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MEMORANDUM

Date: January 28, 2014

Re: **Proposed Access Traffic Demand – Eden Gardens**
File R0001581

To: Rod Rue, City Engineer, City of Eden Prairie

From: Steve Manhart, P.E., PTOE, PTP

Per your request, Westwood Professional Services has reviewed at the traffic impacts of the proposed Eden Gardens development and its planned access between Scenic Heights Road and the existing neighborhood via Thatcher Road. The Eden Garden development proposes the addition of thirty-six single-family residences on the 8½ acre site in the southwest quadrant of Scenic Heights Road and Eden Prairie Road. The main access for these residences will be a new street that connects to Scenic Heights Road to the north and Thatcher Road to the west. Scenic Heights Road serves as a frontage road to Trunk Highway 212, and intersects with Eden Prairie Road just to the east of this new intersection.

Neighborhood Access

This connection between Thatcher & Scenic Heights Road as proposed by the Eden Gardens project will introduce a new traffic pattern for the area. Until now, there have been two primary access points used by drivers in the neighborhood -- the intersection of Braxton Drive & Scenic Heights Road to the north, and the intersection of Candlewood Parkway & Eden Prairie Road to the east. Currently, Thatcher Road north of Stanley Trail exists as a dead end.

Estimations have been made as to existing influence areas for these neighborhood connections to the surrounding arterial system. Much like water in a watershed, drivers will use the path of least resistance to arrive at their destination. Therefore, “travelsheds” have been drawn that identify the extents of drivers’ preferences entering and exiting the neighborhood. Currently, the travelsheds split the neighborhood traffic traveling to and from the surrounding arterial system – 161 households would tend to use the intersection of Braxton Drive & Scenic Heights Road; and 137 households would tend to use Candlewood Parkway & Eden Prairie Road.



The new Eden Gardens connections with Thatcher Road and Scenic Heights Road will modify these travelsheds. Based on the proximity to Scenic Heights Road and Eden Prairie Road, it is estimated that 56 existing households will tend to use the new intersections rather than to use either of the existing access points -- via Braxton Drive or Candlewood Parkway. By adding in the development's proposed 36 residences, a total of 92 households will likely use these new intersections.

Subsequently, these connections will reduce the number of households using the other two intersections. Figure 2 illustrates this new travelshed as well as the reduced travelsheds using the intersection of Braxton Drive & Scenic Heights Road (161 households in before condition to 133 households in after condition); and for the intersection of Candlewood Parkway & Eden Prairie Road (137 in the before condition to 109 households in the after condition).

Trip Generation

An estimate of the trips generated by this new development was developed using the ITE Trip Generation Manual, 9th Edition (See Table 1.).

Table 1. Proposed Trip Generation – Eden Gardens Development

Proposed Land Use	No. of Units	Daily Trips	A.M. Peak Hour	P.M. Peak Hour
Single Family Detached Housing (Land Use Code 210)	36	343 trips/day	27 trips/hr.	36 trips/hr.

Source: ITE Trip Generation Manual, Ninth Edition, Institute of Transportation Engineers, Washington, DC, 2012.

Westwood then projected the impact of the redirected traffic within the new travelshed with the new trips from the development. Figure 3 illustrates the A.M. and P.M. Peak Hour Build Conditions for the area.

Nearly all of the traffic generated by the Eden Gardens development will utilize the new intersection with Scenic Heights Road, as shown on Figure 3. Very few trips from this development are projected to filter along the existing street network of Thatcher Road, Stanley Trail, Milford Drive or other neighborhood streets.

Queue Lengths and Turn Lane Impacts

These traffic projections were then used to create a traffic model utilizing Synchro/SimTraffic software. The Synchro/SimTraffic analysis of the new connection with Scenic Heights Road provided projected peak hour queue lengths for each turn movement. For the westbound left turn movement from Scenic Heights Road onto the new street connection, the P.M. Peak Hour traffic generated a 95th percentile queue length of 28 feet, with a maximum queue length of 53 feet. Therefore, the proposed left turn lane design is recommended to be at least 50 feet with an appropriate transition.

