

Application 06-12-005 *et al.*

Exhibit \_\_\_\_\_

Date: August \_\_\_\_, 2008

**PREPARED TESTIMONY  
OF  
ERIC R. OLSON**

**Q. Please state your name, professional position, and business address.**

A. My name is Eric R. Olson. I am Chief Project Officer for the Exposition Metro Line Construction Authority (“Expo Authority”). My business address is 707 Wilshire Boulevard, 34<sup>th</sup> Floor, Los Angeles, CA 90017.

**Q. Please describe your educational background and your professional qualifications.**

A. As Chief Project Officer for Expo Authority, I am responsible for overseeing the design, construction and startup of the agency’s implementation of the 14-mile \$2.1 billion Exposition Metro Line light rail project. I have more than 23 years of design and construction experience in light rail, heavy rail, commuter rail and highways.

Prior to joining the Authority, I was the Project Manager for the \$900 million extension of the Gold Line into East Los Angeles. In this role I was responsible for overseeing the design and construction for the surface running segment of the Project. Prior to that I was the Program Manager for the Gold Line Construction Authority where I oversaw the design, construction and startup of the \$725 million

design build light rail project running 17.7-miles from downtown Los Angeles to East Pasadena.

I have also been involved in the development, design and construction of a number of rail projects here in the United States, including Phase I of the Los Angeles Metrolink system, the New Jersey Transit Design/Build/Operate/Maintain Southern New Jersey Light Rail Transit line, and the Las Vegas Monorail.

I am a registered professional civil engineer in California and hold a Bachelor Degree in Civil Engineering from California Polytechnic at Pomona and a Masters Degree in Business Administration from the University of Southern California.

**Q. On whose behalf are you providing the present testimony?**

A. I am providing this testimony on behalf of Expo Authority.

**Q. Have you previously submitted testimony in this proceeding?**

A. Yes, I have. In prepared testimony associated with Expo Authority's Opening Brief, filed September 7, 2007, I provided an overview of the design of the Exposition Metro Line light rail project ("Expo Rail") and of the procedures that have been used to develop the detailed design for the project, especially the safety features of the numerous street and pedestrian crossings. In this context, I explained how Expo Authority stepped into the management of project design and construction that previously was the responsibility of the Los Angeles County Metropolitan Transportation Authority ("Metro") and how Expo Authority consulted and worked with other transportation agencies and local stakeholders to plan the various crossings. I developed those portions of Expo Authority's Opening Brief that addressed the general design and safety features of the Expo Rail project, described the process of

crossing design, and demonstrated compliance with all elements of the Commission's practicability standard with respect to the planned at-grade crossings.

**Q. What is the purpose of your present testimony?**

A. In the context of the scheduled evidentiary hearing regarding Expo Authority's still-pending requests for authorization of an at-grade crossing at Farmdale Avenue and a grade separated crossing above the Harvard pedestrian underpass, I am again presenting testimony to provide an overview of the procedures that have been used to develop the detailed design for the Expo Rail project, especially the safety features relevant to the still-pending applications. In this context, I will explain how Expo Authority consulted and worked with other transportation agencies, CPUC Rail Crossing and Engineering Section ("RCES") staff and local stakeholders to plan the various crossings. I will go on to show how these procedures have been applied to ensure the safety of the proposed crossings at Farmdale Avenue and the Harvard pedestrian underpass. I also will refer to relevant evidence that Expo Authority included in its recent Supplemental Information filing and will address Expo Authority's consideration of certain other options for the two proposed crossings.

**Q. Please summarize the general design and safety features of the Expo Rail project.**

A. The current Phase I of the Expo Rail project provides for construction along an 8.6 mile alignment from the 7<sup>th</sup> Street/Metro Center station in downtown Los Angeles to the Culver City station. For the alignment along Exposition Boulevard, Expo Rail will be constructed mainly at-grade but with aerial structures crossing La Brea Avenue, La Cienega Boulevard, Ballona Creek (including a crossing over Jefferson

Boulevard), and at Washington and National Boulevards (to accommodate the addition of an aerial Culver City station at the alignment's western terminus). There are also several existing grade separations along the alignment, one of which is the Harvard pedestrian underpass in the vicinity of Foshay Learning Center.

Along this alignment, Expo Rail will employ two different modes of operation. Consistent with CPUC General Order 143 (Section 9.04), Expo Rail will have semi-exclusive (traffic signal protected and gate protected) and exclusive (grade-separated) segments. All crossings in the semi-exclusive segment are either signal or gate protected. The traffic signal protected semi-exclusive segments of the project include track along Exposition Boulevard from the west end of Exposition Park to Gramercy Place, including the at-grade crossings at Western Avenue and Denker Avenue in the vicinity of Foshay Learning Center. The gate protected semi-exclusive segment of the project runs from Gramercy Place to and including Farmdale Avenue, with the exception of Crenshaw Boulevard, which is traffic signal protected.

At the traffic signal protected crossings, all vehicular and pedestrian movements, including left turns, are regulated by traffic signals (red/yellow/green), and dedicated train signals (lunar white bar indications) are provided for train operations. Train operations are given traffic signal priority and operate at up to 35 miles per hour, which also is the posted speed limit for vehicular traffic. In addition to the traffic signal protection, enhanced safety features have been included at each intersection that include: train actuated light emitting diode ("LED") warning signs to give warning of approaching trains to motorists and pedestrians, a photo red light enforcement system for left turns across the tracks, and signing and striping in

conformance with California Public Utilities Commission (“CPUC”) General Orders, the Manual of Uniform Traffic Control Devices, and City of Los Angeles requirements.

