



Near-Road NO₂ Monitoring

Air Board July 13, 2011

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Air Monitoring Supervisor

NO₂ Standard was Re-evaluated

- New Final Rule for 1-hour NO₂ National Ambient Air Quality Standard (NAAQS) published in Federal Register (FR) on February 9, 2010.
- E-copy of document online at:
- <http://www.epa.gov/ttn/naaqs/standards/nox/fr/20100209.pdf>

Standard is Essentially Unchanged

- 100 ppb, 1-hour average concentration.
- The annual standard (53 ppb, annual mean) will also continue.
- Attainment: Three-year average of the annual 98th percentile of the daily maximum 1-hour averages.
- Based on 2008-2010 data and existing continuous monitor, Albuquerque is compliant with the proposed new 1-hour NO₂ NAAQS.

However...

- New NO₂ Monitoring Rule Requires Monitoring site
 - In a high traffic area
 - Within 50 meters of the nearest traffic lane
- NO₂ dissipates quickly as it moves away from the source, so near-road monitoring will show higher values.
- No such site currently exists. Will have to be built from ground-up.
 - EPA funding is questionable
- The AQD participated in a “passive sampling” study to determine probable Roadside levels, and acceptable location.

Study Details

- 8 sampling locations set up in March, 2011.
- 1 sampling location contains transect at 25/35/45 meters away from nearest traffic lane of I-25. The 25 meter site also contains two heights (2 meters and 4 meters agl).
- 1-week integrated samples will be taken Monday AM to Monday AM for 5 weeks (weeks of April 4, 11, 18, 25 and May 2).
- Duplicate field samples taken at all sites and one set of duplicate field blanks for each weekly sampling period.



Part of National Pilot Project

- Albuquerque was one of five cities across the nation to participate in the passive NO₂ monitoring which was part of the national monitoring pilot project.
- Data will be helpful in assessment of potential permanent near-road NO₂ site for Albuquerque.
- Data results will also be a part of the national technical assistance document which is planned to be available to all States and Locals in fall, 2011.
- Analysis was done by EPA Region 6 Lab in Houston.

Preliminary Results

- All concentrations indicate that Albuquerque – Bernalillo Co will comply easily with the new NO₂ NAAQS.
- Passive measurements compared closely to continuous data at NCore reference site.
- Roadside data are higher than reference site, but differences are insignificant from a health perspective.
- Site 3 North of I40 at Lomas) showed the highest concentration during the trial period.
- (May be related to wind direction and Lomas overpass “berm”?)

Candidate Site Process

■ Criteria

- Public property Access Agreement
- Safe Access On Grade, No Obstructions
- 50 m distance High Traffic Volume
- Realistic Possibility for Permanent Site
 - Power, Data, Security, No Trees, Etc.

■ Google Earth

■ Ground Verification

■ Negotiate With Property Owner

Site Characteristics

	Site #1 Transit at 25, 35, and 45m	Site #2	Site #3	Site #4	Site #5 NCore, Reference
Latitude	35.136306°	35.086684°	35.087242°	35.102652°	35.134300°
Longitude	-106.604806°	-106.542765°	-106.541328°	-106.577438°	-106.585200°
Elevation (mean ft above sea level)	5010	5384	5392	5233	5213
Sampler distance from Roadway (m):	25, 35, 45	25	25	5	25
Sampler height (m):	2/4, 2, 2	2	2	4	2
What kind of road is it?	Interstate 25 & access Rd.	Interstate 40 & Lomas	Interstate 40 & Lomas	Interstate 40 & San Pedro	San Mateo (NCore reference site)
Traffic, vehicles per day	164500	98,600 + <u>20,200 =</u> 118,800	98,600 + <u>20,200 =</u> 118,800	145,300 + <u>9,600 =</u> 154,900	29300
Is there an interchange?	No	Overpass	Overpass	No	No
Does the road have noise barriers?	No	No	No	No	No
What type of vegetation?	None	None	None	None	Grassy playing field
Would vegetation inhibit siting?	NA	NA	NA	NA	No
Is the target road segment at, below or above grade?	On grade	On grade	On grade	On grade	On grade
Does site terrain have a variety of relative elevations?	Flat	Flat	Flat	Flat	Flat, small berm to East
What type of roadway safety features are along side the target road?	Guardrail	Guardrail	Guardrail	Guardrail	not next to street
How close are surrounding buildings/other non-road features from the edge of the target road?	nearest 106 m, single story	nearest 128 m, single story. Overpass 86m	None. Overpass 120 m	nearest 40 m, single story	nearest 57.5 m, single story
Characterize the surrounding land use.	Right of way	Right of way	Right of way	Right of way	High School athletics
Characterize the local meteorology	See attached doc	See attached doc	See attached doc	See attached doc	See attached doc
Intangibles – notes on candidacy to house a permanent monitoring station.	Good	Good	Good	Good	NA