The northbound movement at the intersection is a shared right and left turn lane. The distance between Scenic Heights Road and Thatcher Road is approximately 100 feet. The Synchro/SimTraffic modeling of this movement indicates a maximum queuing of traffic length of 53 feet. Therefore, the approach length of 100 feet is adequate to meet the anticipated traffic turning onto Scenic Heights Road.

Conclusions

The Eden Gardens development will generate new trips but the vast majority will not result in negative impacts to the existing neighborhood. The new access onto Scenic Heights Road will alter traffic patterns for the neighborhood. Existing residents along Thatcher Road will see an increase in traffic as their street changes from a dead end to a through street. Nevertheless, as some households shift to this new access, there will be fewer households that will utilize the existing neighborhood access points of Braxton Drive & Scenic Heights Road or Candlewood Parkway & Eden Prairie Road. In conclusion, there will be a leveling of traffic demand between the three access points.

The proposed intersection design will accommodate the anticipated traffic. Turning movements from westbound Scenic Heights Road will require approximately fifty feet of queuing. The northbound approach to Scenic Heights Road will be accommodated by the shared right- and left-turn lane segment north from the Thatcher Road intersection. The intersection design can be accommodated within the existing right-of-way.

Cc: Cory Meyer, Westwood Project Manager
Vern Swing, Westwood Professional Service

APPENDIX

Traffic Count

Scenic Heights Road west of Eden Prairie Road

January 22-23, 2014 (48-hour counts taken via video camera)

ADT: **2,503 trips/day** (Day1=2,466, Day 2=2,540)

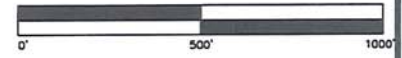
Peak Hour Directional Counts:

Peak Hour Count	Eastbound	Westbound
AM (7:00-8:00)	211 trips/hr	58 trips/hr
PM (5:00-6:00)	84 trips/hr	187 trips/hr



Legend

- TRAVELSHED BOUNDARY —
- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION



