

# Tom Brohard and Associates

June 6, 2013

Coalition for Safe and Sensible Zoning  
PO Box 60383  
Palo Alto, CA 94306

**SUBJECT: Review of the Proposed Development Project at 567-595 Maybell Avenue in the City of Palo Alto – Traffic/Circulation Issues**

Dear Coalition Members:

As requested, I, Tom Brohard, P.E., have reviewed the traffic and circulation portions of the May 9, 2013 Initial Study and Proposed Mitigated Negative Declaration (IS/MND) for the Proposed Project at 567-595 Maybell Avenue in the City of Palo Alto. I have also reviewed the April 23, 2013 and the May 31, 2013 Traffic Impact Analysis Reports (TIA) prepared by Hexagon Transportation Consultants and the Staff Report for the Proposed Project prepared for the May 22, 2013 Planning & Transportation Commission. In addition, I have reviewed portions of several documents available on the City of Palo Alto's website including Chapter 21 of the Municipal Code regarding Subdivisions, the "Public Works 2007 Standard Drawings and Specifications", and the "2012 Bicycle Pedestrian Transportation Plan".

Based on my review of these documents and as explained in detail in this letter, further study is required before the City of Palo Alto considers the Proposed Project to construct 15 single family homes and a 60 unit affordable rental project for seniors at 567-595 Maybell Avenue.

## **Education and Experience**

Since receiving a Bachelor of Science in Engineering from Duke University in Durham, North Carolina in 1969, I have gained over 40 years of professional engineering experience. I am licensed as a Professional Civil Engineer both in California and Hawaii and as a Professional Traffic Engineer in California. I formed Tom Brohard and Associates in 2000 and now serve as the City Traffic Engineer for the City of Indio and as Consulting Transportation Engineer for the Cities of Big Bear Lake and San Fernando. As shown on the enclosed resume, I have extensive experience in traffic engineering and transportation planning. During my career in both the public and private sectors, I have reviewed numerous environmental documents and traffic studies for various projects.

## **Traffic and Circulation Issues**

Based on the information provided in the May 9, 2013 IS/MND for the Proposed Project, the May 22, 2013 Staff Report, the May 31, 2013 TIA, and the other documents above, my review disclosed several significant issues relating to traffic and transportation. The IS/MND is currently inadequate and each of the

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following findings and comments must be addressed through further study and necessary modifications of the IS/MND, TIA and the Proposed Project before it is ready to be considered by the City Council:

- 1) TIA Fails to Follow Valley Transportation Authority Guidelines – The Santa Clara Valley Transportation Authority publishes “Transportation Impact Analysis Guidelines” for the Congestion Management Program, with the most recent edition adopted in March 2009. The City of Palo Alto is a Member Agency of VTA. Page 1 of this document states “These guidelines are intended to be used by Member Agencies as part of their regular process of evaluating land use decisions and may be viewed as a minimum scope for assessing transportation impacts.” It is my understanding that the City of Palo Alto has adopted and utilizes the VTA’s Guidelines for the analyses and the assessment of transportation impacts associated with development projects.

From my review of the May 31, 2013 “Traffic Impact Analysis for the Proposed Residential Development at Maybell Avenue and Clemo Avenue in Palo Alto, California” prepared by Hexagon Transportation Consultants, the following Guidelines have not been properly analyzed in the May 31, 2013 and earlier versions of the TIA for the Proposed Project:

- a) Some Traffic Counts Are Outdated – Page 26 of the VTA Guidelines states “The study should not use traffic volume data more than two years old.” From Appendix A to the May 31, 2013 Hexagon TIA, traffic counts of vehicles used as the bases for the study were made on April 5, 2011 in the AM peak hour at the intersections of El Camino Real/Arastradero Road/Charleston Road and at Arastradero Road/Coulombe Drive, and on April 5, 2011 during the PM peak hour at the intersection of El Camino Real/Arastradero Road/Charleston Road. These counts are now more than two years old. To properly evaluate current conditions at the CMP intersection of El Camino Real/Arastradero Road/Charleston Road and at the Arastradero Road/Coulombe Drive intersection, new peak hour turning movement counts must be made and reanalyzed in the different scenarios in the TIA to accurately establish a current baseline that captures traffic movement changes that have occurred in the last two years.
- b) Other Traffic Counts Require Adjustments – Page 26 of the VTA Guidelines states “The use of growth factors should be considered, if the traffic volume data is older than one year.” From Appendix A to the May 31, 2013 Hexagon TIA, traffic counts of vehicles used as the bases for the study were made on May 23, 2012 in the AM peak hour at the intersection of Arastradero Road/Coulombe Drive. This count is now more than one year old. To properly evaluate current conditions at this intersection, the AM peak hour turning movement counts must be adjusted for annual ambient growth and reanalyzed for the different scenarios in the TIA. In



