis incorporating the peak hour traffic volumes generated by Lakeshore East are much greater than what it generates during the museum's peak hours. Thus, adding the peak hour traffic from Lakeshore East to the analysis representing the museum's peak hours is also a very conservative approach.

Total Traffic Assignment

The total traffic assignment represents the projected future traffic volumes on the surrounding roadways upon relocation of the Chicago Children's Museum. This was determined by combining the existing traffic volumes, site-generated traffic assignment for the museum, and Lakeshore East traffic. Although the Peak Day condition for the Chicago Children's Museum represent a summer Saturday and the Lakeshore East development traffic projections represent weekday peak hours, both scenarios were added to the existing weekday and Saturday traffic volumes to again, very conservatively develop the future weekday and Saturday traffic projections. Total traffic assignments for the museum's weekday and Saturday peak hours are illustrated in **Figure 8** and **Figure 9**, respectively.



NOT TO SCALE

LEGEND
 XXX% - Percent Distribution

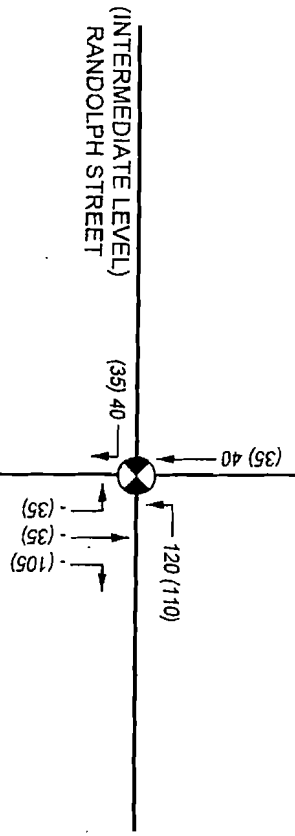
NOTE: VISITORS ARRIVING VIA PERSONAL AUTO USE INTERMEDIATE-LEVEL RANDOLPH STREET AND COLUMBUS DRIVE
 VISITORS ARRIVING VIA TAXI/DROP-OFF USE UPPER-LEVEL RANDOLPH STREET AND COLUMBUS DRIVE



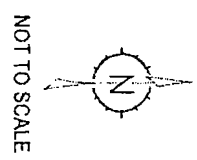
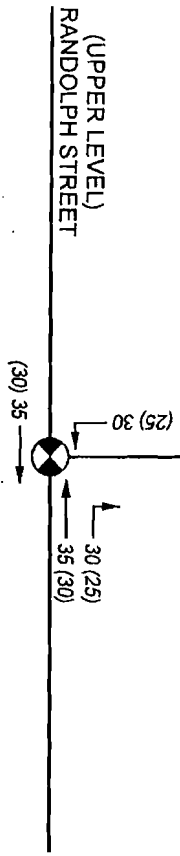
DIRECTIONAL DISTRIBUTION

FIGURE: 6


(INTERMEDIATE LEVEL)
COLUMBUS DRIVE



(UPPER LEVEL)
COLUMBUS DRIVE



LEGEND

- XX - Weekday A.M. Peak Hour (10:00-11:00 AM)
- (XX) - Weekday P.M. Peak Hour (1:00-2:00 PM)
- - - Less Than 5 Vehicles
-  - Existing Signal