The gate-protected semi-exclusive operating segment will include automatic train protection signaling with cab signals. All of the gated crossings use state of the art safety technology, which includes four-quadrant CPUC standard gates, pedestrian and swing gates, flashing lights and audible warning devices, active LED “TRAIN” signs warning of approaching trains, standard City of Los Angeles traffic signals, and active LED no-left or no-right turn signs where appropriate to regulate conflicting turn movements and median islands. Train operations will preempt traffic signals and train speed will be up to a maximum of 55 miles per hour.

Additional details about train operations in each of these operating modes were provided in Section III of our Opening Brief.

**Q. Please describe the procedures that were employed for designing crossings along the Expo Rail route.**

A. As noted in Section IV of Expo Authority’s Opening Brief and in my prior testimony, the choice between at-grade and grade separated crossings for each street intersection or pedestrian pathway has been based on the Metro Grade Crossing Policy for Light Rail Transit (“Metro Grade Crossing Policy”), which was adopted by the Metro Board in December 2003. The Metro Grade Crossing Policy identifies and addresses the principal concerns related to crossing safety and provides a uniform approach for making the choice between grade separation and at-grade crossings.

The Metro Grade Crossing Policy follows a three-phase process of initial screening, detailed analysis, and verification. The initial screening relies on traffic volume and train frequency to sort crossings into at-grade, grade separated, and “further analysis required” categories. Crossings in the last category are subject to detailed analysis, considering intersection geometry, queuing, intersection level of service, and other issues. These crossings then are assigned a preliminary disposition as either at-grade or grade separated. In the verification phase more detailed data may be compiled in consultation with the Commission’s RCES staff and local stakeholders, leading to final determinations for design and construction purposes.

Application of the Metro Grade Crossing Policy to all crossings along the Expo Rail alignment led to grade separations at Flower Avenue/Exposition, Figueroa Avenue/Exposition, La Brea Avenue, La Cienega Boulevard, and Venice Boulevard (configuration of the Venice Boulevard grade separation is subject to final alignment of the extension of the line). The distance required to either ascend or descend at a grade separation required four additional streets to be grade separated. The proximity of Pardee Way to Figueroa/Exposition required the trench be extended through Pardee Way; Jefferson Boulevard abuts Ballona Creek and required the bridge to extend over Jefferson Boulevard; and the close proximity of Washington and National Boulevards to Venice Boulevard required the alignment to bridge over these two streets. Application of the new Grade Crossing Policy also produced recommendations for specific safety enhancements, including signals, gates, pre-signaling and preemption for track clearance, queue controls, and channelization measures.

The initial configurations of all the crossings, whether at-grade or grade separated, were included as part of the Draft Environmental Impact Statement/Environmental Impact Report (“EIS/EIR”) that was circulated for public comment from mid-April through mid-June, 2001. The Final EIS/EIR (“FEIS/FEIR”), revised to include and respond to public comments, was certified by the Metro Board in December 2004 and the Federal Transit Administration adopted its Record of Decision in February 2005.

Once Expo Authority took over responsibility for project design and began developing applications for Commission authorization of various at-grade crossings, Expo Authority employed a “Field Diagnostic” process for each of the planned crossings. The Field Diagnostic Team included engineers and safety personnel from Expo Authority, Metro, the Transportation Department of the City of Los Angeles (“LADOT”), and the Commission’s RCES staff. This team analyzed each of the proposed crossings and recommended changes and improvements to the design and operation of the crossing for safety as well as efficiency.

These stakeholders, as well as others with interests in particular crossings were included as part of the development of the CPUC grade crossing applications and the subsequent final design process for those crossings. Expo Authority coordinated its safety design work for crossings in the vicinity of public schools with Los Angeles Unified School District (“LAUSD”) and with administrators at affected schools in the vicinity of the Expo Rail route, including Dorsey High School and Foshay Learning Center. A series of regular working meetings were held in an effort to enhance grade crossing safety measures at school-related crossings and to help explain the process of safety training for students and school personnel.

**Q. What measures have been employed to enhance the safety of the proposed at-grade crossings?**

A. A primary objective in planning and design for the Expo Rail project has been to ensure the safety of vehicles and pedestrians. Safety features differ between signalized crossings in the street-running portion of the Expo Rail alignment and the gated crossings along the semi-exclusive portions of the route. Safety devices and strategies for the signalized crossings include the following:

- Transit priority signal operation;
- Program visibility signal heads for through movement parallel to rail;
- “Train” LED signs on mast arms for vehicles on all approaches;
- Fully protected left-turn phasing;
- Photo red-light enforcement for left-turns crossing tracks;
- All-red signal phase to ensure safe timing;
- Pedestrian push buttons and pedestrian count down signals;
- Tactile warning strips at curb ramps.

For gated at-grade crossings, the following devices and strategies are among the prominent safety features:

- Median island to separate traffic and place gates on wide streets;
- Four-quadrant (quad) gates to ensure safety of vehicles;
- Standard CPUC No. 9 gates with flashing signal and pedestrian gates;
- Pedestrian swing gates;
- Transit pre-emption with up to 20-seconds of advance pre-emption;
- “No Left-Turn” and “No Right-Turn” LED signs across the tracks;



- Pedestrian channelization and closure pipe-railing, where appropriate;
- Pedestrian push buttons and count-down pedestrian signals;
- Tactile warning strips at curb ramps.

In addition to the features noted above, all the signalized intersections will be modernized with new signal equipment and street lighting, and the signals will become part of the City of Los Angeles' Automated Surveillance and Control System ("ATSAC"). One feature of ATSAC is that video surveillance cameras will be strategically located all along the Expo Rail corridor for the safe and efficient operations of the signalized intersections with at-grade crossings. Expo Authority also will be working with Metro and LAUSD to develop a comprehensive safety education program, and with Metro, the Los Angeles Police Department, and the LA County Sheriff's Department to implement an enhanced enforcement program.