Site Pictures: South I-40/Lomas



Site Pictures: East I-40/Lomas



Site Pictures: I-25 Sites

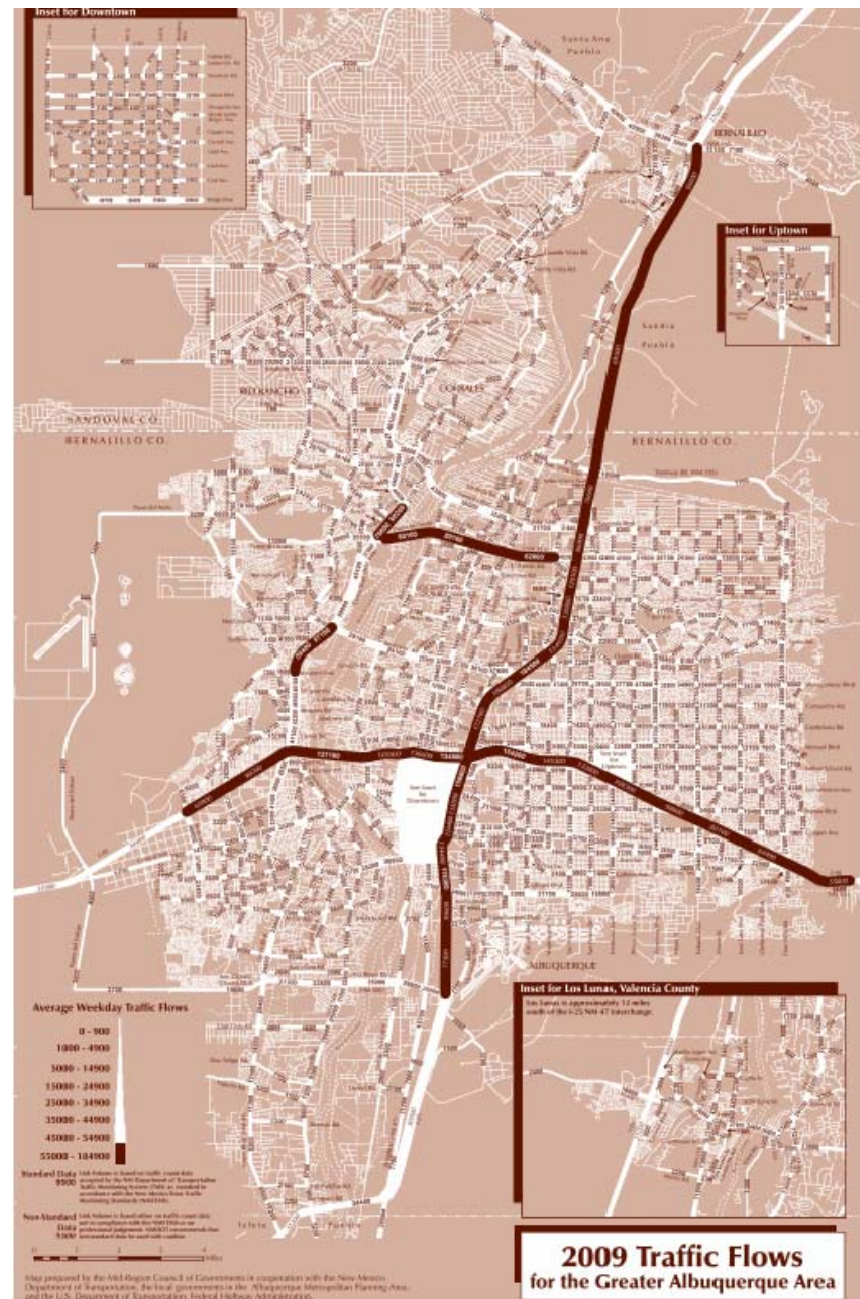


Filters Inside of “Shelters”