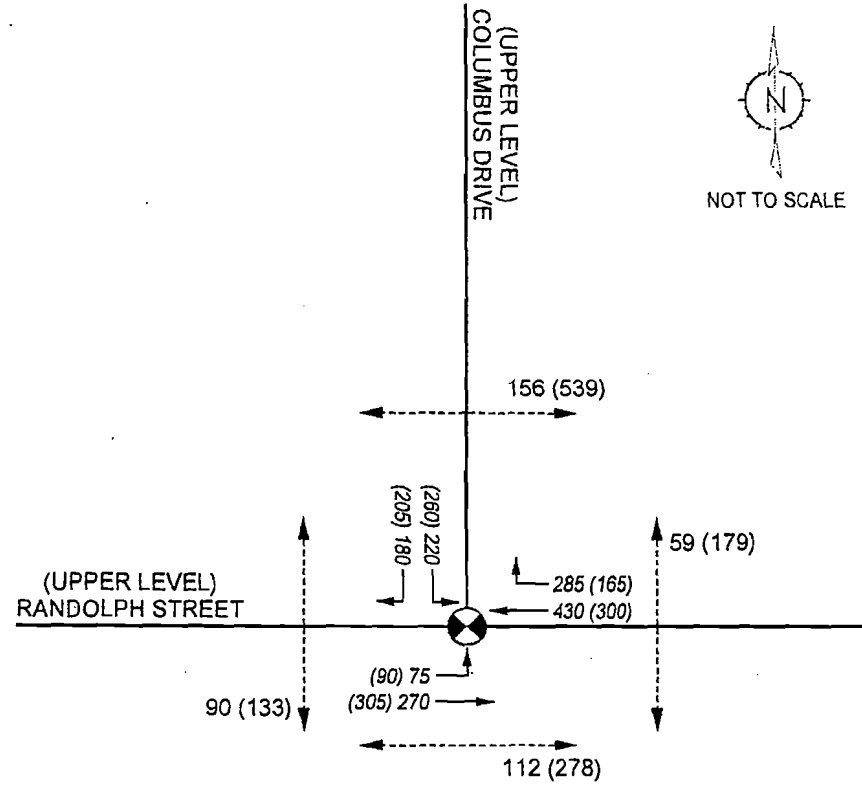
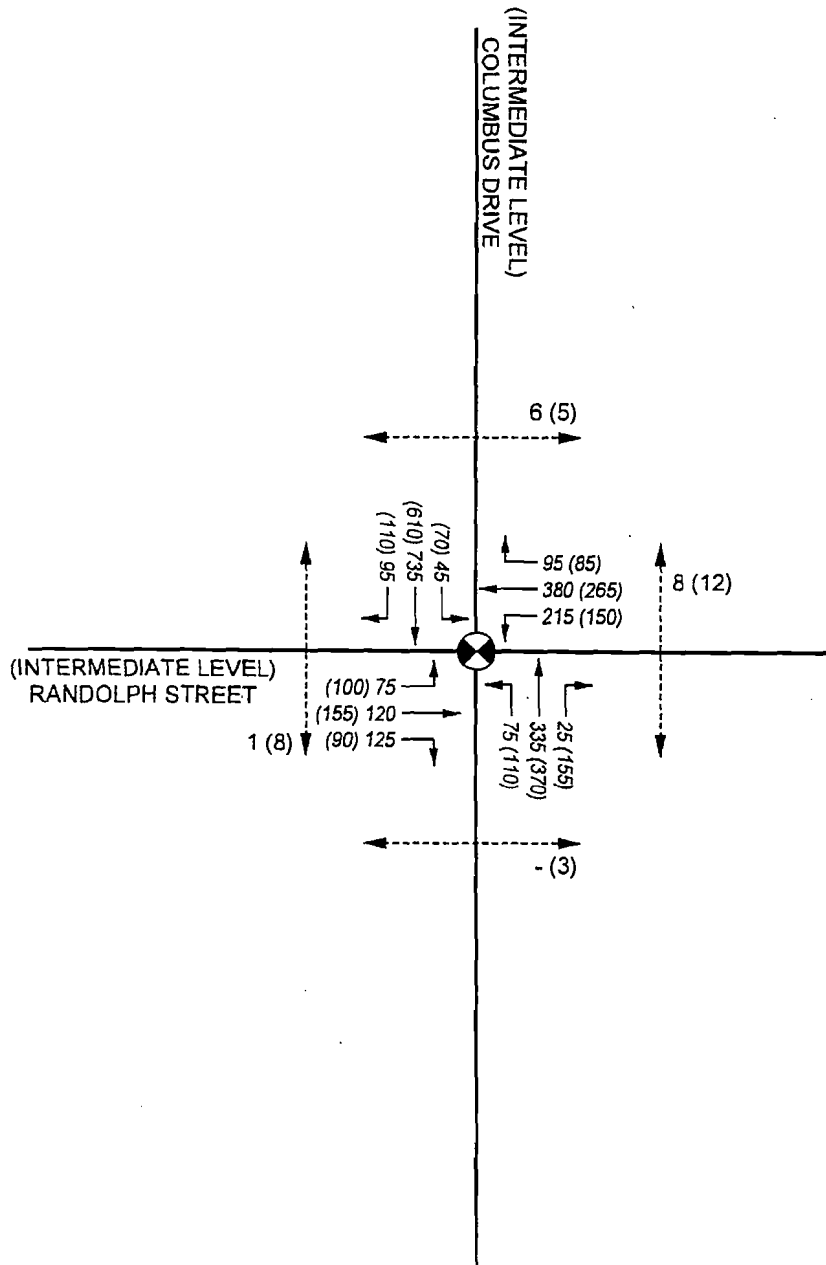
**SITE TRAFFIC ASSIGNMENT
MUSEUM PEAK DAY**



FIGURE: 7



NOT TO SCALE



LEGEND

XX - Weekday A.M. Peak Hour (10:00-11:00 AM)