**Q. Would you please detail the process the Expo Authority followed in development and submittal of the grade crossing applications to the CPUC for Farmdale Avenue near Dorsey High School and for Harvard Boulevard near the Foshay Learning Center?**

A. For Expo Rail, the CPUC process started in November 2004, when the CPUC informed Metro that a Grade Crossing Hazard Analysis was needed for the project. This process involved analyzing safety issues associated with each proposed crossing and determining the safest way to operate a crossing. The process took over 18 months to complete and included input from safety experts at Metro, RCES, and LADOT. Upon completion of the Preliminary Hazard Analysis, a Field Diagnostic Team was assembled to review the unique characteristics of each crossing to

determine the appropriate safety protection measures to use. As noted above, this team included safety experts from Expo Authority, Metro, RCES and LADOT. The team completed the diagnostic review in November of 2006, at which point Expo Authority began to prepare and submit applications to the CPUC.

Expo Authority filed the first eight of ten applications between December 2006 and March 2007. One of these applications covered all the grade separated crossings on the Project, including the Harvard pedestrian underpass at Foshay Learning Center. Due to the unique nature of application No. 9, the Farmdale Avenue crossing near Dorsey High School and application No. 10, the at grade crossings near Exposition Park, Expo Authority required additional time for analysis and coordination of these filings, which were made in May 2007.

**Q. Please describe the designs and documentation Expo Authority has submitted to the CPUC for the Farmdale Avenue and Harvard Pedestrian Tunnel grade crossings.**

A. The Harvard pedestrian underpass was included as part of Application 06-12-020, which was submitted in December 2006. Excerpts from Application 06-12-020 relevant to the Harvard pedestrian underpass were submitted as Item H-1 in Expo Authority's Supplemental Information filing of March 28, 2008 ("Supplemental Information Filing). The application requested approval to construct a concrete bridge over this existing pedestrian tunnel in front of Foshay Learning Center and included an exhibit that depicted the structure type that would be used. The application did not address operation of the underpass, which is managed by LAUSD.

The Farmdale Avenue at-grade crossing was proposed by Application 07-05-013, which was submitted in May 2007. Relevant excerpts from Application 07-05-013 were submitted as Item F-1 in Expo Authority's Supplemental Information Filing. The grade crossing protection outlined in the application included installation of a fully signalized intersection at both Exposition Blvd./Farmdale Ave. and Exposition Blvd. South/Farmdale Ave. in lieu of the current stop sign control. The crossing is gated and the traffic signals are pre-empted when a train approaches the intersection. The improvements at this crossing include four quadrant vehicular gates, pedestrian gates, swing gates, along with bells and flashers. The safety features for gated crossings that I outlined earlier in my testimony have been incorporated into this crossing.

In addition, because the grade crossing abuts Dorsey High School and several hundred students cross the tracks each day going to and from school, the design process for Farmdale considered additional safety enhancements. Expo Authority did detailed field analysis and pedestrian simulations to determine the best solution to safely pass students from one side of the tracks to the other. The results of this analysis yielded a grade crossing safety protection approach that was customized to manage the 550 students who cross the track leaving school between 3:00 and 3:15 p.m. The particular safety features designed for this crossing included relocating an existing driveway 50 feet to the south to better accommodate school drop-off and pick-up and to allow for the creation of a pedestrian plaza that serves as a queuing area during times that the pedestrian crossing gates are down and a train is passing. In addition, a pedestrian plaza was created on the north side between the LRT guideway and the street to queue students waiting for a green light in order to cross

Exposition Boulevard. The proposed layout also calls for a widening of the sidewalk from 8 feet to 12 feet at the northwest corner of Exposition Blvd. and Farmdale Avenue.

Expo Authority detailed the technical analysis through collaborative efforts with LADOT, LAUSD, Metro and RCES staff in developing the concepts and designs for both crossings. Expo Authority's Opening Brief and Reply Brief, as well as Expo Authority's Response of October 9, 2007, to the ALJ's Ruling Requesting Further Information, summarized and explained the safety features provided for these crossings, and Expo Authority's Comments and Reply Comments on the Proposed Decision of ALJ Koss, filed in December 2007, provided further details about plans for the Harvard pedestrian underpass, including City-approved engineering plans for the proposed concrete bridging structure. Relevant excerpts from these briefs and comments were submitted as Items F-2, F-3, F-4, H-2, H-3, H-5, and H-6 in Expo Authority's Supplemental Information Filing.

At the direction of ALJ Koss, Expo Authority submitted in March 2008 a detailed Supplemental Information Filing, including many documents relevant to the two pending applications in DVD format. This Supplemental Information Filing not only provided the documentation I have discussed above, but also included detailed technical analysis for each of the two crossings along with an evaluation of options to the grade crossing configurations currently proposed for CPUC approval. As I continue with my testimony, I will make further reference to materials in this Supplemental Information Filing .

**Q. Over the course of these proceedings, there have been a number of discussions regarding an Expo Board action requesting staff to study options to the proposed at-grade crossing at Farmdale Avenue and to have an environmental consultant prepare an Environmental Analysis for these options. Is that correct?**

A. In November 2007, the Expo Authority Board of Directors (“Expo Board”) directed its staff to study grade separation alternatives at Farmdale Avenue. A number of options were evaluated, including pedestrian over and undercrossings with Farmdale both open and closed to vehicular traffic, along with an aerial and underground grade separated LRT guideway. The results of that study were presented to the Expo Board in December 2007. The respective Board Item can be found in the Supplemental Information Filing as Item F-13. The staff recommendation that the Board approved was to proceed with further analysis of the at-grade proposal and of two other options: a pedestrian overcrossing with Farmdale Avenue closed to vehicular traffic and an LRT aerial guideway.