- Filter in clip



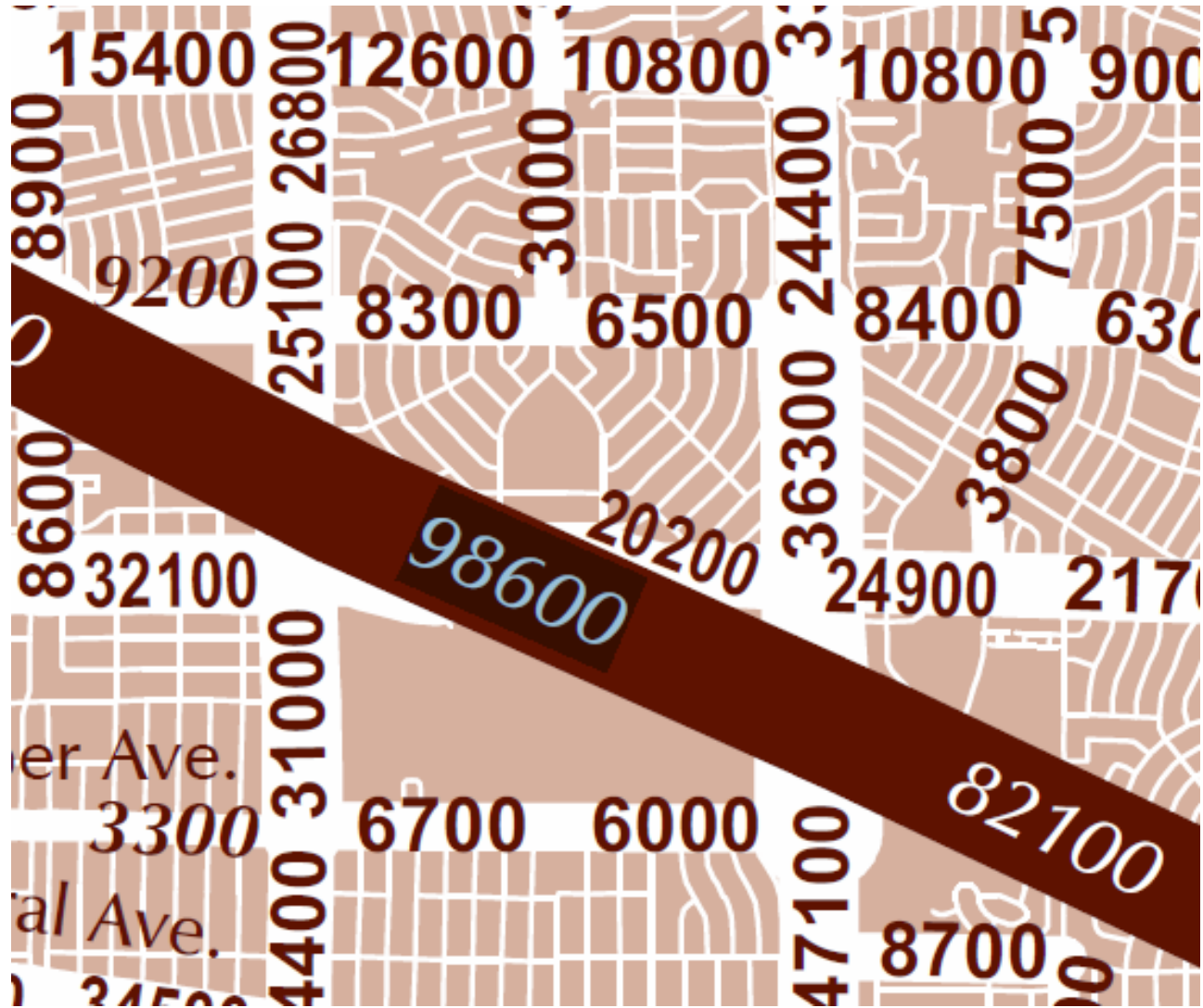
Traffic Data