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addition, all other traffic counts must be reviewed for seasonal traffic adjustments to bring the counts made in April, May, and August to a common seasonal baseline that reflects vehicle, pedestrian, and bicycle traffic on a day when the four local schools are in session.

- c) Bicycle and Pedestrian Traffic Must Be Counted – Maybell Avenue is identified as a “Safe Route to School”. City data for 2012 measured approximately 1,000 student bike riders to Gunn High School and Terman Middle School, two of the four local schools. Bicycle and pedestrian volumes were counted at Maybell Avenue/Coulombe Drive and at Maybell Avenue/Amaranta Avenue during both peak hours and Page 9 of the TIA states “...there are hundreds of pedestrians and bikes that use the Maybell corridor...” However, bicycle and pedestrian volumes were not counted during either the AM or PM peak hours at any of the other four intersections in the Hexagon TIA, thereby missing the school-related bicycle and pedestrian volumes in the AM peak hour at these four locations. Additionally and as discussed further below, the TIA did not analyze bicycle and pedestrian volumes at Maybell Avenue/Coulombe Drive and at Maybell Avenue/Amaranta Avenue, even though these volumes were counted at both of these intersections.
- d) Bicycle and Pedestrian Facilities Must Be Described – The Hexagon TIA does not fully describe either existing or planned bicycle and pedestrian facilities in the Project area as required by Page 28 of the VTA’s Guidelines which states:

“The following information shall be provided for the bicycle facilities within the project area:

- Bicycle paths, lanes, and routes as well as bike/pedestrian over and under crossings.
- A basic characterization of existing bicycling conditions in terms of safety and ease of access to the project site, including existing obstacles to accessing the site including but not limited to presence of bike lanes, narrow outside lanes, non-bicycle-proof drainage grates.
- Future planned or programmed bicycle improvements including, but not limited to, those facilities, routes, and programs in Member Agencies’ bicycle elements and trail plans.

The following information shall be provided for the project area’s pedestrian facilities:

- Pedestrian facilities in project area including sidewalks and other non-motorized connections and paths in project area (map).

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- A basic characterization of existing walking conditions in terms of safety, comfort and attractiveness. This description should include ease of access and barriers to transit.”

- e) Bicycle and Pedestrian Facilities Must Be Analyzed – The Hexagon TIA does not analyze bicycle and pedestrian facilities as required on Page 21 of the VTA’s Guidelines which states “Chapter 19 of the *Highway Capacity Manual 2000* or a similar methodology can be used for analysis of bicycle facilities. The TIA should include a description of the methodology being used as part of the analysis.” Page 21 also states “Chapter 18 of the *Highway Capacity Manual 2000* or a similar methodology can be used for analysis of pedestrian facilities. The Lead Agency should indicate and describe the methodology being used as part of this analysis.”

Page 42 of the VTA’s Guidelines states “The TIA Report must include an analysis of bicycle and pedestrian modes. The analysis must address project impacts on existing bicyclists and pedestrians as well as site development and associated roadway improvements on bike/pedestrian infrastructure and conformance to existing plans and policies.”

Even though bicycle and pedestrian facilities have not been properly studied, described, or analyzed, Page 38 of the May 9, 2013 IS/MND concludes a “Less than Significant Impact” to pedestrians and bicyclists. The TIA fails to provide any substantial evidence to support this conclusion.