In February 2007, the Board authorized staff to execute a task order with the environmental consulting firm ICF Jones & Stokes (“Jones & Stokes”) to begin an environmental analysis of the current at-grade crossing, along with a pedestrian overcrossing with Farmdale closed to vehicular traffic, an LRT overcrossing, an LRT undercrossing and other reasonable alternatives. A summary of these alternatives is included in our Farmdale Supplemental Information filing under item F-22.

As a result of this Board direction, staff has initiated the environmental studies of the four indicated options with Jones & Stokes in parallel with pursuing approval of the at-grade application currently before the CPUC. Expo Authority remains

committed to the at-grade crossing at Farmdale Avenue, which was approved with respect to environmental aspects as part of the FEIS/EIR for the Project. Expo Authority continues to believe the at-grade proposal provides a safe solution for crossing pedestrians, vehicles, and trains.

Expo Authority commissioned the Jones & Stokes evaluation of the environmental impacts of options to an at-grade solution in order to advance Expo Authority's planning in the event the CPUC does not approve an at-grade crossing. Any change from the at-grade crossing currently pending before the CPUC will require additional environmental analysis and approvals with respect to additional redesign and construction impacts. Expo Authority staff has estimated that delay of the Project will cost approximately \$1,000,000 a month. Initiating the environmental analysis of options in parallel with pursuit of approval of the at-grade Farmdale crossing will minimize delay costs to the Project in the event the CPUC does not approve the at-grade option.

**Q. Please briefly describe the principal safety measures that are included in Expo Authority's detailed design for the Farmdale Avenue crossing?**

A. First, I want to mention that currently, when school lets out, the mix of vehicles and students along Farmdale Avenue appears quite chaotic and potentially dangerous. The video clip depicting the mixing of pedestrian and vehicular traffic that occurs at the close of school days at the Farmdale Avenue intersection, which was provided as Item F-12 in the Supplemental Information Filing, vividly illustrates the current situation. Expo Authority believes that the additional safety devices proposed

for this crossing will create a more manageable and safer process for students when arriving and leaving school.

The grade crossing as designed includes the creation of a fully signalized intersection that provides standard signal protection for all traffic movements including left turns, along with state of the art protection equipment, consisting of 4-quadrant gates to prohibit vehicles from going around the crossing, pedestrian crossing gates and swing gates, gated and fenced queuing areas along both sides of the guideway that provide a protected storage area for pedestrians when trains go by. In addition, provision is made for both active and passive signage that warns both vehicles and pedestrians of on-coming trains. A descriptive and graphic summary of the proposed grade crossing protection features can be found in Items F-10 and F-11 of our Supplemental Information Filing. The protections at this grade crossing are all in accordance with CPUC General Order 143 and represent the “state of the art” in grade crossing engineering.

Expo Authority has developed a model that provides a virtual simulation of what the area of the Farmdale Ave./Exposition Blvd. will look like, with trains and vehicles in operation, after these features have been installed. This “virtual simulation” is included as Item F-8 in our Supplemental Information Filing of March 28, 2008.

Due to the unique circumstances at the Farmdale crossing, Expo Authority developed detailed field data to determine the peak periods and volume of students who cross the right-of-way during the day. After compiling the field data, we determined that the peak pedestrian period occurs between 3:00 and 3:15 when Dorsey High School adjourns for the day. We used this information to perform a

detailed analysis using a pedestrian simulation model. The model and corresponding results are included in the Supplemental Information Filing as Items F-7 and F-9. Our consultant, Legion, has done similar simulations for large venues both here in the United States and around the world and their representative, Nick Conner, is providing testimony to these facts and to discuss the details of the model and what Legion's studies reveal about pedestrian behavior both at the Farmdale crossing and in the vicinity of the Harvard pedestrian underpass and the Foshay Learning Center.

**Q. What is the basis for your confidence in the safety features planned for the Farmdale crossing?**

A. One of the most important features of the safety warning devices included in the design of the Farmdale at-grade crossing is the use of four-quadrant gates and pedestrian swing gates to warn and deter drivers and pedestrians crossing the rails even while the devices are deployed. We have had very good experience with the performance of these safety devices on the Pasadena Gold Line and a number of crossings of this type are in the vicinity of schools, as depicted in Items F-19 and F-21 of our Supplemental Information Filing.

The safety of the Farmdale crossing will be further enhanced by relocating the high school's driveway further south away from the intersection of Farmdale and Exposition Boulevard, through the widening of sidewalks on the west side of the intersection, and by the use of positive devices – electronic signals, gates and railings – all designed to provide the maximum level of assurance that students and other pedestrians will pay attention to the approaching trains and wait until they pass before crossing the tracks.



**Q. What are your views about the value for safety purposes of slowing down the Expo Rail trains as they approach and pass through the Farmdale crossing during the time of day that most students are arriving and leaving Dorsey High School?**

A. Slowing the trains to 10 mph would allow the operator to stop the vehicle in less than 25-feet. Although I believe the current at-grade crossing design is safe, given the discussions about grade separating this crossing due to some people's anticipation that students will not obey the warning devices, I believe slowing the trains during the periods students are arriving and leaving school provides a more reasonable and practicable alternative to grade separation. Operating at low speed during these periods of high pedestrian use will give the train operator a better opportunity to stop the train if someone has entered the LRT guideway illegally.

**Q. Do you have any other recommendations in this regard?**

A. Recognizing that education is a key component of safety efforts, I recommend implementing on-going programs designed to inform and educate the students at the adjacent high school of safe behaviors around railroad crossings and the dangers associated with not obeying the warning devices. In addition to the engineering and educational components already included in the proposed strategy for ensuring the safety of the Farmdale Avenue crossing, I recommend deploying targeted enforcement at this crossing by law enforcement personnel during the morning and afternoon peak school times and when special events are expected to generate significant pedestrian traffic. This targeted enforcement effort would be funded on an ongoing basis from Metro's overall budget for security services.