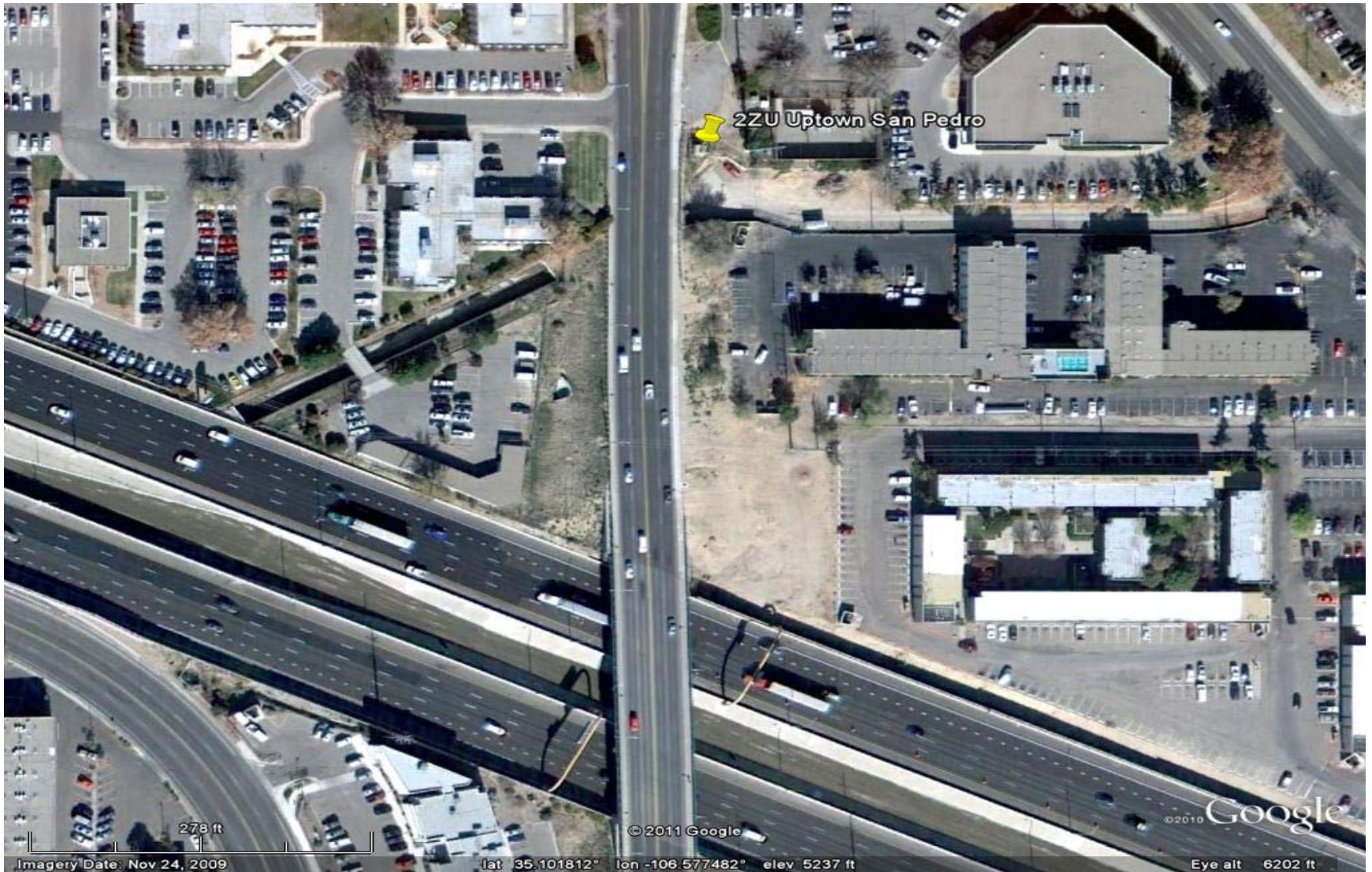
Sites #2 and #3