- 2) Other TIA Errors and Omissions Must Be Corrected – In my review of the May 31, 2013 TIA prepared by Hexagon, I noted the following additional errors and omissions, each of which must be corrected before the Proposed Project is considered in order to properly analyze and mitigate potentially significant traffic and transportation impacts:

- a) Bicycle and Pedestrian Safety Must Be Analyzed – Maybell Avenue has been designated as a “Bicycle Boulevard” in the City’s “2012 Bicycle Pedestrian Transportation Plan”. A “Bicycle Boulevard” is defined on Page 3-19 as “Bicycle boulevards are signed, shared roadways with especially low motor vehicle volume, such that motorists passing bicyclists can use the full width of the roadway.” With 3,300 vehicles per day, Maybell Avenue is certainly not an “especially low motor vehicle volume” roadway. With the highly congested conditions associated with school arrivals, motorists passing bicyclists are certainly not able to “use the full width of the roadway” which is currently 31 feet wide according to the Conceptual Site Plan, Drawing C-2 shown in Attachment M, Section 3, to the May 22, 2013 Staff Report to the Planning & Transportation Commission. The existing narrow roadway on Maybell Avenue does not meet Standard 201,



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“Minimum Street Standards for Flat Areas”, of the City’s Public Works 2007 Standard Drawings and Specifications. As a local street, Maybell Avenue is required to have a 40’ wide curb to curb width.

Map 4-1 in the “2012 Bicycle Pedestrian Transportation Plan” shows 1-2 pedestrian collisions at the Project site on Maybell Avenue between 2004 and 2009 and Map 4-2 shows 1-3 bicycle collisions at the site on Maybell Avenue between 2004 and 2009. With the pedestrian and bicycle collision history, updating of the bicycle and pedestrian collision history on Maybell Avenue from 2009 to the present and further analyses are needed to update and evaluate the Bicycle Boulevard in this area and to consider other alternatives such as bicycle lanes.

The TIA must thoroughly evaluate bicycle and pedestrian safety along Maybell Avenue at the Project site. Without this study and without requiring additional right of way and street width from the Proposed Project, the City will forego future opportunities to make this a safer route for bicyclists and pedestrians.

- b) Trip Generation Calculations Use Outdated Data – The TIA utilizes trip generation rates published in 2008 by the Institute of Transportation Engineers (ITE) in the Trip Generation Manual, 8<sup>th</sup> Edition. In late 2012, ITE published the Trip Generation Manual, 9<sup>th</sup> Edition. Page 3 of the 9<sup>th</sup> Edition states “The ninth edition of *Trip Generation* has undergone several significant changes in content as compared to the eighth edition. Ten new land use classifications and data from more than 400 sites have been added.” With its recent publication of the 9<sup>th</sup> Edition, ITE has superseded the trip rates contained within the 8<sup>th</sup> Edition.

The May 31, 2013 Hexagon TIA used the Trip Generation Manual, 8<sup>th</sup> Edition published in 2008 by ITE. The TIA was prepared in 2013 and the trip rates from the Trip Generation Manual, 9<sup>th</sup> Edition published in late 2012 should have been used instead. The rates for Senior Attached Housing (Land Use Code 252) went up in the 9<sup>th</sup> Edition with the addition of two additional studies in the ITE database for this land use. Daily rates are now 3.44 trips per dwelling unit (not 2.20) with AM peak hour rate of 0.20 trips per dwelling unit (not 0.13) and with a PM peak trip rate of 0.25 trips per dwelling unit (not 0.16). Using the current trip rates from ITE indicates that the 60 unit senior housing portion of the Proposed Project will generate 206 daily trips (not 132 daily trips) with AM peak hour totals increasing from 8 to 12 and PM peak hour totals increasing from 10 to 15 for the Senior Adult Housing portion of the Proposed Project.