(XX) - Weekday P.M. Peak Hour (1:00-2:00 PM)

- - Less Than 5 Vehicles

⊗ - Existing Signal

⊔ XX (XX) - Pedestrian Crosswalk and Counts

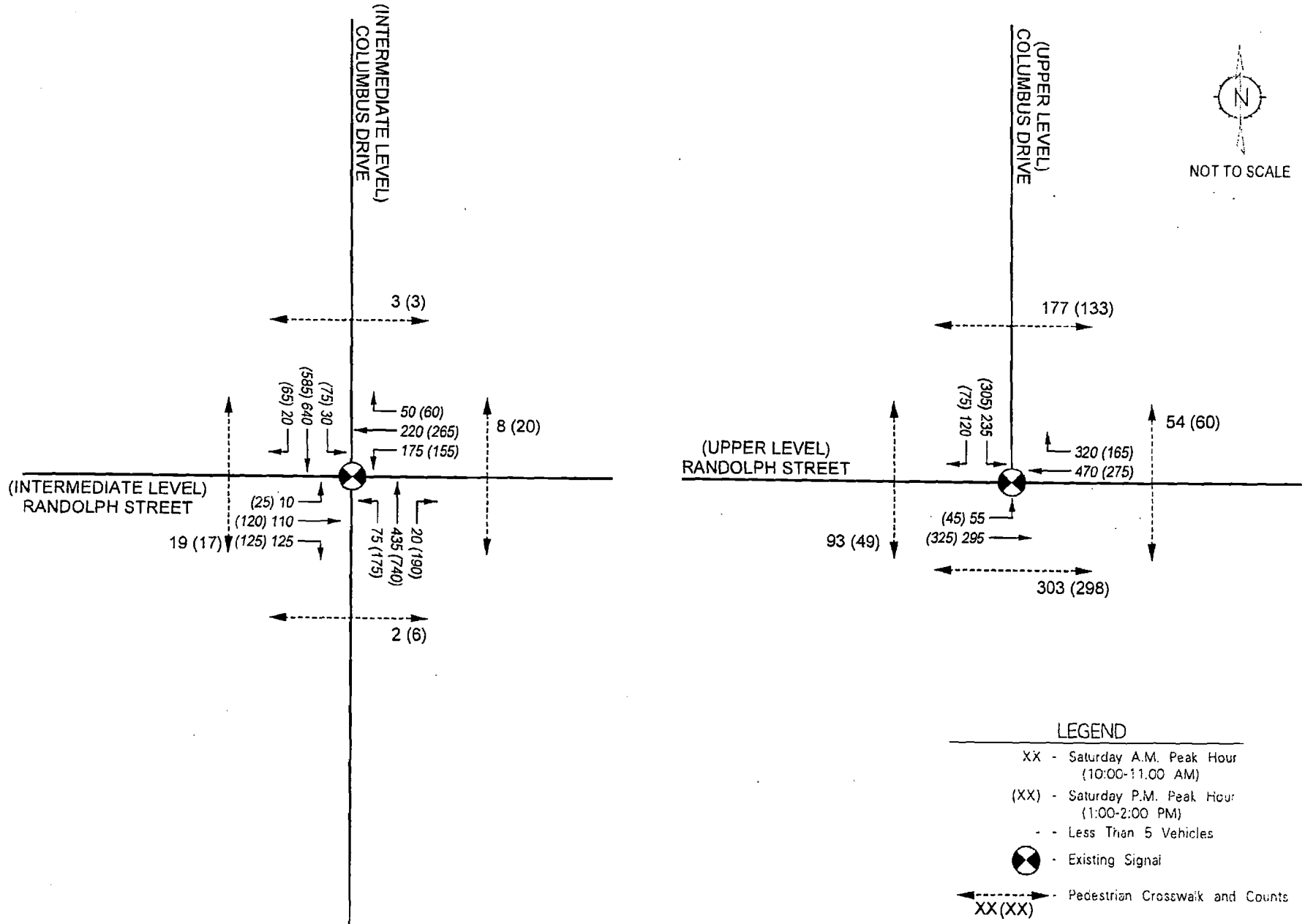


TOTAL TRAFFIC ASSIGNMENT
WEEKDAY

FIGURE: 8



NOT TO SCALE



TOTAL TRAFFIC ASSIGNMENT
SATURDAY

FIGURE: 9

Projected Parking Demand

Currently, the East Monroe Parking Garage has a supply of 3,800 parking spaces. In order to accommodate the conceptual building footprint for the Chicago Children's Museum, approximately 350 to 400 parking spaces within the garage would be displaced. In addition, the Chicago Children's Museum will generate new parking demand at the East Monroe Parking Garage. Based on the average visitors per vehicle and the mid-range attendance scenario (811,000 annual stabilized attendance) presented in the *Attendance Potential of the New Chicago Children's Museum at Daley Bicentennial Plaza* report and the average visitors per vehicle and hourly arrival/departure characteristics published in the *Potential Attendance Patterns Evaluation for the Chicago Children's Museum, May 2004* report prepared by ConsultEcon, Metro estimated the museum-generated parking demand presented in Table 5.