Date: 1/28/14
Travelshed & Volumes.dwg

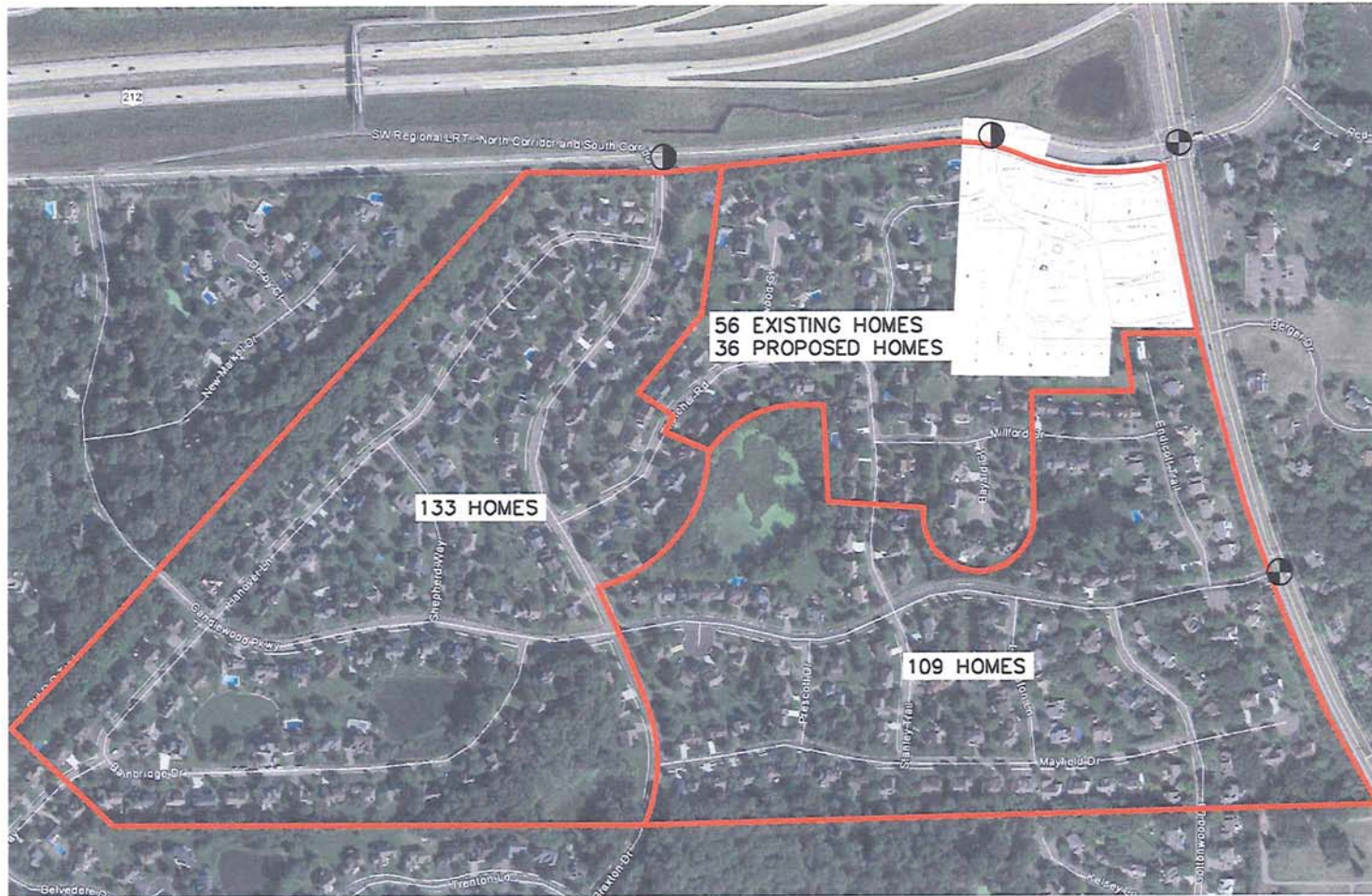
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Client: _____
Contract: _____
Dates: _____
Revised Drawing by/Date: _____

Prepared for:
Homestead Partners
525 15th Avenue South
Hopkins, MN 55343

**Eden
Gardens**
Eden Prairie, MN

**Eden Gardens
Neighborhood Existing
Access Travelshed**
Exhibit 1



Legend

- TRAVELSHED BOUNDARY —
- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION



Date: 1/28/14

Travelshed & Volumes.dwg

**Eden Gardens
Neighborhood New
Access Travelshed**

Exhibit 2



Westwood Professional Services, Inc.
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Owner: _____
Checked: _____
Desired: _____
Record Drawing by/Date: _____