- c) Cumulative Impacts Have Not Been Properly Evaluated – Page 4 of the Hexagon TIA states “Cumulative without project traffic volumes were



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estimated by applying to existing traffic volumes an annual growth factor of 1.1 percent over a period between the date of the existing traffic counts and Year 2020.” There are several errors in this approach as follows:

- From the calculations in the TIA Appendices, the growth rate does not appear to have been applied to the traffic counts made in 2011 and in 2012 to increase them to existing Year 2013 conditions.
  - No substantial evidence has been presented in the TIA to support the assumed 1.1 percent annual growth rate between now and 2020.
  - For a proper analysis of baseline conditions in Year 2020, the addition of trips generated by all “reasonably foreseeable” development projects must also be added. These additional trips are those associated with projects that had been approved but were not fully built or occupied when the traffic counts were made in 2011 and 2012, trips associated with other recently approved projects, and trips associated with other “reasonably foreseeable” projects that may be built and occupied between now and Year 2020. Projects currently under construction include:
    - 174-guest hotel within approximately 100 feet of Arastradero Road (4214 El Camino Real).
    - 26 townhome and detached single homes complex, and 138-guest hotel less than a half a mile of Arastradero Road (4301 and 4329 El Camino Real).
    - 300,000 square feet expansion of VMware campus at Arastradero Road and Foothill Expressway.
    - 174,000 square feet Polytrauma and Blind Rehabilitation Center; 29-room guesthouse for visiting families; and starting construction in 2015, a 325,000 square feet Ambulatory Care Center at the Veterans Administration Hospital within a half of mile of Arastradero Road (3801 Miranda Avenue).
    - Recent completion of the expansion of Gunn High School for approximately 500 additional students (780 Arastradero Road).
- d) Traffic Signal Warrant Sheets Are Outdated – Pages 6 and 18 of the TIA reference the traffic signal warrants contained in the 2010 California Manual on Uniform Traffic Control Devices, and several of the traffic signal warrant sheets in the TIA Appendices even reference the Federal 2003 MUTCD. Over the last 10 years, there have been a number of revised publications including these (with each subsequent update superseding the prior publication) as follows:
- MUTCD 2003 California Supplement – Published May 20, 2004
  - California Manual on Uniform Traffic Control Devices – Published September 26, 2006

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- California Manual on Uniform Traffic Control Devices – Published January 21, 2010
  - California Manual on Uniform Traffic Control Devices 2012 Edition – Published January 13, 2012
- 3) Palo Alto Municipal Code Provisions Must Be Followed – The Subdivision Map Act in the California Government Code enables cities to adopt an Ordinance requiring dedication of real property for streets and other public easements (Section 66475). Other provisions of the Subdivision Map Act require that roadway improvements must be constructed and then be conveyed to the governmental agency. Palo Alto Municipal Code Chapter 21 “Subdivisions” essentially follows the provisions contained in the Subdivision Map Act regarding required right of way dedication and required construction of improvements.

As discussed in further detail below, additional right of way is required along the frontage of the Proposed Project on Maybell Avenue. The City of Palo Alto must require dedication of the necessary right of way from the Project applicant on Maybell Avenue as a condition of Project approval. The applicant must also construct the required street improvements and convey them to the City of Palo Alto. Finally, the internal private streets within the Proposed Project must also be constructed in accordance with the Palo Alto Municipal Code provisions as follows:

- a) Maybell Avenue Standards – The following provisions apply to Maybell Avenue across the frontage of the Proposed Project:
- Chapter 21.20.160 of the Palo Alto Municipal Code states “The street design shall conform both in width and alignment to any master plan of streets approved by the city council.”
  - Chapter 21.20.240(a) of the Palo Alto Municipal Code states “Streets shown in any master street plan or affected by proceedings initiated or approved by the city council shall have widths as required by such plan or proceedings.”
  - Chapter 21.20.240(b) of the Palo Alto Municipal Code states “All other streets shall have rights-of-way of the following widths, except where the city council determines that the topography or the small number of lots served and the probable future traffic development are such as to justify a narrowed width. Increased widths may be required where streets are to serve nonresidential property, or where probable traffic conditions warrant such increased widths.”
  - Chapter 21.20.240(b)(2) of the Palo Alto Municipal Code states “Collector streets, local streets, or cul-de-sac streets longer than three hundred fifty feet: sixty feet.”



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The City relies on the Public Works 2007 Standard Drawings and Specifications. Standard 201 shows the “Minimum Street Standards for Flat Areas”. Maybell Avenue is a local street and, as such, a 40’ wide curb to curb width is required within 60’ of right of way with 5’ wide sidewalks against the property line on both sides.