Table 5. Projected Parking Demand¹

Description	Scenario	
	Average Day ²	Peak Day ²
Daily	610	2,205

Parking Demand Distribution

9:00 AM	80	305
10:00 AM	185	700
11:00 AM	225	850
12:00 PM	190	710
1:00 PM	190	720
2:00 PM	195	710
3:00 PM	145	485
4:00 PM	75	200
5:00 PM	25	45
6:00 PM	0	0

1 - Based on Mid-Range Attendance Scenario (811,000 annual stabilized attendance) from *Attendance Potential of the New Chicago Children's Museum at Daley Bicentennial Plaza, May 2006*, prepared by ConsultEcon, Inc.

2 - Per distribution of arrivals and departures from *Potential Attendance Patterns Evaluation for the Chicago Children's Museum, May 2004*, prepared by ConsultEcon, Inc.

ANALYSIS & RECOMMENDATIONS

An analysis of the study area intersections was conducted for existing and future traffic conditions. Recommendations are identified, as necessary, in order to accommodate the traffic and parking volumes associated with the museum. These analyses and recommendations are summarized below.

Capacity Analyses

Capacity analyses were conducted at the upper- and intermediate-level Randolph Street/Columbus Drive intersections to evaluate the current level of traffic operations. The capacity analyses were conducted for the museum's weekday and Saturday hours of peak arrival and departure.

The capacity and effectiveness of how well an intersection operates is measured in terms of Levels of Service (LOS). Levels of Service range from LOS "A" (best) to LOS "F" (worst). The minimum intersection LOS that is generally accepted in Northeastern Illinois is LOS "D". However, due to the traffic characteristics of dense urban areas such as downtown Chicago and the near north area, it is not uncommon to have intersections operating at LOS "E" or LOS "F" during peak travel periods. Table 6 summarizes the capacity analyses of existing conditions and future conditions for the museum's weekday and Saturday peak hours.

Table 6. Intersection Capacity Analysis

Intersection	Weekday		Saturday	
	Peak Arrival (10:00 - 11:00 AM)	Peak Departure (1:00 - 2:00 PM)	Peak Arrival (10:00 - 11:00 AM)	Peak Departure (1:00 - 2:00 PM)
<i>Existing Conditions</i>				
Randolph Street / Columbus Drive (upper-level)	B	B	B	B
Randolph Street / Columbus Drive (intermediate-level)	C	C	C	C
<i>Future Conditions</i>				
Randolph Street / Columbus Drive (upper-level)	B	B	B	B
Randolph Street / Columbus Drive (intermediate-level)	C	C	C	C

Based on the capacity analysis of the museum's peak arrival and departure hours, the upper and intermediate-level Randolph Street/Columbus Drive intersections currently operate well at LOS C at the intermediate-level intersection and LOS B at the upper-level intersection. Analysis of the future conditions, including the addition of museum generated and Lakeshore East traffic, indicates that the

intersection levels of service remain at LOS C and LOS B at the intermediate and upper-levels of the Randolph Street/Columbus Drive intersection, respectively.

Pedestrian Access

As previously mentioned pedestrians may access the proposed museum at various locations including upper-level Randolph Street and via Daley Bicentennial Plaza. Currently, pedestrian crosswalks are maintained at the Randolph Street/Columbus Drive intersections and the upper-level Randolph Street/Field Drive intersection. CDOT has current plans to reconfigure lane markings, pedestrian crosswalks, pedestrian curb ramps, and traffic control signage at the upper-level Randolph Street/Field Drive intersection to simplify traffic and pedestrian movements and improve pedestrian safety. The existing pedestrian paths through Daley Bicentennial Plaza, the BP Pedestrian Bridge spanning Columbus Drive, existing sidewalks and crosswalks at nearby intersections, CDOT's planned crosswalk improvements at the Randolph Street/Field Drive intersection, and the multiple pedestrian access locations for the proposed museum will collectively provide for safe and effective pedestrian circulation and access.