**Q. What options for the Farmdale Avenue crossing has the Assigned Commissioner directed for consideration in the forthcoming evidentiary hearing?**

A. The Scoping Memo and Ruling of the Assigned Commissioner, issued October 16, 2007, set for consideration in this evidentiary hearing whether the proposed Farmdale Avenue crossing should be grade-separated for vehicles and pedestrians, grade separated only for pedestrians with vehicles crossing at grade, or at grade for all traffic as proposed in Application07-05-013, and directed the parties to address the practicability of these alternative crossing configurations. More recently, during the telephonic prehearing conference held May 6, 2008, the Assigned Commissioner and the ALJ directed Expo Authority to address just three options for Farmdale in its prepared testimony: the at-grade proposal, the pedestrian overpass option with Farmdale closed to vehicular traffic, and an LRT aerial structure.

**Q. Has Expo Authority already presented evidence relevant to the Farmdale options set for consideration in this evidentiary hearing?**

A. Yes, we have. Expo Authority's Application 07-05-013, filed in May 2007, presented a summary account, on pages 8-9 of the Application, of the planning and design of the proposed at-grade crossing at Farmdale Avenue, and Exhibit B to that Application presents the detailed design of the proposed crossing and its safety features in graphic form. In addition, Expo Authority's opening and reply briefs presented detailed information about the planning process for this and other crossings along the Expo Rail route, applied the Commission's practicability standard

to this and other crossings, and provided a detailed analysis of the safety issues and solutions implemented for the Farmdale crossing. With regard specifically to the Farmdale crossing, I would refer you particularly to the discussion at pages 16-18 of Expo Authority's reply brief, included in Item F-3 of the Supplemental Information Filing.

**Q. Are you familiar with the seven elements of the Commission's practicability standard for consideration of proposals for at-grade crossings on light rail systems, as specified in Decision 07-12-029 in this proceeding?**

A. Yes, I am.

**Q. With regard to the proposed Farmdale crossing, I'd like you to discuss the seven issues listed in Decision 07-12-029. The first of these considerations is a demonstration that there is a public need for the crossing.**

A. There can be no doubt about the need for a crossing of the Expo Rail right-of-way at Farmdale Avenue. As was stated in Expo Authority's opening brief, at page 40, Expo Authority and the City of Los Angeles Department of Transportation, LADOT, jointly reviewed the possibility of closing Farmdale Avenue. This review indicated a relatively high level of vehicular traffic across Exposition Boulevard at Farmdale and showed that closing Farmdale and diverting that traffic to other streets would cause adverse traffic congestion and delays. It was also indicated that a pedestrian crossing is needed at Farmdale to accommodate Dorsey High School students going to and from school.

**Q. The next consideration relevant to the Commission’s practicability standard is a convincing showing that Expo Authority has eliminated all potential safety hazards. Has Expo Authority made a convincing showing in that regard?**

A. Yes, it certainly has. As I have previously stated, the identification and mitigation of safety hazards at this and all the at-grade crossings planned for Phase 1 of Expo Rail have been under development since November of 2004 beginning with the development of the Preliminary Grade Crossing Hazard Analysis (“PHA”), which was then followed by Field Diagnostic Reviews. The PHA and the Field Diagnostic Reviews involved a collaborative effort that included not only the Expo Authority, but Metro, LADOT and RCES. These efforts lead to the development of state of the art grade crossing protection measures along with new and improved traffic and pedestrian control devices. In addition, detailed data collection and modeling of pedestrian flows was done to incorporate unique safety features at this crossing that included the introduction of pedestrian plazas that are used as queuing areas for pedestrians.

**Q. The next consideration relevant to the Commission’s practicability standard is the concurrence of local community and emergency authorities. Have those authorities concurred in Expo Authority’s plans for an at-grade crossing at Farmdale Avenue?**

A. Yes. The at-grade crossing concept has been discussed and accepted by nearly all local community and emergency authorities. The Project has a Fire Life Safety Committee that includes representatives from City of Los Angeles Fire and

Police. Each of these agencies, which serve the area, are aware of the at-grade design and have expressed no reservations. The at-grade crossing layout was also closely coordinated with the City of Los Angeles Department of Transportation, LADOT, who were responsible for developing the traffic signal, signing and striping scheme shown in Exhibit B of the application. The at-grade concept also was closely coordinated with the CPUC's RCES staff, who also found the at-grade solution acceptable. We believe the acceptance of the at-grade solution is borne out by the fact that none of these community authorities protested the at-grade crossing concept.

I acknowledge that LAUSD has lately expressed objections to the at-grade crossing proposal for Farmdale Avenue and has become a party to this proceeding to pursue its concerns. I must say, however, that LAUSD's opposition has come as a surprise to Expo Authority, especially in view of the fact we had established a working group with LAUSD and had spent a number of months working through the at-grade alternative, along with the fact that LAUSD is currently building schools adjacent to the Eastside extension of the Gold Line, as indicated by Items 19 and 20 of Expo Authority's Supplemental Information Filing.

**Q. The next consideration relevant to the Commission's practicability standard is the opinions of the general public, specifically those who may be affected by an at-grade crossing at Farmdale Avenue. Please discuss public opinion in regard to the at-grade crossing.**

A. In the course of developing detailed design plans for the Expo Rail project, Expo Authority and predecessor agencies have received a great deal of public input,

in the form of correspondence, community meetings, comments on environmental review documents, and many other ways. Our plans for stations, crossings, and other aspects of the project have been revised in many respects in response to such public input. That goes especially for the Farmdale Avenue crossing, where Expo Authority has worked closely with LADOT, LAUSD, the principal and other representatives of Dorsey High School, and members of the local community, to enhance the safety of our plans and to facilitate smooth operation of the crossing for pedestrians, motor vehicles, and trains. We have attended a number of meetings at Dorsey High School to brief parents, teachers, and administrative staff during and after the development of the at-grade crossing concept. The concept we are proposing has met with very limited opposition from this group.