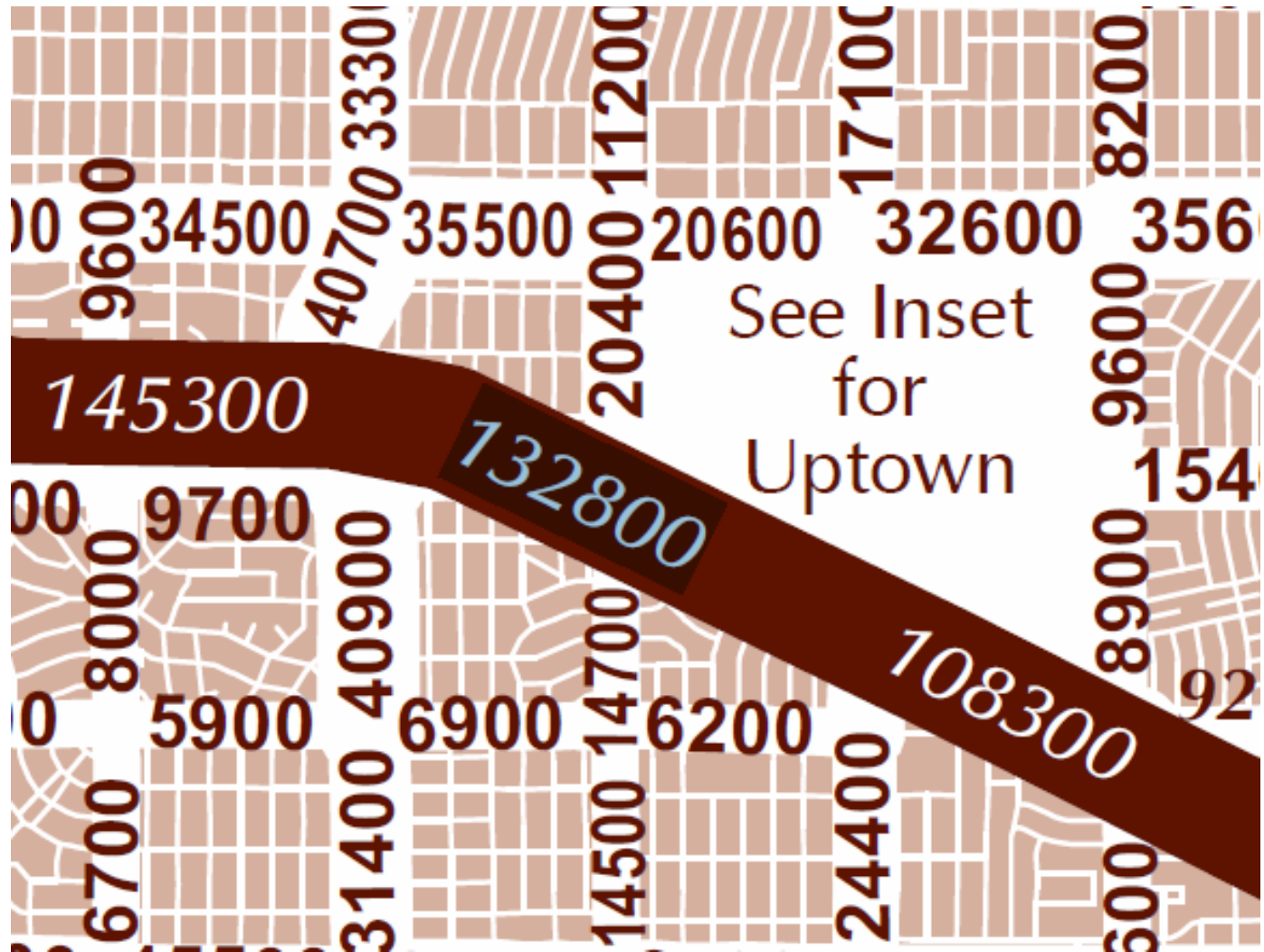
Site2 #2 & 3 Traffic



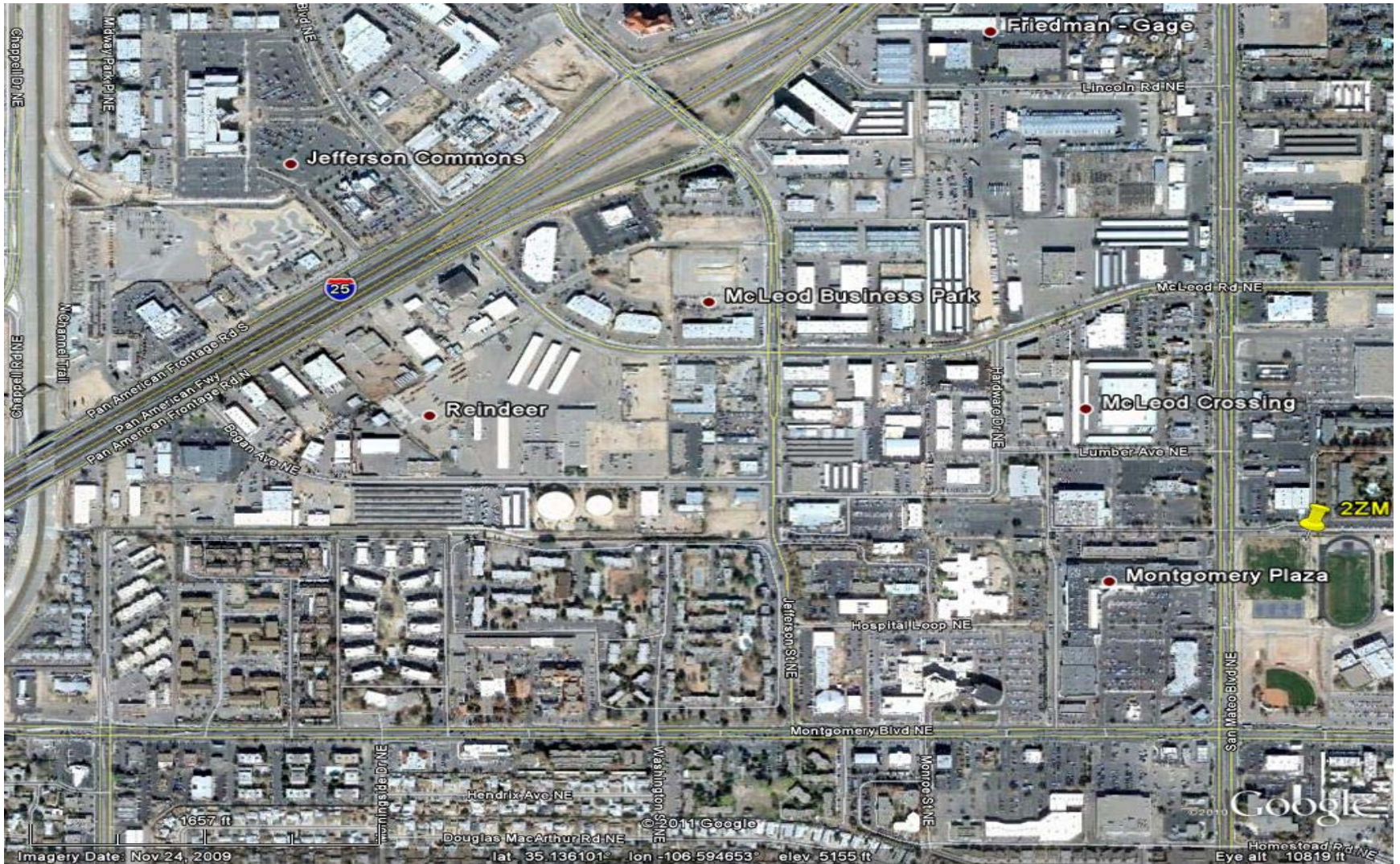