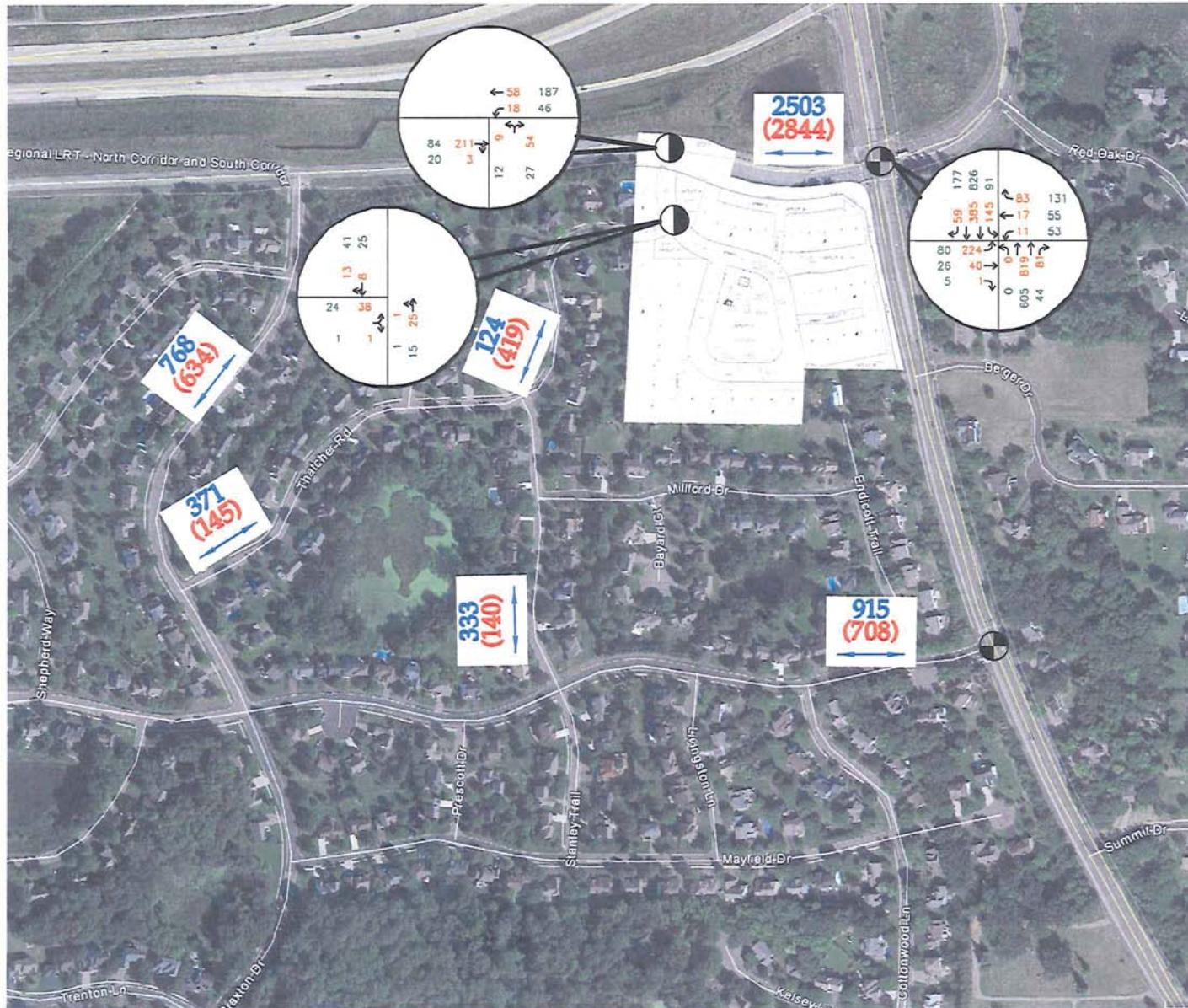
Prepared for:

Homestead Partners

525 15th Avenue South
Hopkins, MN 55343

**Eden
Gardens**

Eden Prairie, MN

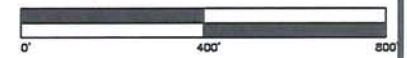


Legend

LANE DESIGNATION	
AM PEAK HOUR VOLUME	XX
PM PEAK HOUR VOLUME	XX
SIGNALIZED INTERSECTION	
UNSIGNALIZED INTERSECTION	
EXISTING ADT	XXX
PROJECTED BUILD ADT	(XXX)

NOTE:

THE TURNING MOVEMENT COUNT DATA AT EDEN PRAIRIE ROAD & SCENIC HEIGHTS ROAD WAS OBTAINED FROM HENNEPIN COUNTY. OTHER TURNING MOVEMENTS WERE ESTIMATED.



Date: 1/28/14

Traffshed & Volumes.dwg



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Client: _____
Checked: _____
Drawn: _____
Issued Drawing by/date: _____

Prepared for:

Homestead Partners

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Hopkins, MN 55343

**Eden
Gardens**

Eden Prairie, MN

**Estimated Peak Hour
Volumes & ADTs**

Exhibit 3