**Q. In applying the Commission's practicability standard, the next consideration is the comparative costs of an at-grade crossing with a grade separation. Please address this issue.**

A. As Expo Authority explained in its opening brief and its response of October 9 to ALJ Koss's request for further information, the options for grade separation at Farmdale Avenue are very limited and very costly. Raising or lowering Farmdale Avenue across the tracks would eliminate its function as an interchange for traffic to and from Exposition Boulevard. Depressing the tracks below Farmdale would require some 3,200 feet of underground construction, including special construction considerations associated with two large storm drains; one adjacent to the LRT right-of-way and the other crossing the LRT right-of-way at Farmdale. Raising the tracks above Farmdale would require an aerial structure some 1,500 feet in length.

The cost of running the tracks either above or below the present intersection of Farmdale Avenue with Exposition Boulevard would be very high – adding at least \$28 million for an aerial alternative and upwards of \$100 million for a below grade alternative to the cost of the Expo Rail project. In addition, the 18 to 30 month delay associated with incorporating either grade separation alternative would add another \$18 to \$30 million in delay costs.

**Q. The next consideration relevant to the Commission’s practicability standard is the Staff’s recommendation, including any conditions. Has the Commission’s Rail Crossings Engineering Section – RCES – staff opposed, or proposed any conditions on, Expo Authority’s plans for the Farmdale Avenue crossing?**

A. As I stated previously, we have worked closely with RCES staff during the development of the Farmdale Avenue at-grade crossing and they do not oppose it. RCES Staff participated actively in the hazard analysis and diagnostic team processes that were followed in planning the Farmdale crossing and contributed ideas to the design effort. While RCES protested one of Expo Authority’s applications – a protest that was eventually withdrawn after design changes were made – RCES did not protest Application 07-05-013 for the Farmdale crossing. RCES has taken the position that they want the grade crossing bells to sound for the entire duration that the gates are down, while the application proposes silencing the bells once the gates reach the down position. We are prepared to meet this requirement if so desired by the Commission.

**Q. The last consideration relevant to the Commission's practicability standard is Commission precedent in factually similar crossings. Do you have any information to provide in that regard?**

A. Yes, I do. Based on my previous experience working as Program Manager during the construction of the Los Angeles to Pasadena Gold Line and more recently as Project Manager for the \$900 million extension of the Gold Line into East Los Angeles, I have observed the Commission's authorization of numerous at-grade rail/street crossings in the vicinity of public schools. In fact, both the Pasadena Gold Line and the East Los Angeles Gold Line Extension have schools adjacent to the guideway alignment that have been approved by CPUC and there was no opposition from LAUSD or the community at-large. The SEEDS school in South Pasadena, along the Gold Line, has functioned without incident and LAUSD is currently building a new high school and reconfiguring an existing high school (Ramona High School), adjacent to the East Los Angeles Gold Line extension. In addition, there are numerous elementary and high schools in close proximity to both alignments and, in many cases, in close proximity to at-grade crossings that the Commission approved without all of the supplemental protections that are included in the design of the Farmdale Avenue at-grade crossing.

**Q. You mentioned earlier other grade separated crossing options that were studied at Farmdale, can you summarize these.**

A. As stated previously, we looked at a number of grade separated options and a number of these were eliminated from consideration. The grade separated options that we have looked at in more detail and are in the process of evaluating from a



CEQA perspective include a pedestrian overcrossing with Farmdale Avenue closed to vehicular traffic, a pedestrian overcrossing with Farmdale Avenue left open to vehicles, an LRT overcrossing, and an LRT undercrossing.

**Q. Can you discuss the Pedestrian Overcrossing option with Farmdale Avenue closed to vehicular traffic and any issues associated with this option.**

A. This option would install a pedestrian overcrossing that bridges over Exposition Boulevard., the LRT right-of-way and the existing driveway into Dorsey High School. This option would separate pedestrians from both train and vehicular traffic. Access to the overcrossing would be provided via stairs along with an elevator for ADA compliance. In order to maximize safety by ensuring that pedestrians use the pedestrian overcrossing and not cross at street level, this option entails closing Farmdale Avenue to vehicular traffic by installing a wall or fence across the street. The closing of Farmdale Avenue would be subject to an acceptable traffic mitigation study. Our estimated cost for this option is approximately \$8 million, which is about \$6.5 million more than the cost of the proposed at-grade crossing. Detailed cost information can be found in Item F-14 in our Supplemental Information Filing. Also, we estimate that the additional time for environmental work, design and construction associated with incorporating this option into the Project would result in a delay of up to 12 months and would result in another \$12 million in overall Project costs specifically due to that delay.

As I mentioned, the most problematic issue with this option is the rerouting of traffic due to the closure of Farmdale Avenue. Mr. Okazaki will speak to the details of this in his testimony. In general, the preliminary traffic results have indicated that the

closure of Farmdale would create a significant adverse impact at a number of intersections. Expo Authority is working to identify mitigations that can be implemented to reduce these impacts to less than significant. If this cannot be done, one option would be not to close off Farmdale to vehicular traffic.