Site #4



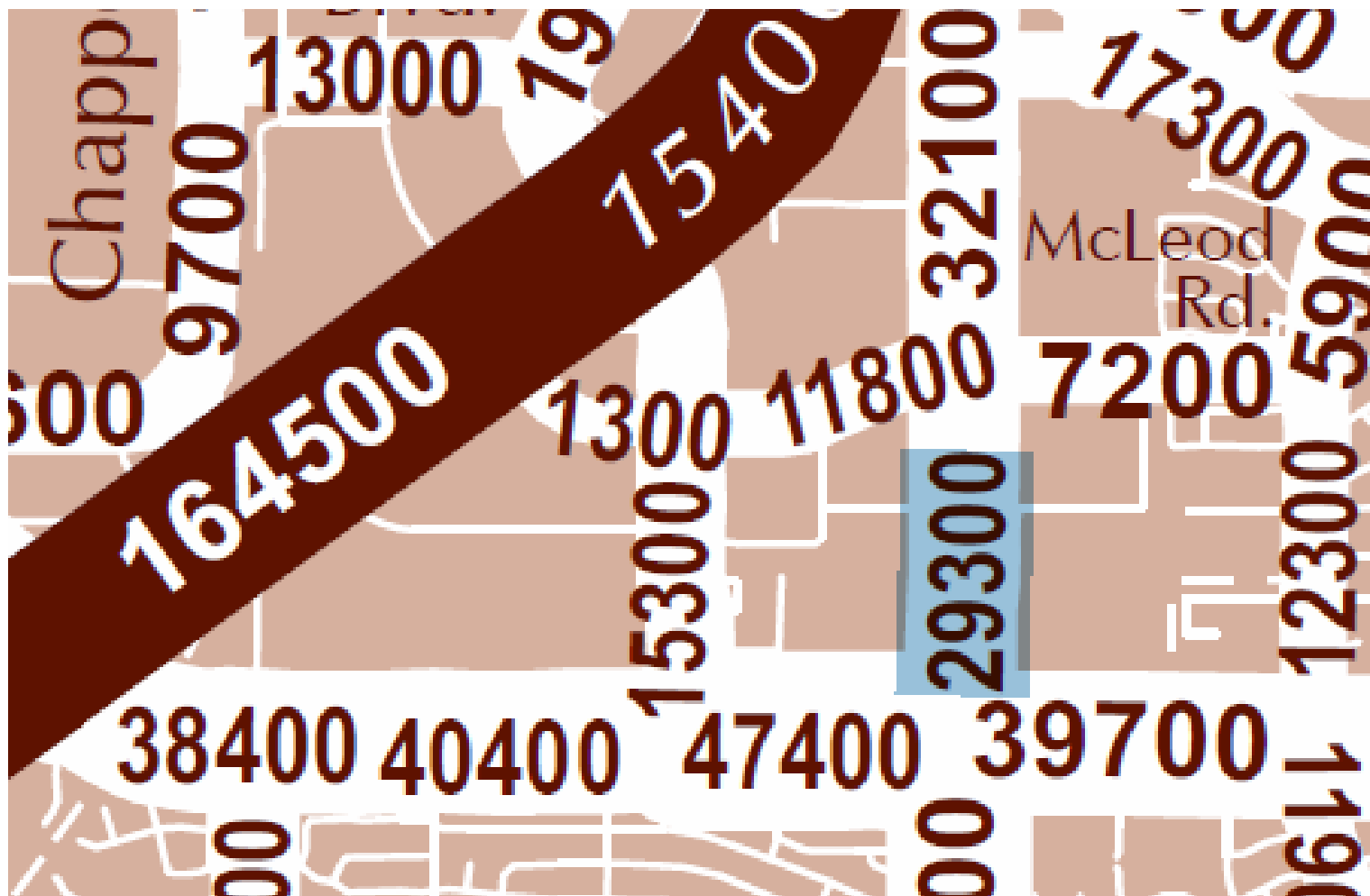
Site #4 Traffic