The Conceptual Site Plan for the Proposed Project (Drawing C-2 in Attachment M, Section 3 to the May 22, 2013 Staff Report to the Planning & Transportation Commission) shows Maybell Avenue as having a 31’ wide roadway within 40’ of right of way between Clemo Avenue and Abel Avenue and a 34’ wide roadway within 50’ of right of way from Abel Avenue to the north Project property line. The Conceptual Site Plan proposes to build a 5’ wide sidewalk across the Project frontage which appears to be on private property.

To meet the City’s Public Works 2007 Standard Drawings and Specifications and to comply with the Palo Alto Municipal Code provisions, a dedication of 10’ of right of way along the entire frontage of the Proposed Project is required together with widening the roadway to 20’ from centerline east and construction of a 5’ wide sidewalk at the property line. This will reduce the rear yard setbacks to the new homes down to 6.67’ or 7’, either of which may not be sufficient to comply with other provisions of the Palo Alto Municipal Code.

b) Internal Private Streets – The following provisions apply to the private streets within the Proposed Project:

- Chapter 21.20.240(b) (4) of the Palo Alto Municipal Code states “Streets serving five or more lots shall be no less than thirty-two feet wide.”
- Chapter 21.20.240(b) (4) (a) of the Palo Alto Municipal Code states “If a building adjacent to a private street has a setback of at least twenty feet between the street and building allowing on-site parking, then the width of the private street may be no less than twenty-six feet at the discretion of the Director of Planning and Community Environment and the City Council.”

The Conceptual Site Plan for the Proposed Project (Drawing C-2 in Attachment M, Section 3 to the May 22, 2013 Staff Report to the Planning & Transportation Commission) shows an 18 foot setback from the west side of the north/south private street to the front of the garages for eight single family homes that back up to Maybell Avenue on Lots 1 through 8. The 26 foot wide north/south private street does not meet the Palo Alto Municipal Code provision for a minimum 32 foot wide roadway serving eight single family lots.



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The Conceptual Site Plan for the Proposed Project (Drawing C-2 in Attachment M, Section 3 to the May 22, 2013 Staff Report to the Planning & Transportation Commission) shows an 2 foot setback from the south side of the east/west private street to the front of the garages for five single family homes that back up to Clemo Avenue on Lots 11 through 15. The 24 foot wide east/west private street does not meet the Palo Alto Municipal Code provision for a minimum 32 foot wide roadway serving five single family lots.

The Conceptual Site Plan for the Proposed Project (Drawing C-2 in Attachment M, Section 3 to the May 22, 2013 Staff Report to the Planning & Transportation Commission) shows a 20 foot wide north/south private street that provides access to the Proposed Project from Clemo Avenue. This private street does not meet the Palo Alto Municipal Code provision for a minimum 32 foot wide roadway serving 15 single family lots and the 60 unit Senior Adult Housing portion of the Proposed Project. In addition, the 20 foot wide single access for the Proposed Project from Clemo Avenue may not provide adequate width for access for emergency providers including police, fire, and ambulance services.

It is my opinion that, unless all of the issues identified in my findings and comments are adequately addressed through further study and/or modifications of the IS/MND, the TIA and/or the Proposed Project, the City cannot properly reach the conclusion that the project, including identified mitigations, will have no significant impact on traffic and circulation. In other words, without further study and/or modifications, the Proposed Project may have a significant effect on the traffic and circulation as well as pedestrian and bicycle safety.

If you have questions regarding these comments, please call me at your convenience.

Respectfully submitted,

**Tom Brohard and Associates**



Tom Brohard, PE  
Principal

Enclosure





## Tom Brohard, PE

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- Licenses:** 1975 / Professional Engineer / California – Civil, No. 24577  
1977 / Professional Engineer / California – Traffic, No. 724  
2006 / Professional Engineer / Hawaii – Civil, No. 12321
- Education:** 1969 / BSE / Civil Engineering / Duke University
- Experience:** 40+ Years
- Memberships:** 1977 / Institute of Transportation Engineers – Fellow, Life  
1978 / Orange County Traffic Engineers Council - Chair 1982-1983  
1981 / American Public Works Association – Life Member

Tom is a recognized expert in the field of traffic engineering and transportation planning. His background also includes responsibility for leading and managing the delivery of various contract services to numerous cities in Southern California.