**Q. Please explain the option of a Pedestrian Overcrossing with Farmdale Avenue left open for vehicles.**

A. Because of concern that it may not prove possible to mitigate traffic impacts of closing Farmdale Avenue to vehicular traffic sufficiently to avoid the possibility of significant environmental impacts, Expo Authority also has considered the option of constructing a pedestrian overcrossing while keeping Farmdale Avenue open for vehicles. This option would not significantly affect vehicular traffic flows and so would avoid that problem. It would, however, require careful consideration and implementation of pedestrian safety measures that will keep pedestrians from using the street to cross at-grade in lieu of using the overcrossing.

**Q. Please discuss the LRT Overcrossing option and any associated issues.**

A. The LRT Overcrossing option would separate trains from vehicles by providing a bridge over Farmdale Avenue. The bridge would be approximately 20-feet above Farmdale Avenue and the ascent and descent to grade would be supported on Mechanically Stabilized Earth (MSE) walls that would extend 700-feet in length on both sides of Farmdale Avenue. The structure must be designed in a manner that will minimize loading on a 14.5' X 19' storm drain box that would run along the south side of the LRT right-of-way. The specialized construction methods associated with mitigating loading on the storm drain box would require an earth stabilization system

similar to the one being used for the La Brea aerial structure. This specialized construction increases the time and costs associated with building this bridge. Our estimate for the incorporation of the LRT Overcrossing into the Project is approximately \$28 million. The detailed cost data can be found in Item F-14 of our Supplemental Information Filing. Also, the additional environmental work, design, and construction required for this option would result in up to an 18-month delay, which would result in an additional \$18 million in Project costs specifically due to the delay.

Other considerations with the LRT Overcrossing option are the adverse historic resource, visual, and construction air quality impacts. Mr. Lisceki will speak to these issues in more detail as part of his testimony, but at this time it appears that the adverse historic resource, visual, and construction air quality impacts associated with this option cannot be mitigated to a less than significant level.

**Q. Please discuss the LRT Undercrossing option and any associated issues.**

A. The LRT undercrossing option consists of lowering the LRT guideway so that it passes underneath Farmdale Avenue. The construction of such an undercrossing is complicated by the storm drain box adjacent to the LRT right-of-way that I discussed above, and there is another large 10.5' X 13' storm drain box that runs down the center of Farmdale at a depth of about 30 feet. To avoid the storm drain along Farmdale would require the trench to be over 50-feet deep, along with special construction considerations to protect the storm drain adjacent to the LRT right-of-way. To reach the 50-foot depth would require the trench to descend and ascend 1,600 feet to the east and west of Farmdale Avenue. Due to the trench depth and the

complications associated with the construction, the estimated cost of the trench is approximately \$100 million. The cost detail for this option can be found in Item F-14 of the Supplemental Information Filing. Also, the additional environmental work, design and construction required for the LRT Undercrossing option will result in up to 30 months of delay, which will add approximately an additional \$30 million in Project delay costs.

Another consideration with the LRT Undercrossing option is the adverse impact on construction air quality. Mr. Lisecki will speak to this issue in more detail as part of his testimony, but it appears that the adverse construction air quality impact associated with this option cannot be mitigated to a less than significant level.

**Q. Can you describe the process that Expo Authority followed in the development of the proposal for a crossing of the Harvard pedestrian underpass.**

A. Given the fact that the Harvard pedestrian underpass was an existing grade separated facility and Expo Authority was not requesting any modification to the pedestrian tunnel or to its current mode of operation, the process was fairly straight forward. Our Application 06-12-020 simply requested approval to construct a concrete bridge over this existing facility See Item H-1 in the Supplemental Information Filing.

**Q. What is the proposed bridge over the Harvard pedestrian underpass and how will it impact the existing tunnel.**

A. We are actually building an independent bridge structure under our LRT guideway which will allow the trains to pass over the existing pedestrian underpass without imposing any additional load. The structural approach is to use a single span bridge over the tunnel supported on each side of the tunnel by piles. The piles transfer the loading from the trains to points below the existing underpass structure. The Harvard pedestrian underpass is a facility owned by the City of Los Angeles and the structural plans for the Expo Rail crossing have been approved by the City's Bureau of Engineering. See Items H-17 and H-18 of the Supplemental Information Filing for the details and structural calculations supporting the design of the LRT bridge.

**Q. You mentioned earlier that the proposed crossing above the Harvard pedestrian underpass would not affect the current operations of the underpass. Can you explain how the Harvard pedestrian underpass is currently operated?**

A. Although the underpass is owned by the City, it is currently operated by LAUSD and is only open for a brief period of time when students are arriving for school and then again when school lets out. During the times the underpass is open it is supervised by parent volunteers. At all other times of the day and on weekends the tunnel gates are closed and locked.

**Q. In connection with the planned LRT operations, what safety measures are proposed to assist pedestrians in safely crossing the tracks in the vicinity of Foshay Learning Center.**

A. The LRT right-of-way runs in the median of Exposition Blvd. in this vicinity. Westbound traffic on Exposition Blvd. abuts the northerly LRT right-of-way and the eastbound traffic abuts the southerly LRT right-of-way. As part of the Project, all the existing street crossings between Denker and Western Avenues will be closed. Although there are no current public crossings in this area, there has been a potential for jaywalking. Expo Authority's current plans provide for the installation of a 10-foot non-scalable fence along both sides of the LRT right-of-way between Denker Avenue and the westbound Western Avenue station platform. See Item H-14 of the Supplemental Information Filing for details and photographs of the proposed fencing. The installation of the fence will effectively prevent any jaywalking in this area, effectively enhancing the safety of the present situation.

As I stated previously, we are not planning on altering the current operation of the Harvard pedestrian underpass; therefore, during most hours of the day and week, pedestrians and students will cross the LRT right-of-way at the signal controlled intersections at Western Avenue/Exposition Blvd. and Denker Avenue/Exposition Blvd. as they do today. The current traffic signal systems at Denker and Western Avenues will be replaced and will include all the safety features I mentioned earlier in my testimony with respect to signal-controlled crossings – including provisions for protected left turn movements that are currently not in place. The CPUC approved both the Western Avenue and Denker Avenue at-grade crossings in Decision 07-12-029.