Parking Analysis

As previously mentioned and shown in Table 1, the East Monroe Parking Garage is currently underutilized. The peak parking demand occurred on a Friday in August, coinciding with a Chicago Bears pre-season game, when 1,844 spaces remained unoccupied and available for parkers. Based on the parking demand estimates presented in Table 4 and the current parking characteristics at the East Monroe Parking Garage, the parking structure would accommodate the conceptual footprint of the museum and the anticipated parking demand generated by the museum throughout most of the year.

During the week of July 4th, when the East Monroe Parking Garage accommodates many visitors for the Taste of Chicago, parking for museum visitors may be limited. Visitors, who attend the museum during that timeframe, may also park in the nearby Millennium Park Garage, private parking garages within a few blocks to the north or west, or may choose an alternate mode of transportation.

Bus Pick-Up / Drop-Off Operations

The Chicago Children's Museum is a popular destination for many schools and other organized group visits via bus. Currently, these group visits to the museum generate up to 15 buses a day. These buses typically drop-off and pick-up in groups of four at a time, with drop-offs occurring between 10:00 AM and 11:00 AM and pick-ups occurring between 11:30 AM and 12:30 PM. Between dropping off and picking up passengers, the buses leave the museum and stage off-site.

The designated area serving bus pick-up/drop-off activities is planned along the south side of intermediate-level Randolph Street. In order to define a protected bus pick-up/drop-off location, modifications are proposed to eliminate the southern eastbound travel lane along intermediate-level Randolph Street from the Randolph Street/Columbus Drive intersection to just east of the proposed site. The southern curb of Randolph Street would be extended north to provide a bus pick-up/drop-

off lane adjacent to the site, then transition back to the existing curb east of the site approaching the ramp intersections at Lake Shore Drive.

Currently, intermediate-level Randolph Street provides three eastbound lanes exiting the Randolph Street/Columbus Drive intersection and adjacent to the site. Given that only two eastbound lanes approach the intermediate-level Randolph Street/Columbus Drive intersection, modifying the southern eastbound lane to accommodate the bus pick-up/drop-off lane will not negatively impact eastbound thru traffic along Randolph Street from west of Columbus Drive. Based on a preliminary meeting with CDOT, this concept is feasible.

Buses would access the pick-up/drop-off lane from eastbound intermediate-level Randolph Street along the north side of the museum. Similar to the operations at the current museum, the buses would leave the pick-up/drop-off and park elsewhere between dropping off and picking up passengers. It should be emphasized that buses will park off-site after dropping off and before picking up passengers. Buses will not sit idling in the pick-up/drop-off lane or along any level of Randolph Street.

Although four buses currently pick-up and drop-off passengers at one time at the existing location on Navy Pier, Metro recommends that the bus pick-up/drop-off lane should provide 400 feet of storage to accommodate loading and staging operations for up to eight buses at one time. Stacking capacity for eight buses accommodates a variation in arrival and departure schedules and avoids buses from stacking on intermediate-level Randolph Street and its intersection with Columbus Drive. Increased bus stacking area would accommodate growth in group activity consistent with the projected growth in annual attendance.

Loading / Service Operations

All deliveries, service vehicles, and loading operations for the museum are proposed via loading docks accessible via lower-level Randolph Street east of Columbus Drive. Due to low traffic volumes adjacent to the site along lower-level Randolph Street, loading activities will have a minimal impact on existing traffic operations.

SUMMARY

Based on Metro's review and analysis, the proposed relocation of the Chicago Children's Museum will be accommodated by the adjacent roadways, intersections, access locations, and parking facilities. Due to the peak hours of visitor arrivals and departures occurring outside of the peak hours of the surrounding roadways, the relocation of the Chicago Children's Museum will have a minimal traffic impact on the adjacent roadway system. Traffic volumes on the adjacent street system are considerably higher during the typical peak hours of the surrounding area compared the museum's peak hours. Visitors arriving by personal auto will park at the East Monroe Parking Garage accessible via intermediate-level Columbus Drive. Thus, only a small portion of auto trips to the museum, including taxis, may utilize upper-level Randolph Street to access the proposed site.

The 3,800-space East Monroe Parking Garage is currently underutilized and can accommodate parking supply displaced by the proposed facility as well as new parking demand generated by museum visitors.

In order to provide a designated and protected pick-up/drop-off area for buses, modifications are proposed along the south side of intermediate-level Randolph Street to eliminate the southern eastbound travel lane along the site frontage and convert it to a bus pick-up/drop-off lane. The modified curb would transition back to the existing condition east of the site approaching the Lake Shore Drive ramp intersections at Randolph Street.