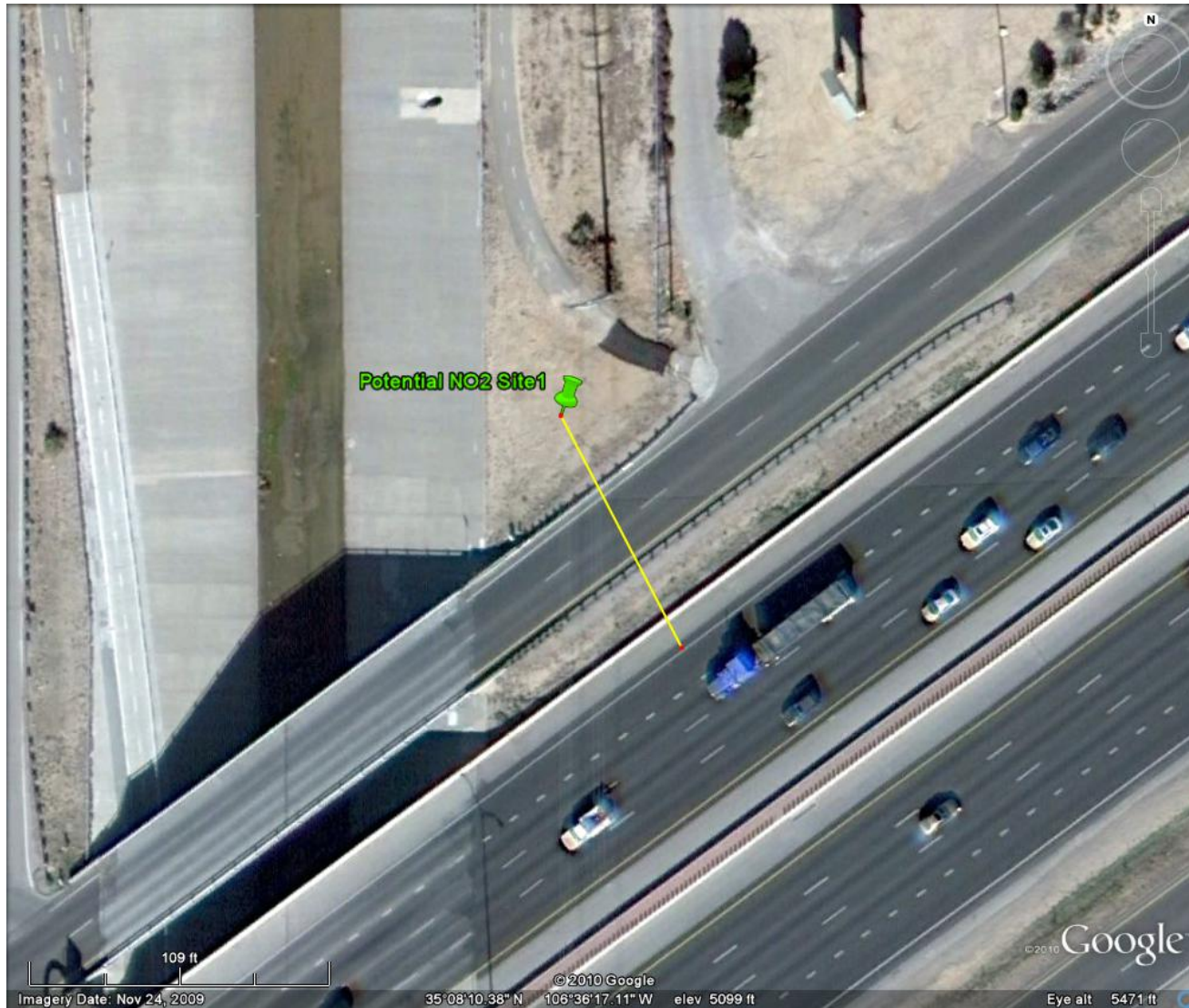
Site #5 (NCore, NO2 Reference)