**Q. Has Expo Authority taken steps to ensure that the authorized at-grade crossings at Western Avenue and Denker Avenue, in the context of limited**

**availability of the Harvard pedestrian underpass, will operate safely for school children coming and going in the vicinity of Foshay Learning Center?**

A. Yes. In order to ensure that this configuration works, Expo Authority conducted a pedestrian simulation through our consultant Legion. Nick Connor from Legion will speak to the details of this analysis as part of his testimony. Generally, the analysis looked at the peak pedestrian period from 3:20pm to 3:50pm when school lets out and 1,040 pedestrians cross the streets in the vicinity of Foshay. As currently operated, the pedestrian simulation presumed the Harvard pedestrian underpass being open during this time. The pedestrian analysis determined that the proposed intersections and pedestrian paths functioned safely. See Items H-8, H-9, H-10 and H-11 of the Supplemental Information Filing for details on the existing conditions near Foshay and the pedestrian model analysis.

To further analyze pedestrian safety in the event that the Harvard pedestrian underpass was not available for use even during the peak periods, Expo Authority commissioned Legion to model the pedestrian movements under this scenario. This analysis is provided as an Exhibit accompanying Mr. Conner's testimony. Again, Mr. Conner will speak to the details of this pedestrian model, but the results showed that the Western Avenue intersection functioned safely and that with a 3-foot widening of the sidewalk over 20-feet at Denker Avenue, the Denker Ave. intersection will operate safely as well.

The use of signal protected grade crossings in the vicinity of schools has been approved by the CPUC on other rail projects and has been implemented safely. Los Angeles Trade Tech College on the Long Beach Blue Line has a similar type crossing in front of the school. On the Eastside Extension of the Gold Line, LAUSD

is currently constructing two high schools adjacent to the Gold Line tracks with traffic signal controlled pedestrian CPUC-approved crossings that are similar to those being implemented in the vicinity of Foshay Learning Center. See Items H-15 and H-16 for examples of schools functioning and being constructed in the vicinity of light rail lines.

**Q. Please discuss the option of a Pedestrian Overcrossing in lieu of the current Harvard pedestrian underpass.**

A. From a technical standpoint, a pedestrian overcrossing could be built in the same location as the present underpass. The overcrossing would be 125-feet long and would span both eastbound and westbound Exposition Blvd. and the LRT guideway. The overcrossing would be located approximately 20-feet above grade and access to the bridge would be via stairs and an ADA compliant elevator located on Foshay Learning Center property and on a currently vacant residential parcel that would have to be purchased. The costs for the pedestrian overcrossing would be in the range of \$5 to \$8 million. In addition, choice of this option could entail as much as a 6-month delay, which would add an additional \$6 million in delay costs.

In my opinion the technical problems are secondary to the question whether a pedestrian overcrossing is needed in lieu of the existing facility. As demonstrated in the pedestrian analysis performed by Legion, the area functions safely with the pedestrian underpass operated as it is today. Further, the Legion analysis determined that the underpass could be closed permanently and the area still could function safely for pedestrians simply by widening a 3' X 20' section of sidewalk at the Denker intersection. In summary, the pedestrian underpass functions safely as operated today and extended hours of operation are not required for the Denker and



Western Avenue intersections to function safely. Given these results, it is my opinion that the additional costs associated with constructing a pedestrian overcrossing are not warranted.

**Q. Do you have anything further that you wish to add?**

A. Yes, I believe Expo Authority has demonstrated that a tremendous amount of analysis and collaboration has gone into the development of the Harvard pedestrian underpass and Farmdale Avenue at-grade crossing applications that are now pending decision by the CPUC. The structural approach to bridge over the existing pedestrian tunnel, which is the current application, has been approved by the owner of the tunnel, the City of Los Angeles. Expo Authority also has demonstrated through extensive pedestrian data gathering and simulations that the intersections and pedestrian pathways in the vicinity of Foshay Learning Center will function safely either with the tunnel operated as it is today or with the tunnel closed. Accordingly, there is no reasonable basis for the CPUC not to authorize Expo Authority to construct the concrete bridge over the Harvard pedestrian underpass and to operate light rail vehicles on rails constructed across that bridge.

Development of plans for the Farmdale Avenue crossing went through extensive coordinative efforts with the City of Los Angeles and RCES staff. The analysis has demonstrated that this at-grade crossing has been equipped with state-of-the-art grade crossing warning devices and signing and can operate in a safe manner. In addition, Metro has stated a willingness to slow the trains to 10 mph, which will allow the trains to stop within 25-feet, and Metro has stated they would be

willing to post security guards during the period that school lets out to further ensure safety at the grade crossing.

The signalized grade crossing protection in the vicinity of Foshay Learning Center and the state-of-the-art equipment planned to be used for the gated pedestrian crossing at Dorsey High School have been proven to operate safely in the vicinity of schools. For example, the student path from bus drop-off to Blair High School in Pasadena requires students to cross the tracks of the Pasadena Gold Line at the gated Glenarm crossing, which they are able to do without significant risk of harm. See Items F-19 and F-21 of our Supplemental Information Filing. LAUSD is building two new schools adjacent to the Eastside Extension of the Gold Line, which have identical pedestrian protection systems to those being proposed for Foshay. See Supplemental Information Filing, Item H-16. The grade crossing solutions the Commission has authorized for the intersections near Foshay and that Expo Authority has proposed for Farmdale Avenue are well tested and well proven to be safe.

**Q. Does this conclude your testimony, Mr. Olson?**

A. Yes, it does.