Tom has extensive experience in providing transportation planning and traffic engineering services to public agencies. Since May 2005, he has served as Consulting City Traffic Engineer for the City of Indio. He also currently provides “on call” Traffic and Transportation Engineer services to the Cities of Big Bear Lake, Mission Viejo, and San Fernando. In addition to conducting traffic engineering investigations for Los Angeles County from 1972 to 1978, he has previously served as City Traffic Engineer in the following communities:

- Bellflower..... 1997 - 1998
- Bell Gardens..... 1982 - 1995
- Huntington Beach..... 1998 - 2004
- Lawndale..... 1973 - 1978
- Los Alamitos..... 1981 - 1982
- Oceanside..... 1981 - 1982
- Paramount..... 1982 - 1988
- Rancho Palos Verdes..... 1973 - 1978
- Rolling Hills..... 1973 - 1978, 1985 - 1993
- Rolling Hills Estates..... 1973 - 1978, 1984 - 1991
- San Marcos..... 1981
- Santa Ana..... 1978 - 1981
- Westlake Village..... 1983 - 1994

During these assignments, Tom has supervised City staff and directed other consultants including traffic engineers and transportation planners, traffic signal and street lighting personnel, and signing, striping, and marking crews. He has secured over \$5 million in grant funding for various improvements. He has managed and directed many traffic and transportation studies and projects. While serving these communities, he has personally conducted investigations of hundreds of citizen requests for various traffic control devices. Tom has also successfully presented numerous engineering reports at City Council, Planning Commission, and Traffic Commission meetings in these and other municipalities.

**Tom Brohard and Associates**



In his service to the City of Indio since May 2005, Tom has accomplished the following:

- ❖ Oversaw preparation and adoption of the Circulation Element Update of the General Plan including development of Year 2035 buildout traffic volumes, revised and simplified arterial roadway cross sections, and reduction in acceptable Level of Service criteria under certain constraints. Reviewed Riverside County's updated traffic model for consistency with the adopted City of Indio Circulation Plan.
- ❖ Oversaw preparation of fact sheets/design exceptions to reduce shoulder widths on Jackson Street over I-10 as well as justifications for protected-permissive left turn phasing at I-10 on-ramps, the first such installation in Caltrans District 8 in Riverside County; reviewed plans and provided assistance during construction of a \$1.5 million project to install traffic signals and widen three of four ramps at the I-10/Jackson Street Interchange under a Caltrans encroachment permit.
- ❖ Oversaw preparation of fact sheets/design exceptions to reduce shoulder widths on Monroe Street over I-10 as well as striping plans to install left turn lanes on Monroe Street at the I-10 Interchange under a Caltrans encroachment permit; reviewed plans to install traffic signals and widen three of four ramps at the I-10/Monroe Street Interchange.
- ❖ Reviewed traffic impact analyses for Project Study Reports evaluating different alternatives for buildout improvement of the I-10 Interchanges at Jefferson Street, Monroe Street, Jackson Street and Golf Center Parkway.
- ❖ Oversaw preparation of plans, specifications, and contract documents and provided construction assistance for over 40 traffic signal installations and modifications.
- ❖ Reviewed and approved over 600 work area traffic control plans as well as signing and striping plans for all City and developer funded roadway improvement projects.
- ❖ Oversaw preparation of a City wide traffic safety study of conditions at all schools.
- ❖ Prepared over 500 work orders directing City forces to install, modify, and/or remove traffic signs, pavement and curb markings, and roadway striping.
- ❖ Oversaw preparation of engineering and traffic surveys to establish enforceable speed limits on over 200 street segments.
- ❖ Reviewed and approved traffic impact studies for more than 25 major developments.
- ❖ Developed the Golf Cart Transportation Program and administrative procedures; implemented routes forming the initial baseline system.

Since forming Tom Brohard and Associates in 2000, Tom has reviewed many traffic impact reports and environmental documents for various development projects. He has provided expert witness services and also prepared traffic studies for public agencies and private sector clients.