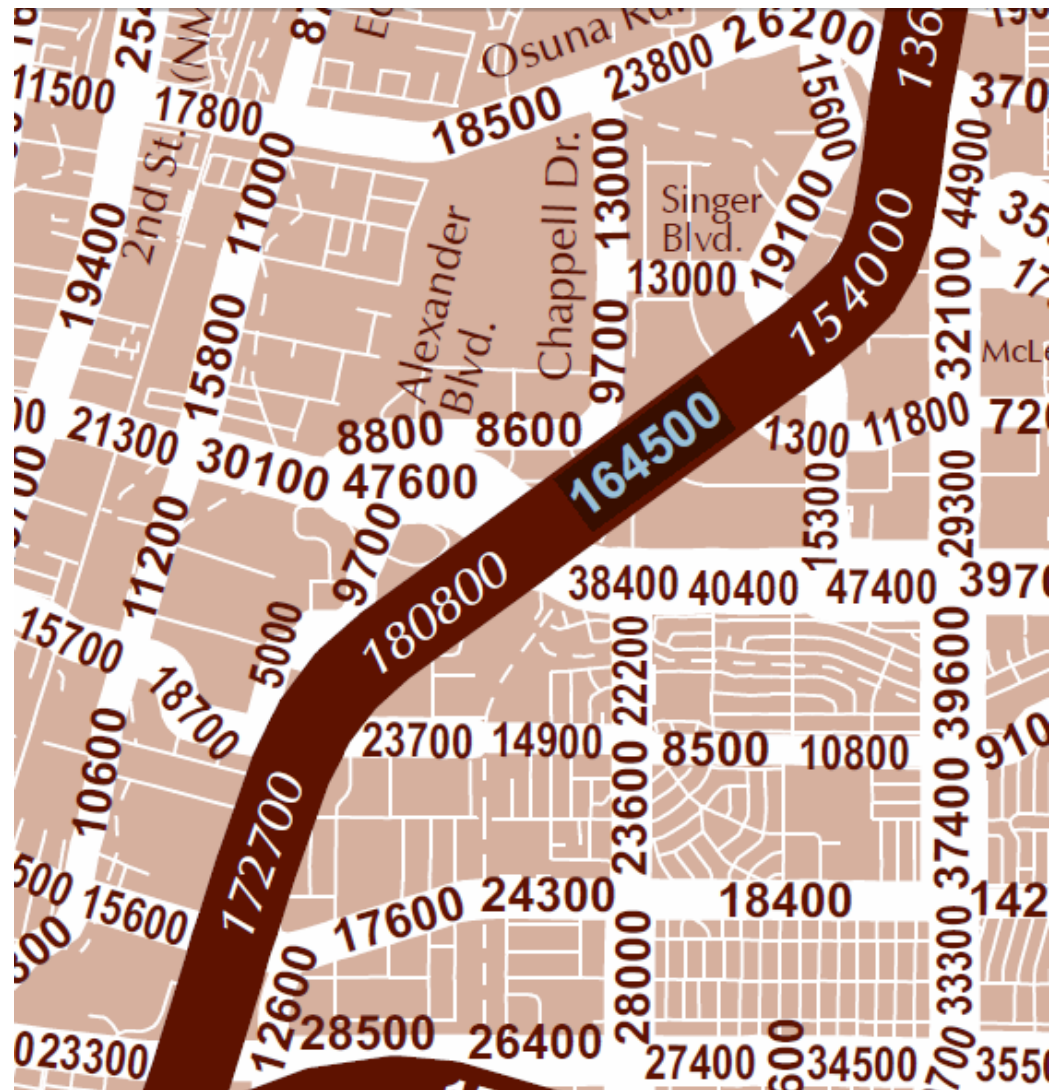
Site #5 NCore, (NO2 Reference)



Site #1 (Transept Site)



Site #1 Traffic





Questions?